

The Genus *Aphelandra*
(Acanthaceae)

Dieter C. Wasshausen



SMITHSONIAN INSTITUTION PRESS

City of Washington

1975

ABSTRACT

Wasshausen, Dieter C. The genus *Aphelandra* (Acanthaceae). *Smithsonian Contributions to Botany*, number 18, 157 pages, 56 figures, frontispiece, 1975.— The purpose of this study is to discuss, in an orderly fashion, all of the known and recognized species of *Aphelandra*, so that botanists in the future may be able to identify their collections of the genus and detect further undescribed species. The genus was proposed in 1810 by Robert Brown to include three disjunct species of *Justicia*. The only comprehensive treatment of the genus appeared in 1847, when Nees von Esenbeck published a total of 47 species in 3 genera, two of which are in synonymy. As a result of the present study, in addition to the 31 newly described species, 167 taxa (165 species and 2 varieties) are considered as adequately describing the entities in this genus. The range of the genus extends from southern Mexico to northern Argentina and Brazil, being conspicuously absent in the West Indies. It is found at elevations between sea level and 4000 meters, in extremely local distribution in virgin forests. *Aphelandra*, one of the larger genera of the family Acanthaceae, is completely void of cystoliths, the familiar character by which most acanthaceous plants are recognized. Its flowering spikes are often large and beautifully colored, even to the bracts and bractlets, and in certain species variegated or colored leaves occur. Important characters in the genus that link large series of species are the presence or absence of spiny interpetiolar bracts; of teeth, spiny or otherwise, on the margins of the leaf blades or flower bracts; and of ocelli on the flower bracts. These plants are, as a rule, widely scattered and are often only sparingly floriferous. Intergrades between species are unknown, and species represented by more numerous collections exhibit very few pronounced variations in appearance or in essential characters.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. SI PRESS NUMBER 5069. SERIES COVER DESIGN: Leaf clearing from the katsura tree *Cercidiphyllum japonicum* Siebold and Zuccarini.

Library of Congress Cataloging in Publication Data

Wasshausen, Dieter C.

The genus *Aphelandra* (Acanthaceae)

(Smithsonian contributions to botany, no. 18)

Supt. of Docs. no.: SI 1.29: 18.

Bibliography: p.

1. *Aphelandra*. I. Title. II. Series: Smithsonian Institution. Smithsonian contributions to botany, no. 18.

QK1.S2747 no. 18 [QK495.A1655] 581'.08s [583.81] 74-3108

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price \$2.80 (paper cover)

Contents

	<i>Page</i>
Introduction	1
History	2
Pollen	3
Phytochemistry Data	4
Alphabetical List of <i>Aphelandra</i> Species	5
List of Illustrated Species	6
<i>Aphelandra</i> R. Brown	7
Key to the Species of <i>Aphelandra</i>	8
1. <i>A. runcinata</i> Klotzsch ex Nees	15
2. <i>A. porphyrocarpa</i> Leonard	17
3. <i>A. acanthus</i> Nees	18
4. <i>A. eurystoma</i> Mildbraed	19
5. <i>A. kolobantha</i> Lindau	20
6. <i>A. huilensis</i> Leonard	20
7. <i>A. acanthifolia</i> Hooker	21
8. <i>A. reticulata</i> Wasshausen	22
9. <i>A. cinnabarina</i> Wasshausen	22
10. <i>A. tillettii</i> Wasshausen	23
11. <i>A. grangeri</i> Leonard	23
12. <i>A. euopla</i> Leonard	24
13. <i>A. phaina</i> Wasshausen	25
14. <i>A. chrysantha</i> Wasshausen	25
15. <i>A. rusbyi</i> Britton	26
16. <i>A. rubra</i> Wasshausen	27
17. <i>A. dasyantha</i> Wasshausen	27
18. <i>A. juninensis</i> Wasshausen	28
19. <i>A. superba</i> Lindau	28
20. <i>A. benoistii</i> Wasshausen	29
21. <i>A. cirsioides</i> Lindau	30
22. <i>A. formosa</i> (Humboldt & Bonpland) Nees	30
23. <i>A. mutisii</i> Leonard	31
24. <i>A. luyensis</i> Lindau	32
25. <i>A. wurdackii</i> Wasshausen	32
26. <i>A. weberbaueri</i> Mildbraed	33
27. <i>A. mucronata</i> (Ruiz & Pavón) Nees	34
28. <i>A. crispata</i> Leonard	34
29. <i>A. peruviana</i> Wasshausen	35
30. <i>A. castanifolia</i> Britton	36
31. <i>A. viscosa</i> Mildbraed	36
32. <i>A. lyrata</i> Nees	37
33. <i>A. cuscoensis</i> Wasshausen	38
34. <i>A. macrosiphon</i> Lindau	38
35. <i>A. inaequalis</i> Lindau	38
36. <i>A. hieronymi</i> Grisebach	39
37. <i>A. longibracteata</i> Lindau	40
38. <i>A. lamprantha</i> Leonard	40
39. <i>A. dukei</i> Wasshausen	41
40. <i>A. impressa</i> Lindau	41
41. <i>A. deppiana</i> Schlechtendal & Chamisso	42
42. <i>A. storkii</i> Leonard	46
43. <i>A. lasia</i> Leonard	47
44. <i>A. hylaea</i> Leonard	47
45. <i>A. chamissoniana</i> Nees	48
46. <i>A. ornata</i> (Nees) T. Anderson	50
47. <i>A. sulphurea</i> Hooker	50
48. <i>A. nemoralis</i> Nees	51
49. <i>A. phrynioides</i> Lindau	52

	<i>Page</i>
50. <i>A. ignea</i> (Schrader) Nees ex Steudel	53
51. <i>A. obtusifolia</i> (Nees) Wasshausen, new combination	53
52. <i>A. tridentata</i> Hemsley	54
53. <i>A. dunlapiana</i> Standley & L. O. Williams	54
54. <i>A. aurantiaca</i> (Scheidweiler) Lindley	55
54a. <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>aurantiaca</i>	56
54b. <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>stenophylla</i> Standley	58
54c. <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>nitens</i> (Hooker) Wasshausen, new combination	58
55. <i>A. heydeana</i> Donnell Smith	59
56. <i>A. guerrerensis</i> Wasshausen	60
57. <i>A. flammea</i> Wasshausen	60
58. <i>A. arnoldii</i> Mildbraed	61
59. <i>A. tonduzii</i> Leonard	61
60. <i>A. seibertii</i> Leonard	62
61. <i>A. neesiana</i> Wasshausen, new name	62
62. <i>A. bahiensis</i> (Nees) Wasshausen, new combination	63
63. <i>A. obtusa</i> (Nees) Wasshausen, new combination	64
64. <i>A. goodspeedii</i> Standley & Barkley	64
65. <i>A. maculata</i> (Tafalla ex Nees) Voss	65
66. <i>A. silvicola</i> Leonard	66
67. <i>A. maximiliana</i> (Nees) Bentham	66
68. <i>A. ferreyrae</i> Wasshausen	67
69. <i>A. tessmannii</i> Mildbraed	67
70. <i>A. mollis</i> (Nees) Leonard	68
71. <i>A. quadrifaria</i> Leonard	68
72. <i>A. fosbergii</i> Leonard	69
73. <i>A. parviflora</i> Leonard	69
74. <i>A. ochrolarynx</i> Leonard	70
75. <i>A. rigida</i> Glaziou ex Mildbraed	70
76. <i>A. caput-medusae</i> Lindau	71
77. <i>A. botanodes</i> Leonard	71
78. <i>A. decorata</i> (Nees) Wasshausen, new combination	72
79. <i>A. adscendens</i> Leonard	72
80. <i>A. fasciculata</i> Wasshausen	73
81. <i>A. aristei</i> Leonard	74
82. <i>A. trianae</i> Leonard	74
83. <i>A. xanthantha</i> Leonard	75
84. <i>A. sericantha</i> Leonard	75
85. <i>A. fernandezii</i> Leonard	76
86. <i>A. sinclairiana</i> Nees	77
87. <i>A. grandis</i> Leonard	78
88. <i>A. darienensis</i> Wasshausen	78
89. <i>A. garciae</i> Leonard	79
90. <i>A. straminea</i> Leonard	80
91. <i>A. micans</i> Moritz ex Vatke	80
92. <i>A. taborensis</i> Leonard	81
93. <i>A. attenuata</i> Wasshausen	82
94. <i>A. crenata</i> Leonard	82
95. <i>A. lingua-bovis</i> Leonard	83
96. <i>A. chaponensis</i> Leonard	84
97. <i>A. hartwegiana</i> Nees ex Bentham	85
98. <i>A. scolnikae</i> Leonard	86
99. <i>A. pharangophila</i> Leonard	86
100. <i>A. barkleyi</i> Leonard	87
101. <i>A. pulcherrima</i> (Jacquin) Humboldt, Bonpland, & Kunth	88
102. <i>A. mildbraediana</i> Leonard	92
103. <i>A. pilosa</i> Leonard	92
104. <i>A. macrophylla</i> Leonard	93
105. <i>A. terryae</i> Standley	94
106. <i>A. albert-smithii</i> Leonard	95

	<i>Page</i>
107. <i>A. gracilis</i> Leonard	96
108. <i>A. dielsii</i> Mildbraed	96
109. <i>A. blandii</i> Lindau	97
110. <i>A. haughtii</i> Leonard	98
111. <i>A. tetragona</i> (Vahl) Nees	98
112. <i>A. schieferae</i> Leonard	99
113. <i>A. parvispica</i> Leonard	100
114. <i>A. macrostachya</i> Nees	101
115. <i>A. kingii</i> Wasshausen	102
116. <i>A. boyacensis</i> Leonard	102
117. <i>A. colorata</i> (Vellozo) Wasshausen, new combination	103
118. <i>A. claussenii</i> Wasshausen, new name	103
119. <i>A. hintonii</i> Wasshausen	104
120. <i>A. blanchetiana</i> (Nees) Hooker	104
121. <i>A. variegata</i> Morel	105
122. <i>A. speciosa</i> T. S. Brandegee	106
123. <i>A. flava</i> Nees	106
124. <i>A. hirta</i> (Klotzsch) Wasshausen, new combination	107
125. <i>A. martiusii</i> Wasshausen, new name	108
126. <i>A. squarrosa</i> Nees	108
127. <i>A. nephoica</i> Wasshausen	110
128. <i>A. andrei</i> Leonard	110
129. <i>A. campii</i> Wasshausen	111
130. <i>A. acrensis</i> Lindau	111
131. <i>A. diachyla</i> Leonard	112
132. <i>A. marginata</i> Nees & Martius	112
133. <i>A. nuda</i> Nees	113
134. <i>A. tomentosa</i> Lindau	113
135. <i>A. hapala</i> Wasshausen	114
136. <i>A. colombiensis</i> Lindau ex Leonard	114
137. <i>A. steyermarkii</i> Wasshausen	115
138. <i>A. lasiophylla</i> Leonard	116
139. <i>A. limbatifolia</i> Lindau	116
140. <i>A. pinarotricha</i> Leonard	116
141. <i>A. verticillata</i> Nees ex Hemsley	117
142. <i>A. latibracteata</i> Wasshausen	118
143. <i>A. montis-scalaris</i> Lindau ex Pilger	118
144. <i>A. stephanophysa</i> Nees	118
145. <i>A. madrensis</i> Lindau	119
146. <i>A. lineariloba</i> Leonard	120
147. <i>A. jacobinioides</i> Lindau	120
148. <i>A. phlogea</i> Leonard	121
149. <i>A. guayasii</i> Wasshausen	121
150. <i>A. lawranceae</i> Leonard	122
151. <i>A. arisema</i> Leonard	123
152. <i>A. galba</i> Wasshausen	123
153. <i>A. diffusa</i> Wasshausen	123
154. <i>A. cuatrecasatii</i> Leonard	124
155. <i>A. prismatica</i> (Vellozo) Hiern	125
156. <i>A. paulensis</i> Wasshausen	126
157. <i>A. liboniana</i> Linden ex Hooker	127
158. <i>A. bradeana</i> Rizzini	128
159. <i>A. dodsonii</i> Wasshausen	128
160. <i>A. conformis</i> Leonard	129
161. <i>A. dolichantha</i> Donnell Smith	129
162. <i>A. ameleta</i> Leonard	130
163. <i>A. gigantiflora</i> Lindau	130
164. <i>A. alexandri</i> Leonard	131
165. <i>A. schiedeana</i> Schlechtendal & Chamisso	132
References	133
Figures 1-56	135



Aphelandra mucronata (Ruiz & Pavón)
Nees. (From Ruiz and Pavón, 1798,
I: 8, pl. 10, representing *Justicia*
mucronata Ruiz & Pavón.)

The Genus *Aphelandra* (Acanthaceae)

Dieter C. Wasshausen

Introduction

During the course of routine identifications of the family Acanthaceae from South America, any attempt to determine specifically the material of the genus *Aphelandra* under present consideration proved very unsatisfactory. As a result of this and because of the inadequacy of many of the original descriptions, as well as types or authentic material, the author decided to monograph this large neotropical genus.

The genus *Aphelandra* belongs to the subfamily Acanthoideae, tribe Aphelandreae. Its nearest relative is probably the Old-World genus *Crossandra*, consisting of about 50 species from Africa and Asia. In *Crossandra*, the upper lip is absent or the corolla is dorsally deeply clefted, whereas in *Aphelandra* the upper lip is present. In the New World, *Aphelandra's* nearest relative is the genus *Stenandrium*, distinguished from *Aphelandra* in that it is usually a subcaulescent or acaulescent herb, with short non-imbricate bracts, a narrowly cylindrical, rarely enlarging corolla tube, and a slightly two-lipped corolla with subequal, spreading lobes.

Aphelandra, one of the larger genera of the family Acanthaceae, is completely void of cystoliths, the familiar character by which most acanthaceous plants are recognized. Its flowering spikes are often large and beautifully colored, even to the bracts and bractlets, and in certain species variegated or colored leaves occur. Because of this and the nectar-yielding,

proterogynous flowers, ornithophily (hummingbirds) and possibly myrmecophily are important factors in the pollination systems of these shade plants.

Important characters in the genus, which link large series of species, are the presence or absence of spiny interpetiolar bracts, of teeth, spiny or otherwise, on the margins of the leaf blades or flower bracts, and of ocelli on the flower bracts. These ocelli may be represented by one to several rather large oval brownish or blackish glands plainly visible under a lens or even to the unaided eye, or again they may be very numerous and minute, visible only under a high magnification. Without the aid of high magnification, these minute ocelli appear as more or less irregular dark alveolar areas on the floral bracts.

In one large group of species, the *pulcherrima-tetragona* complex, the lower lip of the corolla initially appears to be entire and seems to consist of a single segment. A careful examination will, however, reveal two small lateral lobes, adnate to the basal portion of the upper lip with only their tips free and appearing as small rounded or triangular projections.

Because of their tropical nature and scarcity, little is known about the cytology of the genus. Diploid chromosome numbers have been reported for four cultivated species, as follows (in Bolkhovskikh et al., 1969): *A. aurantiaca* and *A. chamissoniana*, $2n = 28$, reported by Y. Takizawa in 1957; *A. cristata* (= *A. tetragona*), $2n = 68$, reported by Narayanan in 1951; and *A. fulgens* (= *A. deppeana*), $2n = 56$, reported by M. Pal in 1964.

The genus is of little economic importance. Some of the species have beautiful and conspicuous flowers and bracts and are sometimes found in cultivation. In

Dieter C. Wasshausen, Department of Botany, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

spite of their attractiveness, however, most of these are difficult to raise, thrive only in greenhouses, and even there require special care.

The range of the genus *Aphelandra* extends from southern Mexico to northern Argentina and Brazil. No specimens of the genus are found in the West Indies. Like most Acanthaceae, they are of extremely local distribution in undisturbed forests and are rarely collected in secondary growth. This pronounced endemism explains why so many of the species are still known only from the original collection, and some may never be found again. Moreover, many collections have been made in the vicinity of settlements and along mountain and stream trails whereas relatively few collections have come from uninhabited forests, which are the preferred habitats of the family. Even within suitable areas the plants are, as a rule, widely scattered and often only sparingly floriferous. As a result of this rarity, only a relatively small number of the species are represented in any one herbarium.

As far as I could ascertain, the species of *Aphelandra* are apparently not in a very plastic state. Intergrades between species are unknown, and even species represented by more numerous collections exhibit very few pronounced variations in appearance or in essential characters.

The actual rarity of the species can be shown by considering those known from Brazil. In 1847, Nees von Esenbeck in Martius' *Flora Brasiliensis* described 20 new species for that country. Of those, 12 are still known today only from the type-specimen. For that reason, as an aid to rapid identification, I have inserted geographic data in the key.

No attempt has been made here (except for a brief discussion to indicate some of the possible relationships of novelties to allied species) to consider the phylogeny of the species. Additional exploration and extensive field work is needed to complete my knowledge of the genus. The purpose of this monograph is to discuss, in an orderly fashion, all of the known and recognized species of *Aphelandra*, so that botanists in the future may be able to identify their collections of the genus or use the key to detect further undescribed species.

I wish to extend my sincerest thanks and appreciation to Drs. Lyman B. Smith and Kittie F. Parker for their time and helpful assistance in directing my research and in checking the manuscript. Dr. John J. Wurdack deserves my special thanks for generously

sharing with me his vast neotropical experience and in selecting for my study several critical loans from European herbaria.

In addition to the extensive collections of the United States National Herbarium, Smithsonian Institution, I have studied numerous collections from many European and American herbaria. These herbaria are cited in abbreviations, according to Lanjou and Stafleu's code in *Index Herbariorum*, after each collector's number. To the curators and keepers of the institutions mentioned in this work, I wish to acknowledge my deep appreciation.

History

The genus *Aphelandra* was proposed by Robert Brown in his *Prodromus of the Flora of New-Holland* in 1810 under *Justicia* to include the following species: *Justicia pulcherrima* Jacquin, *J. scabra* Vahl, and *J. cristata* Jacquin.

One of the first species to be scientifically recorded was *A. pulcherrima*, collected by Nicolaus Joseph von Jacquin near Cartagena, Colombia, and published by him in 1762 as *Justicia pulcherrima*. In 1821 Schrader introduced the name *Synandra* for *S. ignea* in order to accommodate a Brazilian collection made by Maximilian Prinz zu Wied-Neuwied. Rafinesque founded the genus *Amathea* in 1838, based on Jacquin's *J. pulcherrima*. His characteristically contracted diagnosis is as follows (Rafinesque, 1838:65):

989. AMATHEA Raf. cal. 5 part. cor. ringens, tubo, compr. faux ampliate, galea erecta bifida, lab. 3 fid. medio major lanc, deflexa. Stam. 4 subeq. frutic. fl. spic. bract.—Type *Am. pulchra* Raf. *Justicia* do Jacq. pict. 259.

Probably Rafinesque never saw any of the plants concerned but rather founded his new genus on the illustration and description of Jacquin.

The genus *Strobilorrhachis* was established by Klotzsch (1839) upon two species, *S. glabra* and *S. hirta* Klotzsch. He (1841) distinguished the genus from *Aphelandra* as not having didynamous stamens and the presence of a staminode. He further distinguished the genus as having long highly colored spikes, quadrifariously imbricated bracts, and a campanulate corolla throat. Nees von Esenbeck, the foremost student in his time of the Acanthaceae, accepted *Strobilorrhachis* in his treatment of this family (in Martius, 1847). He further added that the stigma here was compressed, funnel-shaped and two-

lobed, whereas in *Aphelandra* it was simply two-toothed. In 1891, Joseph Dalton Hooker, in Curtis' *Botanical Magazine* rejected the new genus, stating that the characters upon which it was distinguished were neither clear nor constant. He showed the stigma of *S. blanchetiana* Nees (= *A. blanchetiana*) to be funnel-shaped, but quite entire, proving that this organ varies considerably in the genus.

The genus *Hydromestus* was established by Scheidweiler (1842a) for an introduced cultivar, *H. maculatus* Scheidweiler, erroneously attributed to Mexico. He did not distinguish his new genus from *Aphelandra*, Nees (1847a:291) citing the species without any explanation under his new genus *Lagochilium*. Similarly, Scheidweiler (1842b) published a second genus, *Hemisandra*, based on plants grown in the Jardin Botanique de Bruxelles in the year 1839 from seeds procured from Mexico. John Lindley (1845), transferred this new genus to *Aphelandra*, without having seen Scheidweiler's publication, stating that the type-species (*H. aurantiaca* Scheidweiler) could not be distinguished from other well-known species of *Aphelandra*.

Still another genus, *Lagochilium*, was proposed by Nees (in Martius, 1847). He distinguished his new genus from *Aphelandra* by its nearly regular corolla limb and by its generally herbaceous nature. It seemed to be intermediate between *Aphelandra* and *Stenandrium*. Six species were initially described by Nees. The first of these *L. maximilianum* Nees, by virtue of its being illustrated, was chosen by Leonard (1953:127), as the type-species. Anderson (1864) regarded the two previously treated distinct genera, *Lagochilium* and *Aphelandra*, as congeneric and consequently united them under *Aphelandra*. Both Bentham and Hooker (1876) and Lindau (in Engler and Prantl 1895) agree with Anderson in recognizing only the genus *Aphelandra*.

Nees (1847a) further distinguished within *Aphelandra* a section *Stenochila*, consisting of species in which the lateral lobes of the lower lip are at least four times smaller than the middle lobe; and a section *Platychila*, consisting of species in which the lobes of the lower lip are almost equal or at least the lateral lobes not more than three times smaller than the middle lobe. The latter section (*Platychila*), he further divided into subsection *Genuinae*, in which the leaf blades are entire, without marginal spines; and subsection *Acanthoideae*, in which the leaf blades are serrate or pinnately lobed, and the mar-

gins usually spiny. Bentham and Hooker (1876) regarded these two sections as being artificial but Gustav Lindau (1895) adhered to them faithfully, describing all of his new species in one of the two sections.

In 1948, Carlos Toledo Rizzini repudiated the two sections as not being very distinct. Emory C. Leonard (1953) a tireless worker of the neotropical Acanthaceae, likewise rejected the two sections and subsections in his treatment of the genus. With the addition of more specimens available for study, I am able to recognize only 43 of his 72 newly described species from Colombia. I agree with both Rizzini and Leonard that the two sections should no longer be retained as subdivisions of the genus *Aphelandra*.

In 1895, Lindau based his accounts on some 60 species; Nees von Esenbeck (1847a) on about 47 species in 3 genera. As a result of my studies, I consider 167 taxa to be adequate to describe the entities in this genus. Of these 167 taxa (165 species and 2 varieties), 31 species are considered to be new to science.

Pollen

The Acanthaceae have long been noted for their great variation in pollen structure. Probably no other family has such a wide range of pollen morphological features. The value of these characters in the taxonomic diagnosis of the Acanthaceae was first pointed out by Radlkofer in 1883, and it was on the basis of his work that Lindau (1895) elaborated the use of pollen morphology as the chief basis for his classification of the family.

The genus *Aphelandra* generally has the most common form of pollen grains of the subfamily Acanthoideae, namely the three-colporate, found in most of the tribes. Lindau (1895:282) attributed "Spaltenpollen" (ellipsoidal grains with 3 longitudinal clefts, often with fine-granulated to netted sexine) to *Aphelandra*.

In an attempt to ascertain additional morphological characters and with the arrival of the, then novel, Cambridge scanning-electron microscope, the author proceeded to survey the pollen grains of 60 species of *Aphelandra*. After examining numerous specimens of each species, several major pollen types were found. More significant, though, is the fact that these pollen types do not correlate sufficiently with similar characteristics of the inflores-

cence and size and shape of the corollas. The following patterns were observed:

1. The pollen grains of *A. flammea* from Ecuador (Figure 49) and *A. variegata* from Brazil (Figure 50), are somewhat unique; they are not of the "Spaltenpollen" type usually found in *Aphelandra* but rather that of the type described by Lindau (1904:2(4):322) for the genus *Encephalosphaera*. The pollen grains here are prolate spheroidal, 56 μ and 71 μ in diameter respectively, verrucose, the sexine of *A. flammea* being serpentine-cerebriform, and the furrows of both species appear to be converging in a manner suggesting that the surface of each grain is divided into six tetragonal sections.

2. Prolate and perprolate pollen grains with a distinctly verrucose sexine were found in such diverse species as *A. chrysantha* from Ecuador (Figures 45, 46), *A. marginata* from Brazil (Figures 41, 42), and *A. weberbaueri* from Peru (Figure 43). Their size ranging from 65 μ –86 μ in length and 25 μ –50 μ in diameter.

3. Subprolate and spheroidal pollen grains were respectively found in *A. steyermarkii* from Venezuela (Figures 54, 55), and *A. dielsii* from Ecuador (Figures 52, 53).

4. Prolate pollen grains with a smooth sexine and tectal perforations were observed in three Mexican species, namely *A. madreensis* (Figures 22, 23), *A. schiedeana* (Figure 24), and *A. lineariloba* (Figure 25), but these were distinctly lacking in a fourth closely related Mexican species *A. guerreirensis* (Figure 10).

5. Perprolate pollen grains with a distinctly verruculate sexine were found in such separate species as *A. peruviana* from Peru (Figures 26, 27), *A. chamissoniana* from southeastern Brazil (Figure 28), and *A. formosa* from Ecuador (Figure 33).

6. Prolate pollen grains with a striatoreticulate sexine were found in numerous distinctly separated species, such as, *A. mutisii* from Ecuador (Figure 20), *A. wurdackii* from Peru (Figure 30), *A. clausenii* from Brazil (Figure 11), *A. bahiensis* from Brazil (Figure 12), and *A. sinclairiana* from Panama (Figure 34).

These observations proved very interesting in that both the size and the shape as well as the sexine structure and the aperture varied considerably in the specimens studied. Unfortunately, as is commonly the case in tropical studies, fresh material was not available, and all of my observations

were made from dried herbarium specimens. It will be necessary to examine living pollen grains in order to determine the amount of variation within a species.

Nevertheless, the two conclusions that can be drawn from this study are (1) that there is considerable new evidence for the use of pollen characters in classification of *Aphelandra* at the specific level, and (2) that Lindau's (1894, 1895) and Bremekamp's (1938) rearrangements of the tribes and genera in the family based primarily on the interpretation of pollen relationships is rather unconvincing in light of the variability of the pollen within a genus.

Phytochemistry Data

In the fall of 1971, the author undertook a feasibility study in the Department of Botany and the Cell Research Institute of the University of Texas at Austin to determine both the number and types of flavonoids present in the genus *Aphelandra*.

Dried plant material (leaves and/or bracts) was extracted with slightly acidified 85 percent methanol at room temperature. This extract was then applied to a sheet of Whatman 3 MM chromatographic paper (46 × 57 cm). Chromatography was carried out by the descending method, using *t*-butanol:acetic acid:water (3:1:1 v/v) as the first solvent, and 15 percent acetic acid as the second solvent. The flavonoids were detected both in the presence and absence of ammonia vapor by ultraviolet light.

Briefly, the chromatographic patterns of about 30 diverse species showed that between 20 and 30 different flavonoids could be detected in the genus *Aphelandra*. The positions of these compounds are illustrated in a composite chromatographic profile (Figure 56). It is important to note here that no individual plant contained all of them. Three major areas were arbitrarily designated for reference purposes, since it is fairly well established that flavonoids of a similar type are generally clustered around the same area of a chromatogram. Area number 1 involves spots numbered 8–12. These compounds are easily distinguished by virtue of their golden yellow color in ultraviolet light with the absence of ammonia vapor, and are suggestive of the flavonol-7-glycosides. Area number 2 involves

spots numbered 1-7. These compounds are distinguished by their dark purple color, which remains constant in the presence of ammonia vapor. They are in a position usually occupied by flavone or flavonol aglycones. Area number 3 (spots numbered 13-24) is occupied by the most variable and heterogeneous groups of flavonoids. This area, the upper left and center of the chromatogram is generally occupied by flavonol-3-glycosides. Although the flavonoids were not identified by standard chemical methods (Beckman DB spectrophotometer), a number of them could readily be determined by comparing the UV spectra, R_f values, and spot colors of the unknown with those of about 175 known flavonoids.

On the basis of the chromatographic data available, it appears that *Aphelandra* would be a good genus for further study of the interspecific biochemical variation in taxa covering a wide geographical range.

Alphabetical List of *Aphelandra* Species

- | | | | |
|------|---|------|--|
| 7. | <i>A. acanthifolia</i> Hooker | 14. | <i>A. chrysantha</i> Wasshausen |
| 3. | <i>A. acanthus</i> Nees | 9. | <i>A. cinnabarina</i> Wasshausen |
| 130. | <i>A. acrensis</i> Lindau | 21. | <i>A. cirsioides</i> Lindau |
| 79. | <i>A. adscendens</i> Leonard | 118. | <i>A. clausenii</i> Wasshausen, new name |
| 106. | <i>A. albert-smithii</i> Leonard | 136. | <i>A. colombiensis</i> Lindau ex Leonard |
| 164. | <i>A. alexandri</i> Leonard | 117. | <i>A. colorata</i> (Vellozo) Wasshausen, new combination |
| 162. | <i>A. ameleta</i> Leonard | 160. | <i>A. conformis</i> Leonard |
| 128. | <i>A. andrei</i> Leonard | 94. | <i>A. crenata</i> Leonard |
| 151. | <i>A. arisema</i> Leonard | 28. | <i>A. crispata</i> Leonard |
| 81. | <i>A. aristei</i> Leonard | 154. | <i>A. cuatrecasatii</i> Leonard |
| 58. | <i>A. arnoldii</i> Mildbraed | 33. | <i>A. cuscoensis</i> Wasshausen |
| 93. | <i>A. attenuata</i> Wasshausen | 88. | <i>A. darienensis</i> Wasshausen |
| 54. | <i>A. aurantiaca</i> (Scheidweiler) Lindley | 17. | <i>A. dasyantha</i> Wasshausen |
| 54a. | <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>aurantiaca</i> | 78. | <i>A. decorata</i> (Nees) Wasshausen, new combination |
| 54c. | <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>nitens</i> (Hooker) Wasshausen, new combination | 41. | <i>A. deppeana</i> Schlechtendal & Chamisso |
| 54b. | <i>A. aurantiaca</i> (Scheidweiler) Lindley var. <i>stenophylla</i> Standley | 131. | <i>A. diachyla</i> Leonard |
| 62. | <i>A. bahiensis</i> (Nees) Wasshausen, new combination | 108. | <i>A. dielsii</i> Mildbraed |
| 100. | <i>A. barkleyi</i> Leonard | 153. | <i>A. diffusa</i> Wasshausen |
| 20. | <i>A. benoistii</i> Wasshausen | 159. | <i>A. dodsonii</i> Wasshausen |
| 120. | <i>A. blanchetiana</i> (Nees) Hooker | 161. | <i>A. dolichantha</i> Donnell Smith |
| 109. | <i>A. blandii</i> Lindau | 39. | <i>A. dukei</i> Wasshausen |
| 77. | <i>A. botanodes</i> Leonard | 53. | <i>A. dunlapiana</i> Standley & L. O. Williams |
| 116. | <i>A. boyacensis</i> Leonard | 12. | <i>A. euopla</i> Leonard |
| 158. | <i>A. bracaeana</i> Rizzini | 4. | <i>A. eurystoma</i> Mildbraed |
| 129. | <i>A. campii</i> Wasshausen | 80. | <i>A. fasciculata</i> Wasshausen |
| 76. | <i>A. caput-medusae</i> Lindau | 85. | <i>A. fernandezii</i> Leonard |
| 30. | <i>A. castanifolia</i> Britton | 68. | <i>A. ferreyrae</i> Wasshausen |
| 45. | <i>A. chamissoniana</i> Nees | 57. | <i>A. flammea</i> Wasshausen |
| 96. | <i>A. chaponensis</i> Leonard | 123. | <i>A. flava</i> Nees |
| | | 22. | <i>A. formosa</i> (Humboldt & Bonpland) Nees |
| | | 72. | <i>A. fosbergii</i> Leonard |
| | | 152. | <i>A. galba</i> Wasshausen |
| | | 89. | <i>A. garciae</i> Leonard |
| | | 163. | <i>A. gigantiflora</i> Lindau |
| | | 64. | <i>A. goodspeedii</i> Standley & Barkley |
| | | 107. | <i>A. gracilis</i> Leonard |
| | | 87. | <i>A. grandis</i> Leonard |
| | | 11. | <i>A. grangeri</i> Leonard |
| | | 149. | <i>A. guayasii</i> Wasshausen |
| | | 56. | <i>A. guerrerensis</i> Wasshausen |
| | | 135. | <i>A. hapala</i> Wasshausen |
| | | 97. | <i>A. hartwegiana</i> Nees ex Bentham |
| | | 110. | <i>A. haughtii</i> Leonard |
| | | 55. | <i>A. heydeana</i> Donnell Smith |
| | | 36. | <i>A. hieronymi</i> Grisebach |
| | | 119. | <i>A. hintonii</i> Wasshausen |
| | | 124. | <i>A. hirta</i> (Klotzsch) Wasshausen, new combination |
| | | 6. | <i>A. huilensis</i> Leonard |
| | | 44. | <i>A. hylaea</i> Leonard |
| | | 50. | <i>A. ignea</i> (Schrader) Nees ex Steudel |
| | | 40. | <i>A. impressa</i> Lindau |
| | | 35. | <i>A. inaequalis</i> Lindau |
| | | 147. | <i>A. jacobinioides</i> Lindau |
| | | 18. | <i>A. juninensis</i> Wasshausen |
| | | 115. | <i>A. kingii</i> Wasshausen |
| | | 5. | <i>A. kolobantha</i> Lindau |
| | | 38. | <i>A. lamprantha</i> Leonard |
| | | 43. | <i>A. lasia</i> Leonard |

138. *A. lasiophylla* Leonard
 142. *A. latibracteata* Wasshausen
 150. *A. lawranceae* Leonard
 157. *A. liboniana* Linden ex Hooker
 139. *A. limbatifolia* Lindau
 146. *A. lineariloba* Leonard
 95. *A. lingua-bovis* Leonard
 37. *A. longibracteata* Lindau
 24. *A. luyensis* Lindau
 32. *A. lyrata* Nees
 104. *A. macrophylla* Leonard
 34. *A. macrosiphon* Lindau
 114. *A. macrostachya* Nees
 65. *A. maculata* (Tafalla ex Nees) Voss
 145. *A. madrensis* Lindau
 132. *A. marginata* Nees & Martius
 125. *A. martiusii* Wasshausen, new name
 67. *A. maximiliana* (Nees) Benth
 91. *A. micans* Moritz ex Vatke
 102. *A. mildbraediana* Leonard
 70. *A. mollis* (Nees) Leonard
 143. *A. montis-scalaris* Lindau ex Pilger
 27. *A. mucronata* (Ruiz & Pavón) Nees
 23. *A. mutisii* Leonard
 61. *A. neesiana* Wasshausen, new name
 48. *A. nemoralis* Nees
 127. *A. nephoica* Wasshausen
 133. *A. nuda* Nees
 63. *A. obtusa* (Nees) Wasshausen, new combination
 51. *A. obtusifolia* (Nees) Wasshausen, new combination
 74. *A. ochrolarynx* Leonard
 46. *A. ornata* (Nees) T. Anderson
 73. *A. parviflora* Leonard
 113. *A. parvispica* Leonard
 156. *A. paulensis* Wasshausen
 29. *A. peruviana* Wasshausen
 13. *A. phaina* Wasshausen
 99. *A. pharangophila* Leonard
 148. *A. phlogea* Leonard
 49. *A. phrynioides* Lindau
 103. *A. pilosa* Leonard
 140. *A. pinarotricha* Leonard
 2. *A. porphyrocarpa* Leonard
 155. *A. prismatica* (Vellozo) Hiern
 101. *A. pulcherrima* (Jacquin) Humboldt, Bonpland, & Kunth
 71. *A. quadrifaria* Leonard
 8. *A. reticulata* Wasshausen
 75. *A. rigida* Glaziou ex Mildbraed
 16. *A. rubra* Wasshausen
 1. *A. runcinata* Klotzsch ex Nees
 15. *A. rusbyi* Britton
 165. *A. schiedeana* Schlechtendal & Chamisso
 112. *A. schieferae* Leonard
 98. *A. scolnikae* Leonard
 60. *A. seibertii* Leonard
 84. *A. sericantha* Leonard
 66. *A. silvicola* Leonard
 86. *A. sinclairiana* Nees
 122. *A. speciosa* T. S. Brandege
 126. *A. squarrosa* Nees
 144. *A. stephanophysa* Nees
 137. *A. steyermarkii* Wasshausen
 42. *A. storkii* Leonard
 90. *A. straminea* Leonard
 47. *A. sulphurea* Hooker
 19. *A. superba* Lindau
 92. *A. taborensis* Leonard
 105. *A. terryae* Standley
 69. *A. tessmannii* Mildbraed
 111. *A. tetragona* (Vahl) Nees
 10. *A. tillettii* Wasshausen
 134. *A. tomentosa* Lindau
 59. *A. tonduzii* Leonard
 82. *A. trianae* Leonard
 52. *A. tridentata* Hemsley
 121. *A. variegata* Morel
 141. *A. verticillata* Nees ex Hemsley
 31. *A. viscosa* Mildbraed
 26. *A. weberbaueri* Mildbraed
 25. *A. wurdackii* Wasshausen
 83. *A. xanthantha* Leonard

List of Illustrated Species

Photographs for most of the following species of *Aphelandra* were made with the scanning-electron microscope (Cambridge model), at magnification between $\times 800$ and $\times 5500$:

1. *A. runcinata* Klotzsch ex Nees, Figure 32
3. *A. acanthus* Nees, Figure 48
7. *A. acanthifolia* Hooker, Figures 1, 39
10. *A. tillettii* Wasshausen, Figure 35
11. *A. grangeri* Leonard, Figure 31
14. *A. chrysantha* Wasshausen, Figures 45, 46
18. *A. juninensis* Wasshausen, Figure 37
22. *A. formosa* (Humboldt & Bonpland) Nees, Figures 2, 33
23. *A. mutisii* Leonard, Figure 20
25. *A. wurdackii* Wasshausen, Figure 30
26. *A. weberbaueri* Mildbraed, Figure 43
27. *A. mucronata* (Ruiz & Pavón) Nees, Frontispiece
29. *A. peruviana* Wasshausen, Figures 26, 27
35. *A. inaequalis* Lindau, Figure 21
45. *A. chamissoniana* Nees, Figure 28
50. *A. ignea* (Schrader) Nees ex Steudal, Figure 38
- 54a. *A. aurantiaca* (Scheidweiler) Lindley var. *aurantiaca*, Figure 47
55. *A. heydeana* Donnell Smith, Figure 4
56. *A. guerrerensis*, Wasshausen, Figure 10
57. *A. flammea* Wasshausen, Figure 49
62. *A. bahiensis* (Nees) Wasshausen, new combination, Figure 12
65. *A. maculata* (Tafalla ex Nees) Voss, Figure 14
67. *A. maximiliana* (Nees) Benth, Figure 5

76. *A. caput-medusae* Lindau, Figure 8
 86. *A. sinclairiana* Nees, Figures 6, 34
 101. *A. pulcherrima* (Jacquin) Humboldt, Bonpland, & Kunth, Figure 17
 107. *A. gracilis* Leonard, Figure 16
 108. *A. dielsii* Mildbraed, Figures 52, 53
 111. *A. tetragona* (Vahl) Nees, Figure 7
 112. *A. schieferae* Leonard, Figure 19
 118. *A. clausenii* Wasshausen, new name, Figure 11
 121. *A. variegata* Morel, Figures 50, 51
 123. *A. flava* Nees, Figure 9
 126. *A. squarrosa*, Nees, Figure 40
 132. *A. marginata* Nees & Martius, Figures 41, 42
 137. *A. steyermarkii* Wasshausen, Figures 54, 55
 139. *A. limbatifolia* Lindau, Figure 29
 141. *A. verticillata* Nees ex Hemsley, Figure 18
 143. *A. montis-sclaris* Lindau ex Pilger, Figure 13
 145. *A. madrensis* Lindau, Figures 22, 23
 146. *A. lineariloba* Leonard, Figure 25
 147. *A. jacobinioides* Lindau, Figure 15
 157. *A. liboniana* Linden ex Hooker, Figure 36
 159. *A. dodsonii* Wasshausen, Figure 44
 165. *A. schiedeana* Schlechtendal & Chamisso, Figure 24

Aphelandra R. Brown

- Aphelandra* R. Brown, Prodr. Fl. Nov. Holl. 475. 1810.
Synandra Schrader, Maxim. Princ. Videns. It. 2:343. 1821
 [type: *S. ignea* Schrader].
Amathea Rafinesque, Fl. Tellur. 10:65. 1838 [type: *A. pulchra* (Jacquin) Rafinesque].
Strobilorhachis Klotzsch in Otto & Dietrich, Allg. Gartenz. 7:307. 1839 [type: *S. glabra* Klotzsch].
Hydromestus Scheidweiler in Otto & Dietrich, Allg. Gartenz. 10:285. 1842 [type: *H. maculatus* Schiedweiler].
Hemisandra Scheidweiler, Bull. Acad. Sci. Bruxelles 9:22. 1842 [type: *H. aurantiaca* Scheidweiler].
Lagochilium Nees in Martius, Fl. Bras. 9:85. pl. 10. 1847 [type: *L. maximilianum* Nees, chosen by Leonard, 1953, by virtue of its being illustrated].
Hemitome Nees in Martius, Fl. Bras. 9:88. 1847.—Nees in de Candolle, Prodr. 11:295. 1847 [nomen nudum].
Poecilocnemidis Martius ex Nees in Martius Fl. Bras. 9:88. 1847.—Nees in de Candolle, Prodr. 11:295. 1847 [nomen nudum].

Shrubs or suffrutescent herbs; stems erect, rarely absent or extremely short, terete or quadrangular, soft-wooded, occasionally thick and succulent; leaves opposite, rarely ternate or quaternate, petiolate, the blades usually large, oblong to elliptic, membranaceous to firm, toothed, lobed, entire, or crenate, the upper surface usually drying dark-olivaceous, the lower surface somewhat paler, the costa and lateral veins rather prominent beneath, often variegated white to yellowish, especially near the base,

the margins occasionally armed with spines; interpetiolar bracts usually absent (if present, small, the veins excurrent, ending in 1–5 straight, sharp, yellowish spines); flowers of various shades of red, yellow, orange or occasionally white, cream or pale mauve, borne in terminal or subterminal usually large-bracted spikes, the spikes rarely secund, lax or few-flowered, often subtended by a pair of leaflike bracts, the rachis angular; bracts usually imbricate, somewhat spreading with age, the upper ones becoming gradually smaller, the lowermost (especially in the spiny species) intergrading into stem leaves, often colored, entire, toothed, spinose-dentate, or ciliate, coriaceous, herbaceous or rarely membranaceous, occasionally carinate and/or conduplicate, those of certain species bearing dorsally on either side near the margin a group of ocelli, these few, oval or suborbicular, brownish, nitid, rather conspicuous, or very numerous and minute, appearing even under magnification as a more or less irregular, dull, alveolar area; bractlets small, various, in a few species rudimentary, commonly striate-nerved, subhyaline, rarely colored, carinate or subcarinate, occasionally falcate; calyx divided nearly to the base into 5, subequal segments, these occasionally exceeding the bracts, usually lanceolate or oblong-lanceolate, coriaceous or chartaceous, striate-veined, the posterior segment usually broader than the others and sometimes toothed at tip (in a few species the calyx is rudimentary); corolla tube erect or somewhat oblique, cylindrical or rarely obconical, slightly ampliate upwardly, the limb usually bilabiate, the upper lip erect, bilobed or entire, the lobes often connivent, revolute, obtuse, the lower lip reflexed-spreading, 3-lobed, the middle lobe often longer than the lateral ones, these sometimes very small, rarely vestigial, and adnate to the base of the upper lip; stamens 4, usually slightly exerted, but rarely if ever exceeding the upper corolla lip; filaments epipetalous, smooth, broad, flattened; anthers narrow, one-celled, often pilose dorsally and cohering at tips by webby hairs, occasionally bearing a sterile theca; pollen grains narrowly oblong or ellipsoid, obtuse, commonly about twice as long as wide; staminode rarely present, filiform or lobulate; ovary cylindrical, glabrous, with 2 ovules in each loculus, disc inconspicuous; style commonly exceeding anthers, filiform, the stigma infundibular, entire, bifid, or rarely unequally trifid; capsule

ovoid or cylindric, usually shortly stipitate, 4-seeded, the valves of the capsule recurved after dehiscence; retinacula cucullate at tip; seeds somewhat flattened, dark brown, almost circular in outline, usually papillose, wrinkled, muricate, borne on acute retinacula.

TYPE-SPECIES.—*Aphelandra pulcherrima* (Jacquin) Humboldt, Bonpland & Kunth based on *Justicia pulcherrima* Jacquin.

The generic name *Aphelandra* is derived from two Greek words, "apheles" meaning smooth and "andros" meaning anther.

Key to the Species of *Aphelandra*

1. Stems distinctly armed by spiny, interpetiolar bracts2
Stems unarmed, i. e., without spiny interpetiolar bracts24
2. Leaf blades lyrate-pinnatifid or incised3
Leaf blades dentate or serrate or serrate-dentate, not lobed, commonly spine-tipped8
3. Corollas glabrous. Colombia and Venezuela1. *A. runcinata*
Corollas pubescent, tomentose, hirsute or hirtellous4
4. Corollas yellow5
Corollas red, purple, or pale mauve6
5. Stems glabrous or minutely and sparingly puberulous; calyx segments rounded and mucronate. Colombia2. *A. porphyrocarpa*
Stems hirsute to subtomentose; calyx segments abruptly narrowed to an acute tip. Colombia, Ecuador, and Peru3. *A. acanthus*
6. Inflorescence much branched, forming a broad loose corymb about 25 cm in diameter. Peru4. *A. eurystoma*
Inflorescence a terminal and occasionally axillary spike up to 4 cm broad7
7. Calyx segments lanceolate, 9 mm long, 2-3 mm wide at base; corollas pale mauve. Bolivia5. *A. kolobantha*
Calyx segments oblong-lanceolate, 23-25 mm long, 3.5-5 mm wide; corolla red. Colombia...6. *A. huilensis*
8. Bracts entire, terminating in a spine9
Bracts spiny-margined16
9. Corolla pubescent10
Corolla glabrous15
10. Leaf blades pubescent, hirsute, strigose or pilosulous11
Leaf blades glabrous or the costa and veins bearing a few weak hairs13
11. Bracts triangular-ovate, 6-7 mm wide. Ecuador and Peru7. *A. acanthifolia*
Bracts lanceolate, to 4 mm wide12
12. Leaf blades to 10 cm long and 3 cm wide. Venezuela8. *A. reticulata*
Leaf blades 21-26 cm long and 4.5-5.5 cm wide. Ecuador9. *A. cinnabarina*
13. Flowers borne in rather dense, terminal and subterminal spikes up to 7 cm long and 2 cm broad (excluding corollas)14
Flowers borne in lax terminal and subterminal spikes 11-15 cm long and 0.8 cm broad (excluding corollas). Peru10. *A. tillettii*
14. Bractlets and calyx segments conspicuously and densely ciliate. Colombia and Ecuador.....11. *A. grangeri*
Bractlets and calyx segments glabrate, very sparingly ciliate. Colombia12. *A. euopla*
15. Bracts reddish; calyx red; corolla crimson. Ecuador13. *A. phaina*
Bracts pale-green; calyx yellowish green; corolla yellow. Ecuador14. *A. chrysantha*
16. Bracts conspicuously colored, red, greenish at tip, or the upper side reddish, the lower green with reddish and orange-yellow spots17
Bracts not conspicuously colored, green18
17. Bracts puberulent, acute, the margins bearing on each side 4-6 slender, spinose teeth. Bolivia15. *A. rusbyi*
Bracts glabrous, acuminate, the margins bearing on each side 11-13 slender, spinose teeth. Peru and Bolivia16. *A. rubra*

18. Leaf blades thin, submembranaceous, 27–32 cm long, 12–14 cm wide. Ecuador and Peru 17. *A. dasyantha*
 Leaf blades thick, coriaceous or subcoriaceous, to 24 cm long and 9 cm wide 19
19. Leaf blades 21–24 cm long and 5.5–9 cm wide 20
 Leaf blades relatively short, to 13 cm long and 4 cm wide 21
20. Both leaf surfaces glabrous or the costa and lateral nerves sometimes sparingly tomentose.
 Peru 18. *A. juninensis*
 Both leaf surfaces velutinous-pubescent. Ecuador 19. *A. superba*
21. Lower leaf surface glabrous except the sparingly pilose costa and veins 22
 Lower leaf surface densely velvety or softly tawny pilose or subtomentose 23
22. Bracts rhombate, the margins tipped by a pair of distinctively yellow spines. Ecuador
 20. *A. benoistii*
 Bracts ovate to obovate, the margins spinose-dentate, tipped by 3 or more pairs of spines.
 Ecuador and Peru 21. *A. cirsioides*
23. Bracts triangular-ovate, 5–10 mm long, about 4 mm wide. Ecuador, Peru, and Bolivia
 22. *A. formosa*
 Bracts narrowly oblong, 15–20 mm long, about 6 mm wide. Colombia and Ecuador
 23. *A. mutisii*
24. Leaf blades lyrate-pinnatifid or coarsely serrate or the margins armed 25
 Leaf blades entire or undulate, or rarely shallowly crenate 38
25. Bracts entire or bearing one or two minute and inconspicuous teeth near the tip 26
 Bracts (at least lower) conspicuously dentate-ciliate, spinose-toothed or spinose-dentate 32
26. Leaf blades densely pubescent, with yellowish spreading hairs, the lower surface velvety.
 Ecuador and Peru 24. *A. luyensis*
 Leaf blades glabrous or sparingly pilosulous or the costa and nerves sparingly and minutely
 tomentose, strigillose or pilosulous 27
27. Leaf blades small, 8–11 cm long and to 4 cm wide. Peru 25. *A. wurdackii*
 Leaf blades large, 20–40 cm long and 6.5–14 cm wide 28
28. Flowers borne in lax terminal spikes, the distant bracts scarcely imbricate 29
 Flowers borne in dense terminal or on short axillary spikes, the bracts rather loosely
 imbricate and appressed 30
29. Bracts triangular-ovate, 5–7 mm long, webby-villous without. Peru 26. *A. weberbaueri*
 Bracts ovate, 15 mm long, glabrous to sparingly hirsute without. Peru 27. *A. mucronata*
30. Bracts purple or red, noticeably crisped or twisted, 3.5–4.5 cm long, 17.5 mm wide
 Colombia 28. *A. crispata*
 Bracts green, not crisped or twisted, 1–3 cm long, 3–4 mm wide 31
31. Terminal spike 6–7 cm long, about 2 cm in diameter (excluding corollas). Peru
 29. *A. peruviana*
 Terminal spike 10–12 cm long, about 1 cm in diameter (excluding corollas). Bolivia
 30. *A. castanifolia*
32. Leaf blades (especially the lower) lyrate to lyrate-pinnatifid 33
 Leaf blades serrate to dentate or sinuate-serrate but not lobed 34
33. Bracts broadly elliptic to elliptic-ovate, densely glandular-pilose. Peru 31. *A. viscosa*
 Bracts lance-subulate to oblong, sparingly pilosulous. Peru 32. *A. lyrata*
34. Bracts red, elliptic, about 35 mm long. Peru 33. *A. cuscoensis*
 Bracts green, lanceolate to triangular-ovate, to 20 mm long 35
35. Upper corolla lip 13–22 mm long, 6–8 mm wide at base, bilobed, the lobes 5–10 mm
 long and 2.5 mm wide 36
 Upper corolla lip 12 mm long, 3 mm wide at base, scarcely bifid. Peru and Bolivia
 34. *A. macrosiphon*
36. Corolla red, the upper lip 13–14 mm long, 6–8 mm wide, the lower lip 10–15 mm long 37
 Corolla yellow, the upper lip 22 mm long, 8 mm wide, the lower lip 24 mm long. Bolivia
 35. *A. inaequalis*
37. Leaf blades oblong-lanceolate, 5–13 cm long, 1.4–3 cm wide. Bolivia and Argentina
 36. *A. hieronymi*
 Leaf blades oblong, 15–27 cm long, 5–9 cm wide. Bolivia 37. *A. longibracteata*

38. Bracts toothed	39
Bracts entire	82
39. Bracts bearing ocelli or submarginal glands	40
Bracts without ocelli or submarginal glands	46
40. Leaf blades narrowly lanceolate, to 2.5 cm wide	41
Leaf blades not narrowly lanceolate, 2.5-13 cm wide	42
41. Corollas 5 cm long, 6 mm broad at mouth, the upper lip 17 mm long. Colombia	
..... 38. <i>A. lamprantha</i>	
Corollas about 4 cm long, 4.5 mm broad at mouth, the upper lip 10 mm long. Panama	
..... 39. <i>A. dukei</i>	
42. Tips of bracts slender and spreading or recurved. Venezuela and northern Colombia	
..... 40. <i>A. impressa</i>	
Tips of bracts erect, acuminate or acute to subobtusate and minutely apiculate	43
43. Bracts 8-15 mm long, 4-6 mm wide, acuminate. Southern Mexico to northern South America	41. <i>A. deppeana</i>
Bracts 18-28 mm long, 8-12 mm wide, acute to subobtusate and minutely apiculate	44
44. Leaf blades ovate, 13 cm wide, short-acuminate. Costa Rica	42. <i>A. storkii</i>
Leaf blades oblong-elliptic or narrowly elliptic or ovate-lanceolate, to 8 cm wide, acute to subacuminate	45
45. Bracts light brown, densely pilose. Colombia	43. <i>A. lasia</i>
Bracts somewhat purple; puberulous. Amazonian Colombia, Ecuador, and Brazil	
..... 44. <i>A. hylaea</i>	
46. Corollas 3-6.5 cm long	47
Corollas 0.7-2.5 cm long	61
47. Bracts conduplicate	48
Bracts flat	49
48. Corolla 4.5-5.5 cm long, the upper lip 9-15 mm long, bifid, the lobes 4-6 mm long, 3.5-4 mm wide, more or less acute. Brazil	45. <i>A. chamissoniana</i>
Corolla 3 cm long, the upper lip 8 mm long, bifid, the lobes 3 mm long, 3.5 mm wide, obtuse. Brazil	46. <i>A. ornata</i>
49. Corollas yellow	50
Corollas red, orange or scarlet	53
50. Bracts 30-32 mm long. Ecuador	47. <i>A. sulphurea</i>
Bracts 15-23 mm long	51
51. Stems almost absent or extremely short	52
Stems present, erect, 0.5-1 m high. Brazil	48. <i>A. nemoralis</i>
52. Corolla about 4 cm long, the upper lip obovate, 8 mm long and 7 mm wide, bilobed. Brazil	49. <i>A. phrynioides</i>
Corolla 3 cm long, the upper lip oval, 5 mm long and 5 mm wide, entire. Brazil	50. <i>A. ignea</i>
53. Corollas 4.5-6.5 cm long	54
Corollas about 3 cm long. Brazil	51. <i>A. obtusifolia</i> , new combination
54. Bracts 3.5-5 cm long. Costa Rica	52. <i>A. tridentata</i>
Bracts to 3 cm long	55
55. Bractlets none; upper corolla lip 2-lobed. Honduras	53. <i>A. dunlapiana</i>
Bractlets present; upper corolla lip entire	56
56. Upper corolla lip 0.5-0.85 cm wide	59
Upper corolla lip 1.2 cm wide. Southern Mexico to Bolivia	54. <i>A. aurantiaca</i> . . . 57
57. Margins of leaf blades coarsely sinuate-repand. Central America to Peru	
..... 54b. <i>A. aurantiaca</i> var. <i>stenophylla</i>	
Margins of leaf blades entire or undulate	58
58. Leaf blades thick and coriaceous, the lower surface a deep vinous purple. Colombia, Ecuador, and Peru	54c. <i>A. aurantiaca</i> var. <i>nitens</i> , new combination
Leaf blades chartaceous, nitid, the lower surface somewhat whitish. Southern Mexico to Bolivia	54a. <i>A. aurantiaca</i> var. <i>aurantiaca</i>
59. Bracts prolonged into a recurved, convolute cusp about 6 mm long. Mexico, Guatemala and El Salvador	55. <i>A. heydeana</i>
Bracts acute or acuminate, not prolonged into a cusp	60

60. Spikes 6–11 cm long and 2–3 cm broad (excluding corollas); corolla glandular-pilose. Mexico 56. *A. guerrensis*
 Spikes 11–18 cm long and 1.5–2 cm broad (excluding corollas); corolla sparingly puberulous. Ecuador 57. *A. flammea*
61. Bracts 2 mm wide or less 62
 Bracts 3.5–16 mm wide 63
62. Leaf blades 15–30 cm long and 5.5 cm wide, short-acuminate. Northern Venezuela and Colombia 58. *A. arnoldii*
 Leaf blades 7–11 cm long and 4.5 cm wide, acute to obtuse or rounded. Costa Rica 59. *A. tonduzii*
63. Corollas 2.0–2.5 cm long 64
 Corollas 0.7–1.8 cm long 76
64. Bracts purplish colored, sometimes only at tip 65
 Bracts green or greenish yellow, not purplish colored 68
65. Peduncles 3–5 cm long. Costa Rica and Panama 60. *A. seibertii*
 Peduncles wanting or extremely short, less than 0.5 cm long 66
66. Bracts elliptic or elliptic-oblong, 5–9 mm wide at or just above the middle 67
 Bracts obovate, 14 mm wide just below the apex. Brazil 61. *A. neesiana*, new name
67. Leaf blades oblong-elliptic to oblong-lanceolate, 8–9 cm long, 2.5–3.5 cm wide. Brazil 62. *A. bahiensis*, new combination
 Leaf blades oval-oblong, 9.5–11.5 cm long, 3.5–4.5 cm wide. Brazil 63. *A. obtusa*, new combination
68. Costa and lateral veins banded above by a narrow area of white or yellow 69
 Costa and lateral veins inconspicuous and obscure above, not banded by a narrow area of white or yellow 71
69. Leaf blades oblong or oblong-lanceolate, 9–15 cm long, 3–4 cm wide, thin; petioles 10–40 mm long; the peduncle 2–3 cm long, sericeous or appressed-pubescent 70
 Leaf blades spatulate to lanceolate, 3–8 cm long, 0.9–2.4 cm wide, subcoriaceous; petioles 2–4 mm long; the peduncle about 0.8 cm long, pilose. Peru 64. *A. goodspeedii*
70. Corolla 2.2–2.3 cm long, sparingly glandular pilose, the lips unequal, the upper lip obovate, 4.5 mm long, the lower lip 3-lobed, the lobes 3.5–4 mm long. Ecuador, Peru, and Bolivia 65. *A. maculata*
 Corolla 2.5 cm long, sparingly pubescent, the lips subequal, the lobes suborbicular, about 3 or 4 mm long. Colombia 66. *A. silvicola*
71. Upper corolla lip entire. Brazil 67. *A. maximiliana*
 Upper corolla bilobed 72
72. Leaf blades oblong-elliptic, 21–25 cm long and 6–7 cm wide. Peru 68. *A. ferreyrae*
 Leaf blades oblong-elliptic or ovate, to 10 cm long and 2–6 cm wide 73
73. Flowering spikes 6–11 cm long 74
 Flowering spikes to 3 cm long 75
74. Bracts 7 mm wide, margins and outer surface silky-hirsute. Peru 69. *A. tessimannii*
 Bracts to 5 mm wide, margins sparingly ciliolate, outer surface glabrous or sparingly pilosulous. Colombia 70. *A. mollis*
75. Bracts 11–12 mm long and 7 mm wide. Colombia 71. *A. quadrifaria*
 Bracts 20 mm long and 16 mm wide. Colombia 72. *A. fosbergii*
76. Flowering spikes 6–13 cm long 77
 Flowering spikes to 5 cm long 79
77. Leaf blades purple beneath. Colombia 73. *A. parviflora*
 Leaf blades green or olive-green, not purple beneath 78
78. Corolla white with yellow patch in front of throat. Colombia 74. *A. ochrolarynx*
 Corolla red. Brazil 75. *A. rigida*
79. Bracts subtending the flowers 17–20 mm long. Peru, Brazil 76. *A. caput-medusae*
 Bracts subtending the flowers 7–10.5 mm long 80
80. Corolla rose-blue, about 0.7 cm long. Colombia 77. *A. botanodes*
 Corolla red or pale pink with a yellow throat, 1.2–1.3 cm long 81

81. Bracts obovate-cuneate, acute and mucronate, sparingly hirsute. Brazil
78. *A. decorata*, new combination
 Bracts rhombic-ovate, short-acuminate (the tip blunt), densely pilose. Colombia
79. *A. adscendens*
82. Bracts bearing ocelli or submarginal glands, these conspicuous to the naked eye83
 Bracts without ocelli or submarginal glands118
83. Bracts 7-15 mm wide84
 Bracts 3.5-6.5 mm wide101
84. Calyx segments equal to or shorter than the bracts85
 Calyx segments conspicuously longer than the bracts93
85. Bracts 11-13 mm long. Venezuela80. *A. fasciculata*
 Bracts 18-30 mm long86
86. Corollas 3.5-5 cm long87
 Corollas 5.5-6 cm long88
87. Leaf blades densely brownish, pilose-sericeous beneath. Colombia81. *A. aristei*
 Leaf blades glabrous to sparingly hirtellous beneath. Colombia82. *A. trianae*
88. Bracts 5.5-8 mm wide. Colombia83. *A. xanthantha*
 Bracts 10-15 mm wide89
89. Upper corolla lip 23-25 mm long90
 Upper corolla lip 15-17 mm long91
90. Bracts light brown, oval, 20 mm long, 12 mm wide, apiculate at tip, basal portion minutely
 silky-pilose. Colombia84. *A. sericantha*
 Bracts red, rhombic-ovate, 26 mm long, 15 mm wide, subacute, glabrous. Colombia
85. *A. fernandezii*
91. Bracts 10 mm wide; bractlets 6 mm long; calyx segments 8-10 mm long. Costa Rica and
 Panama86. *A. sinclairiana*
 Bracts 12-15 mm wide; bractlets 8-11 mm long; calyx segments 12-15 mm long92
92. Spikes 18-45 cm long and 2 cm wide; corolla yellow. Colombia87. *A. grandis*
 Spikes 8-10 cm long, 3-4 cm wide; corolla orange-red. Panama88. *A. darienensis*
93. Corollas 4-5 cm long94
 Corollas 5.5-7 cm long95
94. Petioles 1 cm long; calyx about 2 cm long. Colombia89. *A. garciae*
 Petioles 3-9 cm long; calyx 0.9-1.15 cm long. Colombia90. *A. straminea*
95. Rachis white-cottony-tomentose or densely brown-pubescent96
 Rachis glabrous or sparingly strigose97
96. Calyx segments 17-18 mm long; corolla 6.5-7 cm long, the lateral lobes of the lower lip
 about 5 mm long, rounded at tip. Venezuela91. *A. micans*
 Calyx segments 14 mm long; corolla 5.8 cm long, the lateral lobes of the lower lip 9 mm
 long, subacute. Colombia92. *A. taborensis*
97. Leaf blades 6-7.5 cm wide. Ecuador93. *A. attenuata*
 Leaf blades 9-15 cm wide98
98. Leaf blades prominently and irregularly crenate. Colombia94. *A. crenata*
 Leaf blades entire or undulate99
99. Bractlets 10-14 mm long100
 Bractlets 16 mm long. Costa Rica, Panama, and Colombia95. *A. lingua-bovis*
100. Corolla to 6 cm long, papillose-puberulent, orange to red. Colombia96. *A. chaponensis*
 Corolla 6-7 cm long, glabrous, yellow. Panama and Colombia97. *A. hartwegiana*
101. Bracts 5.5-6.5 mm wide (including *A. pulcherrima*)102
 Bracts 3.5-5 mm wide (including *A. pulcherrima*)110
102. Ocelli numerous, minute, sometimes a dull, alveolar spot, this sometimes deciduous103
 Ocelli represented by 1 or more well-defined elliptical brown, more or less nitid areas104
103. Bractlets 8 mm long, 2 mm wide; calyx 11 mm long. Colombia98. *A. scolnikae*
 Bractlets 6.5-7 mm long, 1-1.75 mm wide; calyx 7-8 mm long. Colombia
99. *A. pharangophila*
104. Rachis more or less covered with a white, flocculose tomentum105
 Rachis glabrous, puberulous or hirsute, or if flocculose, the hairs brownish108

105. Stems glabrous. Colombia100. *A. barkleyi*
 Stems densely pilose to strigose or tomentose106
106. Bracts 9 mm long, 6–6.5 mm wide107
 Bracts 5–7 mm long, 4.5–6 mm wide. Costa Rica to Andean Bolivia ...101. *A. pulcherrima*
107. Leaf blades relatively small, 8–13 cm long and 2–4 cm wide, glabrous to sparingly strigillose beneath. Colombia102. *A. mildbraediana*
 Leaf blades large, 15–30 cm long and 5–10 cm wide, densely pilose beneath. Amazonian Venezuela and Colombia103. *A. pilosa*
108. Bracts 10–11 mm long, 6 mm wide109
 Bracts 7 mm long, 5.5 mm wide. Venezuela and Colombia104. *A. macrophylla*
109. Lobes of the upper corolla lip 6 mm long and 2 mm wide at base. Panama and Colombia...
105. *A. terryae*
 Lobes of the upper corolla lip 18 mm long and 4 mm wide. Colombia
106. *A. albert-smithii*
110. Flowering spike lax, the bracts not imbricate, the flowers distant111
 Flowering spike congested, the bracts imbricate, the flowers crowded112
111. Corollas 5–5.5 cm long, the lobes of the upper lip 9 mm long, 4 mm wide at base. Panama...
107. *A. gracilis*
 Corollas 7–7.5 cm long, the lobes of the upper lip 18–24 mm long, 2 mm wide at base. Ecuador108. *A. dielsii*
112. Ocelli numerous, minute, forming a dull, alveolar spot, this sometimes deciduous. Colombia109. *A. blandii*
 Ocelli represented by 1 or more well-defined elliptical, brown, more or less nitid areas ...113
113. Rachis glabrous or bearing a few minute, inconspicuous hairs. Colombia ...110. *A. haughtii*
 Rachis more or less covered with a white, flocculose tomentum114
114. Bracts 8–11 mm long115
 Bracts 5–7 mm long116
115. Corollas 6.5–7 cm long. Venezuela111. *A. tetragona*
 Corollas 5 cm long. Colombia112. *A. schiefeyae*
116. Corollas 4–4.5 cm long. Venezuela and Colombia113. *A. parvispica*
 Corollas 5–7 cm long117
117. Upper corolla lip narrowly ovate, 20–25 mm long and 6 mm wide. Amazonian Colombia and Brazil114. *A. macrostachya*
 Upper corolla lip ovate, 15–20 mm long and 9 mm wide. Costa Rica to Andean Bolivia
101. *A. pulcherrima*
118. Bracts 15–25 mm wide119
 Bracts 1–14.5 mm wide130
119. Bracts 20–21 mm long. Colombia115. *A. kingii*
 Bracts 25–45 mm long120
120. Corollas 3 cm long. Colombia116. *A. boyacensis*
 Corollas 3.5–7 cm long121
121. Bracts 15–17 mm wide122
 Bracts 18–25 mm wide126
122. Corolla 3.5–3.8 cm long, glabrous123
 Corolla 5–7 cm long, glandular-pilose124
123. Upper corolla lip oblong-lanceolate, 13–14 mm long and 5 mm wide, the lobes 4 mm long and 2 mm wide, revolute, obtuse. Brazil117. *A. colorata*, new combination
 Upper corolla lip oblong, 10 mm long and 5 mm wide, the lobes 5 mm long and 3 mm wide, erect, acute. Brazil118. *A. clausenii*, new name
124. Corolla red, 6.5–7 cm long. Mexico119. *A. hintonii*
 Corolla yellow, about 5 cm long125
125. Bracts rose-colored to deep-red; upper corolla lip 2.2 cm long and 7 mm wide, the lobes 1 mm long and 1.5 mm wide. Brazil120. *A. blanchetiana*
 Bracts orange-red to yellow-orange; upper corolla lip 1.7 cm long and 6 mm wide, the lobes extremely variable, 1–6 mm long and 2–3.5 mm wide. Brazil121. *A. variegata*
126. Corolla 3.75–5 cm long127
 Corolla 5.5–6.5 cm long. Southern Mexico and Guatemala122. *A. speciosa*

127. Bracts and corollas glabrous	128
Bracts and corollas glandular-pubescent. Colombia	123. <i>A. flava</i>
128. Calyx 5 mm long. Brazil	124. <i>A. hirta</i> , new combination
Calyx 8-12 mm long	129
129. Corolla reddish purple, the tube 2 mm wide at base, lobes of the upper lip 1 mm long and wide, acute. Amazonian Brazil and Colombia	125. <i>A. martiusii</i> , new name
Corolla yellow, the tube 3-5 mm wide at base, lobes of the upper lip 3 mm long and wide, obtuse. Southeastern Brazil	126. <i>A. squarrosa</i>
130. Bracts 1-7 mm wide	131
Bracts 8-14.5 mm wide	145
131. Corollas 1.4-2.8 cm long	132
Corollas 3.5-6.4 cm long (wanting in <i>A. lasiophylla</i>)	136
132. Bracts 2 mm wide. Colombia	127. <i>A. nephoica</i>
Bracts 4-6 mm wide	133
133. Bracts 7-8.5 mm long	134
Bracts 13-14 mm long	135
134. Herb 0.3 m high. Colombia	128. <i>A. andrei</i>
Shrub 1.5-2 m high. Ecuador and Peru	129. <i>A. campii</i>
135. Corolla tube 22 mm long, 2.5 mm broad at base, about 5 mm broad at mouth. Amazonian Brazil and Peru	130. <i>A. acrensis</i>
Corolla tube 9-10 mm long, 1.5 mm broad at base, 2.5 mm broad at mouth. Columbia	131. <i>A. diachyla</i>
136. Bracts 2 mm wide	137
Bracts 4-7 mm wide	138
137. Flowers borne in subsessile spikes, these 4-10 cm long, the flowers congested. Brazil	132. <i>A. marginata</i>
Flowers borne in peduncled spikes, these 20-30 cm long, the flowers distant, lax. Brazil	133. <i>A. nuda</i>
138. Bracts 7-12 mm long	139
Bracts 15-25 mm long	140
139. Leaf blades oblong, 4-10 cm long, 1.5-3.5 cm wide, densely pilose beneath. Venezuela	134. <i>A. tomentosa</i>
Leaf blades elliptic, 19-23 cm long, 8-9 cm wide, densely hirsute beneath. Peru	135. <i>A. hapala</i>
140. Bracts 18-25 mm long	141
Bracts 15-17 mm long	142
141. Spikes several, forming a headlike cluster 8 cm long and 5 cm wide, the rachis finely puberulous. Colombia	136. <i>A. colombiensis</i>
Spikes solitary, 2-2.5 cm long and 1-1.5 cm wide (excluding corollas), the rachis densely sericeous. Venezuela	137. <i>A. steyermarkii</i>
142. Bracts 7 mm wide. Colombia	138. <i>A. lasiophylla</i>
Bracts 5-6 mm wide	143
143. Corollas purple, 6.4 cm long. Peru	139. <i>A. limbatifolia</i>
Corollas orange or yellow, 3.5-4 cm long	144
144. Bractlets lanceolate, 9 mm long, 1.5 mm wide, acute at apex; calyx segments 8 mm long. Colombia	140. <i>A. pinarotricha</i>
Bractlets linear-lanceolate, 17-18 mm long, 1.5-2 mm wide, aristate; calyx segments 17-18 mm long. Mexico	141. <i>A. verticillata</i>
145. Bracts 10-18 mm long	146
Bracts 20-40 mm long	153
146. Bracts 12-13 mm wide. Peru	142. <i>A. latibracteata</i>
Bracts 8-10 mm wide	147
147. Corollas 3-4.1 cm long	148
Corollas 4.8-6.5 cm long	151
148. Spikes short, 1-6 cm long	149
Spikes moderately long, 10-30 cm long	150

149. Leaf blades 5-7 cm wide; corolla 4.1 cm long. Peru 143. *A. montis-scalaris*
 Leaf blades 2-4.5 cm wide; corolla 3 cm long. Brazil 144. *A. stephanophysa*
150. Upper corolla lip obovate, 7 mm long and 6 mm wide, the lobes obcordate. Mexico
 145. *A. madrensis*
 Upper corolla lip ovate, 12 mm long and 9 mm wide, the lobes acute. Mexico
 146. *A. lineariloba*
151. Leaf blades thin, glabrous; bracts glabrous. Ecuador and Peru 147. *A. jacobinioides*
 Leaf blades firm, subglabrous to puberulous; bracts white-glandular-pilose 152
152. Corollas 5 cm long, orange-red. Colombia 148. *A. phlogea*
 Corolla 5.5-6.5 cm long, straw-colored. Ecuador 149. *A. guayasii*
153. Bracts 8 mm wide 154
 Bracts 9-14.5 mm wide 155
154. Leaf blades narrowly oblong-elliptic, 10-12 cm long and 2.5 cm wide. Colombia
 150. *A. lawranceae*
 Leaf blades oblong-lanceolate, 22-30 cm long and 6.5 cm wide. Colombia 151. *A. arisema*
155. Corollas 3-4.5 cm long 156
 Corollas 4.5-7.5 cm long 160
156. Spikes 22-27 cm long. Ecuador 152. *A. galba*
 Spikes 7-15 cm long 157
157. Upper corolla lip bifid or bilobed 158
 Upper corolla lip entire. Ecuador and Peru 153. *A. diffusa*
158. Upper corolla lip obovate, 10-14 mm long and 8-15 mm wide, the lobes 4-5 mm long
 and 4-7 mm wide 159
 Upper corolla lip oblong to ovate, 7 mm long and about 4 mm wide, the lobes 1.5-2 mm
 long and 1.5 mm wide. Colombia 154. *A. cuatrecasasii*
159. Bracts bright green, carinate. Brazil 155. *A. prismatica*
 Bracts red, ecarinate. Brazil 156. *A. paulensis*
160. Corollas 4.5-5.5 cm long 161
 Corollas 6-7.5 cm long 164
161. Upper corolla lip bifid 162
 Upper corolla lip entire 163
162. Bracts 12-14.5 mm wide, obtuse to slightly acute; corolla tube 3.5 cm long. Brazil
 157. *A. liboniana*
 Bracts 9-10 mm wide, acute; corolla tube 2.5 cm long. Brazil 158. *A. bradeana*
163. Spikes 21-22 cm long. Ecuador 159. *A. dodsonii*
 Spikes 3-16 cm long. Colombia 160. *A. conformis*
164. Upper corolla lip bilobed 165
 Upper corolla lip entire 166
165. Leaf blades to 22 cm long; upper corolla lip oblong, 13 mm long, 5 mm wide. Costa Rica
 and Panama 161. *A. dolichantha*
 Leaf blades 30-40 cm long; upper corolla lip ovate, 18 mm long, 9 mm wide. Colombia
 and Ecuador 162. *A. ameleta*
166. Corollas 6.5-7.5 cm long. Guatemala and El Salvador 163. *A. gigantiflora*
 Corollas 6 cm long 167
167. Upper corolla lip elliptic, about 2 cm long and 8 mm wide, acute, the middle lobe of the
 lower lip about 2 cm long, 7-8.5 mm wide. Colombia 164. *A. alexandri*
 Upper corolla lip obovate, 2.5 cm long and 10 mm wide, obtuse, the middle lobe of the
 lower lip about 2.7 cm long, 14 mm wide. Southern Mexico and Guatemala
 165. *A. schiedeana*

1. *Aphelandra runcinata* Klotzsch ex Nees

FIGURE 32

Aphelandra runcinata Klotzsch ex Nees, in de Candolle,
 Prodr. 11:302. 1847.—Leonard, Contrib. U.S. Nat. Herb.
 31:134. 1953.

Aphelandra runcinata var. *straminea* Leonard, Contrib. U.S.
 Nat. Herb. 31:135. 1953.

Aphelandra runcinata var. *pilosa* Leonard, Contrib. U.S. Nat.
 Herb. 31:135. 1953.

Aphelandra porphyrolepis Leonard, Contrib. U.S. Nat. Herb.
 31:148. 1953.

Shrubs to 4 m high; stems glabrous or nearly so, occasionally tomentulose toward tip, fleshy; leaf blades obovate to oblong-obovate or lanceolate, to 30 cm long and 10 cm wide, acuminate, cuneate at base, chartaceous, the margins moderately to rather deeply pinnatifid or incised, occasionally the upper leaves merely irregularly toothed, the excurrent nerves terminating in sharp spines 1–5 mm long, the upper surface drying olive green, nitid, glabrous or sparingly floccose, the hairs confined chiefly to the costa and lateral veins (10–30 pairs), the lower surface drying dull green or brown, glabrous to pilose, or sometimes the costa and veins sparingly floccose, these more prominent beneath than above; petioles to 2 cm long, glabrous or sparingly floccose; interpetiolar bracts triangular, retrorse, to 5 mm long, 1- to 5-nerved, the nerves excurrent, ending in sharp, straight spines 1–4 mm long; flowers usually numerous and crowded, borne in a simple terminal spike or in both terminal and lateral spikes, these forming a rather large pyramidal crowded or sometimes loose terminal paniculate inflorescence to 20 cm long and broad, the peduncles and rachises glabrous or floccose; bracts triangular, 7–9 mm long, 5 mm wide, glabrous, purplish red, ciliolate, obscurely nerved, the costa excurrent, ending in a small spine about 0.5 mm long; bractlets lanceolate, 5–6 mm long, 2.5 mm wide, acuminate, purplish red, ciliolate; calyx segments oblong, about 9 mm long, 2.5–3.5 mm wide, obtuse to acute, mucronulate, glabrous, entire to erose or erose-dentate near tip, the apical portion more or less ciliate with glandular or eglandular cilia or both; corolla red, rarely orange or straw-colored, glabrous, 3.5–4 cm long, the tube subcylindric, slightly curved, about 4 mm broad near base, slightly constricted at about 5 mm above the base, thence gradually enlarged to 5 mm at mouth, the throat transversely undulate-rugose, the upper lip oblong-ovate, about 15 mm long, 5 mm wide, rounded, sometimes obscurely 3-lobed near the tip, ciliate, finely and sparingly pilose within, the lower lip definitely 3-lobed, the lobes ovate, 5 mm long, 2.5 mm wide, rounded; capsules oblong-clavate, 18 mm long, about 3 mm broad at base, 6 mm broad at middle, obtuse, glabrous, minutely punctate; seeds flat, obliquely oblong, 5 mm long, 3.5 mm broad, 1.5 mm thick, brown, minutely roughened.

TYPE.—*Moritz s.n.* (syntype B, destroyed, isosyn-

type BM), Venezuela, Mérida, on river bank in a shady cinchona plantation, December.

DISTRIBUTION.—Wooded mountain slopes from 2000 to 3000 m alt. Colombia and Venezuela. VENEZUELA. MERIDA: 5500 m alt, 1846, *Funck & Schlim 944* (P); Tabay, 2200–2300 m alt, 2 Sep 1930, *Gehriger 402* (US, VEN); above “La Isla”, above Tabay, 2285–2745 m alt, 18 May 1944, *Steyermark 56609* (US); La Mucuy, on the slopes of the Sierra Nevada near Mérida, 2300–2800 m alt, 18 Jan 1958, *C. Earle Smith, Jr. 3503* (PH, US); La Mucuy, 2600 m alt, Aug 1958, *Aristeguieta 3323* (VEN); Jan 1963, *Aristeguieta 4921* (VEN); La Mucuy near Tabay, Sierra Nevada, 6 Aug 1958, *Dennis 2181* (K). TACHIRA: Highway Rubio-Las Delicias, 15 km above Diamante, 2 km above Matalomas, 2000 m alt, 4 Oct 1967, *Bunting 2470* (US). COLOMBIA. SANTANDER: Vicinity of Las Vegas, 2600–3000 m alt 21–23 Dec 1926, *Killip & Smith 16138* (NY, US); western slopes of Mount Peña Blanca, near Charta, 2500–2600 m alt, 11 Feb. 1927, *Killip & Smith 19262* (NY, US). CUNDINAMARCA: Dintel, between Facatativa and La Vega, 2300–2700 m alt, 4 Jun 1939, *Pérez-Arbélez & Cuatrecasas 5320* (US); San Cayetano, Hacienda Portugal, El Cape, 2520 m alt, 25 Aug 1966, *van der Hammen 1605* (COL); rocky massif E of Santandercito, 2000 m alt, June 1915, *Uribe 2115* (US); Lagunaseca or Laguna de Catarnica, SE of Santandercito, 2100 m, 16 Apr 1961, *Uribe 3695* (COL); below Salto de Tequendama, mountain below Santibar, 2100–2200 m alt, 5 Dec 1965, *Uribe 5487* (COL); collected along the Subata-San Francisco road, 2000 m alt, 26 Aug 1947, *Haught 6108* (US, holotype of *A. runcinata* Klotzsch var. *straminea* Leonard); Bogotá, *Purdie s.n.* (K). TOLIMA: Quindio, *Chusquea* (bamboo) pasture, *Goudot s.n.* (K). ANTIOQUIA. Camino Real Antiguo to Boqueron de Medellín, 2500 m alt, 2 Jun 1948, *Barkley, Correa, & Posada 101* (US); La Ceja, Dec 1939, *Bro. Daniel 2172* (US); La Sierra, near Medellín, 2000 m alt, 26 Dec 1930, *Archer 1093* (US); Alto de Santa Elena, Medellín, 2500 m alt, Dec 1948, *Uribe 1857* (US); Medellín, on “El Boquerón”, highway to the sea, 2500 m alt, 19 Jan 1952, *Uribe 2274* (COL); Medellín, 2100 m alt, *Sandeman 5711* (COL, K); along road from Medellín to Rionegro, 2000 m alt, 17 Nov 1948, *Killip, Barkley, & Bro. Daniel 39837* (US, holotype of *A. runcinata* Klotzsch var. *pilosa* Leonard); summit of Santa Elena, between Medel-

lin and Rionegro, 2500 m alt, 1 Apr 1949, *Barkley, Araque, & Gomez 424* (US); 30 Oct 1946, *Gutiérrez 1146* (MEDEL, US); 25 Apr 1948, *Noval & Barkley 18C484* (US); San Pedro, 28 Apr 1940, *Bro. Tomas 770* (US); Sonsón, 2200–2600 m alt, Dec 1891, *Lehmann 7574* (K); Quebrada Naranjal, tributary of the Rio Aures, Cordillera Central, 2740 m alt, 26–28 May 1944, *Ewan 15732* (US); Las Palmas, 2200 m alt, *Bro. Daniel 4024* (US); San Cristóbal to San Jerónimo, 2000–4000 m alt, *Lehmann 7846* (K); 1880, *Kalbreyer 1555* (K); *Jervise s.n.* (K); May 1973, *Patin s.n.* (K). CALDAS: Caldas, 1750 m alt, 5 Jul 1918, *Dawe 766* (K, NY, US); Manizales, 2400 m alt, *Triana 2372* (P, US, W), Manizales, 2200 m alt, *Triana 4071* (K). VALLE: Rio Bravo, NW of Darien, 1380 m alt, steep thick woodlands near stream, 26 Jul 1962, *Robinson 120* (K); Cali, Quebrado del Cabuyal, 1844, *Goudot s.n.* (P); Mount El Tabor, above Las Brisas, 1970–2100 m alt, 19 Oct 1946, *Cuatrecasas 22283* (US, holotype of *A. porphyrolepis* Leonard, isotype. K. WITHOUT EXACT LOCALITY. *Triana 231* (K); *Purdie s.n.* (K).

Aphelandra runcinata is easily recognized by the runcinate bracts at the base of the petiole. The species is an attractive shrub growing in dense woods. According to Leonard (1953:134), the leaf blades vary greatly, with some merely irregularly toothed and others from moderately to rather deeply pinnatifid or incised. The pubescence of the leaf blades also varies considerably, from glabrous to sparingly floccose to densely pilose.

2. *Aphelandra porphyrocarpa* Leonard

Aphelandra porphyrocarpa Leonard, Contrib. U.S. Nat. Herb. 31:140. 1953.

Shrub or small tree to 6 m high; stems glabrous or minutely and sparingly puberulous; leaf blades oblong-lanceolate, 22–26 cm long and 5–7 cm wide, acute, narrowed at base, the margins incised, the lobes ascending, about 5 mm long and 7–10 mm broad, the veins excurrent, terminating in small, sharp, yellowish spines to 2 mm long, the upper surface sparingly hirsute, the hairs appressed, hirsute beneath, the hairs confined chiefly to the costa and lateral veins (about 20 pairs), the venation moderately conspicuous, the veinlets coarsely reticu-

late beneath; petioles to 3.5 cm long, glabrous or nearly so; interpetiolar bracts minute, consisting mainly of 3–6 sharp, yellowish, hirsute or glabrous radiating spines 1–6 mm long; flowers borne in simple, terminal spikes to 25 cm long and about 3 cm broad, these rather lax, especially below, the rachis upwardly strigose; bracts triangular, 15 mm long and 5–6 mm wide, acuminate, the margins entire or rather distantly serrate (about 6 pairs of minute teeth), the veins excurrent, terminating in spines to 0.5 mm long, the upper half strigose on both surfaces, the lower half glabrous, the costa and 1 or 2 pairs of nerves prominent; bractlets lanceolate, to 9 mm long and 3 mm wide at base, obscurely nerved, rather densely hirsute without, ciliate; calyx supported by thick calluses, the segments oblong-ovate or obovate, 10–12 mm long, 4–5 mm wide, rounded, mucronate and dentate at tip (usually 2 pairs of minute teeth), ciliate, the outer surface and the upper part of the inner surface minutely and rather densely pubescent, the hairs appressed; corolla yellow, densely pubescent (the hairs to 0.5 mm long, more or less spreading), 4.5–5.5 cm long from base to tip of the upper lip, the tube funnellform, slightly ventricose, 6 mm broad narrowed gradually to about 4 mm near the middle, thence enlarged to 1 cm broad at mouth, the upper lip erect, 2–2.5 cm long, 6 mm wide at base, 1 cm wide at base of the 2 lobes, these obovate, 12–14 mm long, 7–8 mm wide near tip, rounded, the lower lip more or less spreading, divided nearly to the base into 3 obovate lobes 10–12 mm long and 7 mm wide, rounded; the lower pair of stamens reaching nearly to the tip of the upper lip; anthers of both pairs linear, about 7 mm long and 1.5 mm broad, these and the filaments glabrous; capsule purple, oblong, obtusish at apex, 5 mm broad at base, 7.5 mm broad at middle, 3.5 mm thick, glabrous, minutely punctate; seeds glabrous.

TYPE.—*Rusby & Pennell 891* (holotype NY, isotype US), Colombia, Huila, E of Neiva, 1800–2300 m alt, 1–8 Aug 1917.

DISTRIBUTION.—Endemic to Huila, Colombia, at elevations between 1800–2700 meters. COLOMBIA. HUILA: Between Hacienda Balsillitas, Meta, and El Cedral, 2700 m alt, 16 June 1944, *Little 8030* (US); Hacienda Pensilvánica, 15 km E of Baraya, 2430 m alt, 24 Jun 1944, *Little 8135* (US).

3. *Aphelandra acanthus* Nees

FIGURE 48

Aphelandra acanthus Nees, in de Candolle, Prodr. 11:302.

1847.—Leonard, Contrib. U.S. Nat. Herb. 31:142. 1953.

Aphelandra quercifolia Nees, in de Candolle, Prodr. 11:302. 1847.

Aphelandra phobera Leonard, Contrib. U.S. Nat. Herb. 31:143. 1953.

Aphelandra gilva Leonard, Contrib. U.S. Nat. Herb. 31:704. 1958.

Coarse suffrutescent shrubs or small trees to 3 m high; stems fleshy (at least the upper portion), spiny, hirsute to subtomentose, the hairs yellowish, upwardly appressed or some of them more or less spreading, the lower portions of the stems glabrate; leaf blades oblong to oblong-lanceolate, to 50 cm long and 15 cm wide, acute to acuminate at tip, narrowed at base, thin, shallowly to deeply incised, the lobes triangular, ascending, 2–5.5 cm from sinuses to tip, the margins serrate-dentate, the teeth triangular, 3–4 mm long, these and the tip armed with sharp yellowish spines to 5 mm long, both surfaces more or less hirsute, the hairs confined chiefly to the costa and veins (about 20 pairs), appressed or ascending, the venation rather prominent, the veinlets coarsely reticulate; petioles 1–6 cm long, the pubescence similar to that of the stem; interpetiolar bracts ovate, to 5 mm long and broad, the nerves thick, terminating in 3–10 sharp, straight, yellowish, spreading or retrorse spines 2–10 mm long, these hirsute or glabrate; flowers numerous, borne in simple, compact, terminal spikes to 30 cm long at maturity and 2.5–4 cm broad (excluding corollas), more or less lax toward base, the pubescence of the rachis similar to that of the stem; bracts lanceolate to oblong-ovate, 1.8–2.5 cm long and 9–12 mm wide (the lowermost somewhat longer and relatively narrower, resembling a small leaf blade) acute to acuminate, glabrous or sparingly hirtellous, the hairs more numerous on the outer surface than on the inner, the margins serrate, bearing 3–6 pairs of teeth, these and the tip terminated by sharp, yellowish, ascending, sparingly hirsute spines to 3 mm long; bractlets lanceolate, 11–18 mm long and 2–3.5 mm wide near base, gradually narrowed to a slender tip, the costa excurrent, terminating in a small spine, sparingly and minutely pubescent without, glabrous within, the margins ciliolate; calyx segments ob-

long-lanceolate to oblong-ovate, 10–14 mm long, 3.5–5 mm wide, abruptly narrowed to an acute tip, striate-nerved, finely puberulous and ciliolate, each segment terminating in a slender spine to 1.5 mm long; corolla yellow, 4–6 cm long, the tube densely yellowish tomentose except the basal portion, this glabrous, the hairs ascending, the tube oblique, curved, 5–10 mm broad at base, narrowed above ovary from 4–6 mm, thence gradually enlarged, the throat 8–10 mm broad, the upper lip erect or slightly recurved, 14–20 mm long, about 7 mm wide near base, bilobed, the lobes oblong-obovate, 8–15 mm long and 4.5–8 mm wide, rounded and emarginate, the lower lip more or less spreading, the lobes obovate, 8–11 mm long, about 6 mm wide, rounded or shallowly emarginate; stamens reaching or slightly exceeding the upper lip of the corolla; anthers 7.5–10 mm long, 2–3 mm broad, rounded at each end, glabrous; ovary glabrous; capsule brown, oblong, nitid, about 1.5 cm long and 6 mm broad.

TYPE.—*Humboldt 5836* (holotype B, F photo 8695), Colombia, Tolima, Quindio.

DISTRIBUTION.—Andean Colombia, Ecuador and Peru at elevations between 2000 and 3400 meters. COLOMBIA. PUTUMAYO: La Cabaña, old river basin of the Río Putumayo in Valle de Sibundoy, 2 Jan 1941, *Cuatrecasas 11631* (US). TOLIMA: Quindio, *Bonpland s.n.* (P); Mariquita, Quindio, 1350 m alt, Feb 1843, *Linden 1101* (P); Quindio, La Palmita, Nov 1845, *Goudot s.n.* (K, holotype of *A. quercifolia* Nees, isotype P); Mariquita, La Palmita, Quindio, 2200 m alt, 1851–1857, *Triana s.n.* (K, P, NY, W); Quindio, Nov 1853, *Holton 592* (K); Quindio, *Purdie s.n.* (K); along the Quindio Highway, between Cajamarca and summit of Divide, 3050 m alt. 27–28 Mar 1939, *Killip & Varela 34685* (US); El Libano to Murillo, Alto de Penones, 2200–2950 m alt, 20 Jul 1947, *Garcia-Barriga 12273* (US); without exact locality, *André 2047* (K). ANTIOQUIA: *Jarvis s.n.* (K). CALDAS: Alaska, above Salento, 3000–3400 m alt, 10–13 Aug 1922, *Pennell 9704* (GH, US); banks of the Río Otún, above Peñas Blancas, 3000 m alt, 27 Nov 1946, *Cuatrecasas 23321* (US). VALLE: Along Río Cali, between Puente de los Cárpatos and La Margarita, 2000 m alt, 2 Nov 1944, *Cuatrecasas 18484* (US, holotype of *A. phobera* Leonard); La Albania, valley of the Río Amayme, 3000–3100 m alt, 2 Feb 1965, *Cuatrecasas 26838* (US). CAUCA: Crest of Cordillera Oc-

cidental, W of Tambo, 2500–2600 m alt, 5 Nov 1946, *Haught 5174* (US); San José, San Antonio, 2400–2700 m alt, 28 Jun 1922, *Pennell & Killip 7392* (US); Canaan, Mount Puracé, 2900–3100 m alt, 11–16 Jun 1922, *Killip 6796* (US). NARIÑO: Páramo of El Tábano, near Pasto, 3150 m alt, 30 Jul 1965, *Uribe 5342* (COL); vicinity of Funes, near Río Tellez, 2600 m alt, 1 Dec 1944, *Ewan 16501* (US, holotype of *A. gilva* Leonard); Quebrada Panacual, 8 km S of Piedrancha, Río Guaga drainage, 2800 m alt, 3 Oct 1943, *Fosberg 21113* (US); Ipiales, Victoria highway to San Jorge, 2100 m alt, 23 Jun 1962, *Mora 2172* (COL, US). WITHOUT LOCALITY: 1760–1808, *Mutis 1944* (US); *Purdie s.n.* (K). ECUADOR. PICHINCHA: Below San Juan toward Chiriboga, 2900 m alt, 31 Dec 1955, *Asplund 18982* (S); road Chillogallo-Chiriboga, between the village and km 48, 1600–2000 m alt, 12 Jun 1967, *Sparre 16974* (S). CHIMBORAZO: Road of Pusucucho al Placer, 2850–3500 m alt, 10 Feb 1944, *Acosta 7279* (F). NAPO-PASTAZA: Cosanga, 1900 m alt, 11 Jan 1940, *Asplund 10329* (S); Papallacta, 27–29 Jan 1959, *Harling 3927* (S); Santa Bárbara, 2700 m alt, 15 Jul 1955, *Asplund 16916*. PERU. JUNÍN: Oxapampa, 1600 m alt, Aug 1944, *Souphkup 2403* (US).

4. *Aphelandra eurystoma* Mildbraed

Aphelandra eurystoma Mildbraed, Notizbl. 11:64. 1930.

Perennial herb to 1.5 m high; stem spiny, glabrous; leaf blades oblong or narrowly obovate-elliptic in outline, to 45 cm long and 20 cm wide, acuminate and spine-tipped, pinnately parted, the lobes subopposite, the larger 5 or 6 on each side about 10 cm long and 3 cm wide at base, the margins coarsely spinose-dentate, the sinuses narrowly rounded, reaching to within about 1 cm of the costa the lower lobes gradually reduced in size, the sinuses becoming broader and reaching the stout costa, the spines to 1 cm long, the base of the leaf blade often spinose-auriculate, both surfaces glabrous or the upper surface sparingly pilosulous; interpetiolar bracts ovate, up to 1.5 cm long, terminating in 5–6 sharp spines; inflorescence much branched forming a broad loose corymb about 25 cm in diameter, the lower branches about 25 cm long, recurved toward summit, the upper relatively

short, glabrous below to rather densely soft-pubescent at tip, the branches subtended by bracts similar to the stem leaves but smaller, the individual spikes short, 3–9 cm long, about 2 cm in diameter, solitary or several on each branch of the inflorescence, closely imbricate, the lower bracts reflexed, narrowly ovate-lanceolate, 1.5–3 cm long, 5–6 mm wide, long-acuminate, spinose-dentate; floral bracts oblong-ovate, up to 2 cm long, 7–9 mm wide at middle, acuminate, tipped by a small spine, the margins bearing one to several spines about 0.5 mm long, pilose, the hairs gland-tipped, the veins rather prominent; bractlets linear, 9–10 mm long, 0.5–1 mm wide, acute, rather sparingly nerved, glandular pilose; calyx segments striate-nerved, glandular-pilose above to subglabrate below, the posterior segment 12 mm long, 3 mm wide, narrowed and truncately 2–3 toothed at apex, the anterior segments linear, slightly shorter, 3 mm wide, acuminate, the lateral pair similar, 2 mm wide; corolla 2.5–3.5 cm long, purple, pubescent, the hairs both glandular and eglandular, the tube curved, 3 mm wide at base, slightly narrowed 6 mm above base, thence obliquely broadened to an infundibuliform throat 12 mm wide, the lips erect, the upper lip 10 mm long and 14 mm wide, 2-lobed to middle, the lobes broadly truncate or obcordate, 8 mm long, 6–7 mm wide, the lower lip 3-lobed, the middle lip trapeziform, broadly truncate, 10 mm long, 12 mm wide, the lateral lobes oblong, 8 mm long, 4 mm wide, obliquely rounded; filaments about 2 cm long, subequal; anthers 3.5–4 mm long; pollen grains ellipsoid, barely twice as long as wide; ovary silky-velutinous, 3 mm long; style glabrous, about 2 cm long; mature capsule not seen.

TYPE.—*A. Weberbauer 7876* (holotype B, destroyed, F photo 8706, isotype GH, NY, US), Peru, Cuzco, Quispicanchi, in the Marcapata Valley near Chilechile, 2200–2300 m alt, 22 Feb 1929.

DISTRIBUTION.—Shaded moist places in rocky soil, in the departments of Cuzco and Puno, Peru. PERU. CUZCO, Quispicanchi: Marcapata, near Chilechile, left bank of Araza River, 2300 m alt, 9 Dec 1938, *Vargas 9680* (UC); Convención: Estación Machupicchu, 2000 m alt, 1938, *Vargas 786* (F). PUNO, Sandia: 9 km from Limbani, on road, at Chamacani, 2700 m alt, 19 May 1942, *R. D. Metcalf 30549* (UC, US).

Aphelandra eurystoma is unique in its relatively short, oblique corolla and pubescent ovary.

5. *Aphelandra kolobantha* Lindau

Aphelandra kolobantha Lindau, Ann. Conserv. & Jard. Bot. Genève 2:39. 1898.

Stem glabrous or sparingly pubescent, fleshy; leaves sessile, oblong-lanceolate, to 50 cm long and 15 cm wide (those of the specimens examined about 30 cm long and 10 cm wide), acuminate and spine-tipped at apex, gradually narrowed from middle to base, often auriculate, thin, both surfaces glabrous or the costa and principal lateral veins sparingly pilose, the margins deeply sinuate and forming 5 or 6 pairs of broad blunt lobes, both lobes and sinuses spinulose-dentate, the spines 2–3 mm long; interpetiolar bracts ovate, up to 1.5 cm long, terminating in 3–5 pairs of sharp spines; spikes solitary, terminal, to 18 cm long, at first dense, later becoming lax, the peduncle to 10 cm long and 3 mm broad, glabrous or sparingly pubescent, the rachis finely pubescent; bracts narrowly lanceolate, minutely puberulent, the lower to 40 mm long and 7 mm wide, slenderly acuminate and spine-tipped, triple nerved, the margins bearing 5 or 6 slender spine-tipped teeth, the upper linear, entire but spine-tipped, somewhat shorter; bractlets linear, 8 mm long, 1 mm wide at base, minutely pubescent, triple nerved; calyx segments lanceolate, 9 mm long, 2–3 mm wide at base, acuminate, sometimes 2-toothed at apex, thin parallel-nerved, finely pubescent; corolla pale mauve, to 5 cm long, finely pubescent, the tube straight, suberect, 3 mm wide at base, narrowed to 2 mm at about 10 mm above base, thence, subobliquely enlarged to a cylindrical throat 9 mm in diameter, the lips equal, the lobes rounded, the upper lip 5 mm long and 7 mm wide, emarginate, the lower lip 3-lobed, the middle lobe 2-parted, the segments connate for about 3 mm, oval, about 5 mm long, 4 mm wide, emarginate, the lateral lobes about 6 mm long and 5 mm wide, emarginate; filaments about 35 mm long; anthers 4.5 mm long, barely exerted; style 47 cm long, exerted; capsule oblong, about 2 cm long, 6 mm in diameter, obtuse at apex, glabrous, the two halves spreading and recurved after dehiscence.

TYPE.—*C. Mandon 300* (holotype B, destroyed, F photo 8667, isotypes GH, K, P, US, W), Bolivia, Larecaja, vicinity of Sorata, along a shady brook at Teneria near Condurpata, 2900 m alt, Jan–Mar 1898.

DISTRIBUTION.—Endemic to Bolivia. BOLIVIA: Choro, 2700 m alt, *Brooke 6050* (F).

As suggested by Lindau in the type-description, *Aphelandra kolobantha* bears a superficial resemblance to *Acanthus spinosus* L., one of the few native European species of Acanthaceae. The deeply lobed middle lobe of the lower lip of the corolla and the long narrow spiny bracts are characters by which this species can be easily recognized.

6. *Aphelandra huilensis* Leonard

Aphelandra huilensis Leonard, Contrib. U.S. Nat. Herb. 31: 146. 1953.

Suffrutescent herb to 2 m high or more; stems glabrate below, strigose toward tip, the hairs about 0.5 mm long; leaf blades oblong-elliptic in outline, 15–25 cm long and 9–12 cm wide, acute to acuminate at apex and terminating in a yellowish spine 0.75–2 mm long, narrowed at base, deeply incised, the lobes triangular to oblong, to 7 cm long, each lobe terminated by a small yellowish spine (1–2 mm long), the entire margin serrate, the teeth 1–4 mm long and broad, all spine-tipped, the upper surface sparingly strigose or the costa and veins (about 20 pairs) more densely so, the lower surface more densely strigose, the hairs of the costa and veins appressed or ascending, the venation of the lower surface more prominent than that of the upper; interpetiolar bracts triangular, about 4 mm long, bearing a pair of stout spines, one about 1 cm long, the other 2–3 mm long; spikes terminal and axillary to 10 cm long and 2–4 cm broad, the rachis sparingly strigose; bracts about 2 cm long and 8 mm wide, acuminate, terminating in a spine about 1 mm long, the inner surface glabrous, the outer surface rather sparingly strigose, the margins ciliate, bearing 1–4 pairs of spine-tipped teeth, the spines 1–2 mm long; bractlets lanceolate, about 17 mm long and 3 mm wide near base, acuminate, terminated by a spine 1 mm long, striate-nerved, the inner surface glabrous, the outer rather sparingly strigose, ciliate, the margins usually entire; calyx segments red, oblong-lanceolate, 23–25 mm long, 3.5–5 mm wide, minutely strigose, the inner surface only so toward tip, the margins thin, sparingly and minutely dentate; corolla 4 cm long, red, rather densely hirsute except the glabrous basal portion, the tube 4 mm broad near base, slightly

contracted above the ovary, thence enlarged to 7 mm and again contracted at mouth to 5 mm, the upper lip erect, 5 mm long and 3–5 mm wide, bilobed, the lobes 3 mm long and 2.5 mm wide, rounded, emarginate, the lower lip more or less spreading, about 4 mm long, 3-lobed, the lobes ovate, 3.5 mm long and broad, rounded, the middle lobe flat; stamens reaching the mouth of the corolla tube; anthers yellow, 5–7 mm long, 1.5 mm broad; filaments triangular in cross section, glabrous toward tip, strigose toward base; pistil glabrous.

TYPE.—*K. von Sneidern 2649* (holotype S), Colombia, Huila, at La Plata, 2600 m alt, 20 Mar 1939.

DISTRIBUTION.—Endemic to Colombia, found at elevations above 2000 meters in the departments of Tolima, Huila and Cauca. COLOMBIA. TOLIMA: Río Hereje, near Albania, 2000 m alt, 20 Nov 1944, *Core 1619* (US). CAUCA: Along the Río San José at Aguabonita, in the region of Moscopán, 2280 m alt, 30 Jan 1947, *Cuatrecasas 23462* (US).

7. *Aphelandra acanthifolia* Hooker

FIGURES 1, 39

Aphelandra acanthifolia Hooker, Icon. Pl. 2, pl. 113. 1837.

Shrub or small tree to 8 m high; stems spiny, sparingly pilose, the hairs 0.5–1 mm long, yellowish brown, more or less appressed; leaf blades elliptic-ovate, acuminate at both ends, to 30 cm long and 12 cm wide, the upper surface dark green, hirsute, the hairs about 1 mm long, the lower surface paler green, velvety, densely hirsute with yellowish spreading hairs, the margins coarsely serrate, the teeth tipped by rigid spines 2–5 mm long; petioles rather short, 1–2 cm long, spiny near base, densely pilose, the hairs more or less spreading; interpetiolar bracts small, triangular, the veins ending in 1–5 straight, sharp, yellowish spines to 1.5 cm long; inflorescence a terminal spike and several similar spikes in the axils of the upper leaves, to 15 cm long, 3–4 cm in diameter, loosely imbricate, the peduncle 3–8 cm long, densely pilose, the hairs yellowish, more or less spreading; bracts triangular-ovate, 14–15 mm long, 6–7 mm wide near base, slenderly acuminate, terminating in a small spine about 1.5 mm long, entire, glabrous within, otherwise pilose with yellowish appressed or spreading

hairs; bractlets triangular-ovate, 12–13 mm long, 3–4 mm wide near base, abruptly and slenderly acuminate, spine-tipped, rounded, somewhat carinate, sparingly pilose, striate-nerved toward base; calyx segments oblong-ovate, spine-tipped, minutely and rather sparingly puberulent, striate-nerved, the nerves callous below, the margins, especially toward tip, pilose, the posterior 12–13 mm long, 4 mm wide, acuminate, the anterior and lateral pairs 11–12 mm long, 3 mm wide, acute; corolla tube orange-scarlet, the lobes yellow, sericeous without, glabrous within, the tube 32–63 mm long, 4–5 mm wide at base, 7–9 mm wide at mouth, the upper lip 10 mm long, 2-lobed, the lobes 5 mm long, 3 mm wide, the lower lip 10 mm long, 3-lobed, the middle lobe concave, 5 mm long and broad, the lateral lobes about 3 mm long and broad; stamens exerted about 5 mm beyond the upper lip; filaments about 30 mm long, sparingly pilose; anthers about 6 mm long; pollen grains typical, 84 μ long, 38 μ wide; ovary 5 mm long, glabrous; style about 55 mm long, glabrous; capsule ovate but slightly stipitate, 1.7 cm long, 0.5 cm wide, nitid, glabrous; mature seeds not seen.

TYPE.—*Mathews s.n.* (holotype K, isotypes FI, P), Peru, Amazonas, Chachapoyas, 1836.

DISTRIBUTION.—Southern Ecuador and northern Peru. ECUADOR. LOJA: Zamora-Huaico (SE Loja), 2300 m alt, 15 Dec 1947, *Espinosa 2267* (US); 2250–2300 m alt, 17 Jul 1946, *Espinosa 650* (US); Hacienda Montecristi 40 km NE of Loja, course of Río Zamora toward Oriente, 8 Jun 1947, *Espinosa 1477* (US); vicinity of Loja, 29 Sep–3 Oct 1918, *Rose 23296* (US); vicinity of Loja, 2500 m alt, 28 Jul 1939, *Penland 1149* (US); Loja, Apr 1905, 2200 m alt, *Rivet 970* (P); near Loja, 8 Nov 1881, *Poortmann 131* (P); mountains of Loja, Jul, *Hartweg s.n.* (K); Riobamba to Loja, 2500 m alt, 1876, *André 4515* (K); without definite locality, *Jameson s.n.* (US). PERU. CAJAMARCA: Jean: Near Hda Agua Blanca on Jeronga River, 2400 m alt, 30 Jul 1943, *Evinger 471* (US); Cutervo: La Achira (Só-cota-San Andrés), 24 May 1965, *López & Sagástegui 5397* (HUT, US); Chota and Cutervo, June 1879, *Jelskii 149* (W); Hualgayoc: Hacienda Taulis, vicinity of Casa Hacienda, 2300 m alt, 29 Aug 1964, *Hutchison & von Bismarck 6354* (UC, US, USM). AMAZONAS: Chachapoyas: Quebrada Molino 5 km below Chachapoyas, 2200–2400 m alt, 5 June 1962, *Wurdack 745* (US); Levanto, 1840, *Mathews 3165*

(K). LA LIBERTAD: Bolivar: Road between Unámen-Bolivar, 3050 m alt, 2 June 1960, López & Sagástegui 3318 (HUT, US). WITHOUT LOCALIT. 1876–1877, Vidal-Sénège s.n. (P); 1872, Grisar s.n. (P).

8. *Aphelandra reticulata* Wasshausen

Aphelandra reticulata Wasshausen, Phytologia 25:493. 1973.

Suffrutescent shrub 2–4 m high, the bark smooth, grayish; stems densely yellowish white-tomentose; leaf blades oblong-elliptic, 9–10 cm long and 3 cm wide, acuminate and spine-tipped, narrowed at base, subcoriaceous, the margins spinose-dentate, the spines 1–1.5 mm long, both surfaces pilosulous, the hairs whitish, densest on the costa and veins, the upper surface nitid, rugose, the lower surface strongly reticulate-nerved; petioles about 1 cm long, tomentose; interpetiolar bracts small, triangular, 5 mm long, consisting mainly of 2, sharp, yellowish spines 3 mm long; flowers borne in terminal spikes, these 6–7 cm long and 1–1.5 cm in diameter, the bracts erect-spreading, the rachis subtomentose; bracts lanceolate, 13–15 mm long, 4 mm wide at base, gradually narrowed to a slender spine-tipped point, entire, the lowermost bracts intergrading into stem leaves, these occasionally bearing several spine-tipped teeth on the margins, subtomentose; bractlets lanceolate, 1 cm long, 2 mm wide at base, gradually narrowed to a slender spine-tipped point, 1-nerved, faintly striate, pilosulous; calyx segments narrowly triangular, striate-nerved, subequal, 8 mm long, the posterior segment 2.5 mm wide at base, the anterior pair 2 mm wide, the lateral pair 1.5 mm wide, all spine-tipped, ciliate; corolla orange, 4 cm long, finely pubescent, gradually enlarged from 4 mm at base to 9 mm at mouth, the upper lip elliptic, 9 mm long and 4 mm wide, 2-lobed, the lobes elliptic, 3 mm long and 2 mm wide, obtuse at apex, the lower lip 3-lobed, the lobes orbicular, the middle lobe 4 mm long, 8 mm wide, the lateral lobes 4 mm in diameter; stamens as long as the lower lip, glabrous; anthers 4.5 mm long, glabrous; style exceeding anthers by 3 mm, glabrous; capsule not seen.

TYPE.—*W. Gehriger 294* (holotype US, isotypes F, MO, VEN), Venezuela, Mérida, Mucuruba, 780–810 m alt, 3 Jul 1930.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra reticulata is distinguished from *A. mutisii*, its nearest relative, by the strongly reticulate and rugose leaf blades, the entire bracts and the larger corollas. The corolla of *A. mutisii* is about 3 cm long and the leaf blades, although very similar in shape, size, and pubescence, are faintly if at all rugose and reticulate.

9. *Aphelandra cinnabarina* Wasshausen

Aphelandra cinnabarina Wasshausen, Phytologia 25:485. 1973.

Suffrutescent shrub, 3 m high; stems subquad-rangular, densely strigose; leaf blades oblong, 21–26 cm long and 4.5–5.5 cm wide, acuminate and spine-tipped, narrowed at base, submembranaceous, the margins spinose-dentate, the spines about 2 mm long, the upper surface deep green-subnitid, strigose, the lower surface pale green and dull, strigose, the costa and lateral veins numerous, more pronounced beneath than above; petioles about 1 cm long, densely strigose; interpetiolar bracts small, triangular, 3 mm long, sparingly strigose, the veins excurrent, ending in 1–5 straight, sharp, yellowish spines to 5 mm long, the middle one longer than the others; flowers borne in 1–6 terminal and sub-terminal, peduncled spikes, these 5–7 cm long and 1.5–2 cm wide, the peduncles 2–4 cm long, densely hirsute, the rachis strigillose; bracts entire, lanceolate, 10 mm long, 4 mm wide, gradually narrowed to a slender spine-tipped point, the lowermost bracts intergrading into stem leaves, these occasionally bearing several spine-tipped teeth on the margins, 3-nerved, strigillose, ciliolate; bractlets lanceolate, 7 mm long, 2.5 mm wide, gradually narrowed to a slender spine-tipped point, 1-nerved, faintly striate, strigillose, ciliolate; calyx segments lanceolate, striate-nerved, glabrous, subequal, 8 mm long, acuminate and spine-tipped, distinctly callose at base, the posterior segment 3.5 mm wide, the anterior pair 3 mm wide, the lateral pair 2 mm wide, all ciliolate; corolla orange-red without, the lobes internally yellow with red spots, hirtellous, 4–4.5 cm long, the tube 4 mm broad at base, narrowed to 2 mm at 4 mm above base, thence gradually enlarged to 8 mm at mouth, the upper lip erect, oblong, 10 mm long and 4 mm wide, bilobed,

the lobes oblong, 4 mm long and 2.5 mm wide, acute, the lower lip spreading, 3-lobed, the lobes ovate, subequal, the middle lobe 4 mm long and wide, the lateral lobes 4 mm long and 3 mm wide, all obtuse; stamens almost reaching the tip of the upper lip; anthers 4.5 mm long, 1 mm wide, rounded at base, arachnoid at tip; capsule ovate, 15 mm long, 8 mm wide, nitid, glabrous, minutely pitted; seeds dark brown, rugose, 5 mm long, 3 mm wide.

TYPE.—*W. H. Camp E-3374* (holotype US, isotype NY), Ecuador, Chimborazo, Cañon of the Río Chanchan, about 5 km N of Huigra, 1500–1950 m alt, 19–28 May 1945.

DISTRIBUTION.—Andean Ecuador, at elevations above 1220 meters. ECUADOR. AZUAY: Between Río Gamolotal and Río Huigra on road to Molleturo, 1220–1520 m alt, 10 Jun 1943, *Steyermark 52915* (F).

Related to *Aphelandra grangeri* Leonard, of Colombia and Ecuador, *A. cinnabarina* differs markedly in its relatively longer, broader, and strigose leaf blades. The leaf blades of *A. grangeri* are to 14 cm long and 4 cm wide and glabrous.

10. *Aphelandra tillettii* Wasshausen

FIGURE 35

Aphelandra tillettii Wasshausen, *Phytologia* 25:473. 1973.

Shrub with many ascending branches; stems terete, glabrous; leaf blades elliptic to oblong, about 15 cm long and 5–6 cm wide, short-acuminate, the tip itself a short spine, cuneate at base, firm, serrate, the teeth rather closely set, 1–2 mm long, each terminating in a sharp, ascending spine 1–2 mm long, the upper surface grayish green glabrous, the lower surface similar, the costa and lateral veins (about 15 pairs) equally prominent on both surfaces; petioles 1.5–3 cm long, subquadrangular, canaliculate, glabrous; interpetiolar bracts rhombate, 8 mm long and 3 mm wide, glabrous, narrowed at apex into a long, straight, yellowish spine about 3 mm long; flowers borne in lax terminal and subterminal spikes 11–15 cm long and 0.8 mm broad (excluding corollas), the peduncles 4–4.5 cm long, glabrous, the rachis subtomentose; bracts small, green, entire, triangular-ovate, 8–9 mm long, 3–4 mm wide, acuminate, the tip itself ending in a spine, glabrous, glandular-punctate, subcoriaceous; bractlets lanceolate, 7.5

mm long, 2 mm wide, gradually narrowed to a slender point tipped by a spine 1.5 mm long, glabrous, striate-nerved, ciliolate; calyx segments subulate, subequal, 8–9 mm long, acuminate and spine-tipped at apex, glabrous, ciliate, striate-nerved, the posterior segment 2 mm wide, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla orange-red at base, shading to lighter and more yellow above, pilose, about 4 cm long, the tube 2.5 mm broad at base, thence gradually and obliquely enlarged to 6 mm at mouth, the upper lip erect, oblong, 7 mm long and 3 mm wide at base, minutely bilobed, the lobes 1 mm long and wide, acute, the lower lip 3-lobed, the lobes subequal, the middle lobe ovate, 2 mm long and 2.5 mm wide, the lateral lobes oblong, 2.5 mm long, 1.5 mm wide, all obtuse; stamens just reaching the mouth of the corolla tube; anthers 5 mm long, 1 mm wide, arachnoid at tip; capsule not seen.

TYPE.—*S. Tillett 673-291* (holotype US), Peru, Amazonas, Bongará, Yambrasbamba, 40 km N of Jumbilla, 1860–2000 m alt, 2 Mar 1967.

DISTRIBUTION.—Know only from the type-locality.

Distantly related to *Aphelandra wurdackii* Wasshausen, of Peru, *A. tillettii* differs in having larger and broader leaf blades, longer spikes, triangular-ovate bracts, and pilose corollas.

11. *Aphelandra grangeri* Leonard

FIGURE 31

Aphelandra grangeri Leonard, *Contrib. U.S. Nat. Herb.* 31: 701. 1958.

Shrubs; stems glabrous, subterete, puberulous above, the hairs more or less appressed; leaf blades oblong-elliptic to oblong-lanceolate, to 14 cm long and 4 cm wide, acute or subacute, rounded or obtuse at base, glabrous, nitid above, coriaceous, the margins serrate-dentate, the teeth triangular, 2–5 mm long, terminating in sharp spines to 3 mm long, the costa and lateral veins (8–10 pairs) prominent beneath, obscure above; petioles 3–15 mm long, glabrous or sparingly puberulous, the hairs similar to those of the stems; interpetiolar bracts small, rhombic or suborbicular, to 2 mm long and 1.5 mm wide, tipped by a spine about 1.25 mm long, sometimes bearing a pair of lateral spines about 0.5 mm long; flowers borne in rather dense, terminal

spikes to 4.5 cm long and 1.5 cm broad (the corollas excluded), sessile, the rachis densely puberulous, the hairs similar to those of the stems, the lowermost internodes to 8 mm long, the others successively shorter toward the tip of the spike; the lowermost flowers subtended by large leaf-like bracts, these about 3 cm long and 10 mm wide; the upper bracts lanceolate, 10 mm long including the terminal spine (1 mm long), 2 mm wide, slenderly acuminate, entire, coriaceous, sparingly puberulous, except the margins, these ciliolate, the cilia more or less spreading, the costa prominent; bractlets lanceolate, 7–8 mm long and 1–1.5 mm wide near the base, slenderly acuminate, terminating in a spine about 1.25 mm long, glabrous or sparingly puberulous, except the margins, these ciliate, the cilia more or less spreading; calyx segments lanceolate, 9 mm long, 3 mm wide near base, acuminate, terminating in a sharp spine about 0.5–1 mm long, glabrous or bearing a few minute dorsal hairs, the margins densely ciliate, the cilia more or less spreading, the costa prominent, the lateral nerves numerous and rather prominent; corolla 4 cm long, orange to red-orange, rather densely pubescent, the hairs spreading, the tube 3 mm broad at base, enlarged to 4 mm just above base, then narrowed to 3 mm at 1 cm above base, thence enlarged to 7.5 mm at throat, the upper lip becoming erect, linear, about 1 cm long, 3 mm wide, bilobed at tip, the lobes oblong, about 3 mm long and 1.5 mm wide, rounded and emarginate at tip, the lower lip divided to base into 3 suborbicular lobes, these 4 mm long and 3.5 mm wide, rounded; stamens reaching the throat of the corolla; anthers 4.5 mm long, 1.5 mm broad, glabrous; filaments minutely pilose at base, glabrous above; style 3.5 cm long, glabrous; stigma cupular and fimbriate; ovary glabrous; capsule not seen.

TYPE.—*Granger & Rodriguez 10* (holotype US), Colombia, Cauca, on the Finca Las Mercedes, near Silvia, 3300 m alt, 1943.

DISTRIBUTION.—Andean Colombia and Ecuador at elevations above 2,700 meters. COLOMBIA. CAUCA: Páramo de Las Papas, between El Boquerón and La Hoyola, 3200–3510 m alt, 7–27 Sep 1958, *Idrobo, Pinto, & Bischler 3922* (P). ECUADOR. IMBABURA: Shanshipamba, 2700 m alt, 11 Nov 1949, *Acosta 14203* (F). CHIMBORAZO: Near Chimborazo, *André 4427* (K). AZUAY: Nudo de Portete; pass between headwaters of the ríos Tarqui (Atlantic) and Giron

(Pacific), 2700 m alt, 10 Mar 1945, *Camp E-2188* (NY, US); Cerra de St. Rosa, 19 Dec 1881, *Poortmann 247* (P). LOJA: Cerro Villonaco, 2800 m alt, 5 Oct 1946, *Espinosa E-759* (F).

12. *Aphelandra euopla* Leonard

Aphelandra euopla Leonard, Contrib. U.S. Nat. Herb. 31: 138, 1953.

Shrubby, thorny plants to 2 m high; stems subtomentose above, glabrate below; leaf blades oblong-elliptic, 6–7 cm long, 2–3 cm wide (the spines not included), coriaceous, glabrous or the costa and veins (10 or 12 pairs) bearing a few weak hairs, the margins serrate-dentate, the teeth triangular, 2–5 mm long, ending in sharp spreading spines to 5 mm long, the upper surface bright green, drying light olive green, the lower surface drying dark olive green, the venation very prominent, especially on the lower surface, the veinlets coarsely reticulate toward margins; petioles to 5 mm long, rather sparingly pilose; interpetiolar bracts ovate or suborbicular, 3–5 mm long and wide, serrate-dentate, the teeth terminating in spines, the terminal one as much as 7 mm long; flowers borne in rather dense terminal and subterminal spikes 5–7 cm long and about 2 cm broad (the corollas excluded), the peduncles (about 8 mm long) and the rachis brown-puberulous; bracts lanceolate, about 20 mm long including the terminal spine (2.5 mm long), 4 mm wide, acute, entire, coriaceous, sparingly ciliate, otherwise glabrous, the costa prominent; bractlets narrowly lanceolate, 12 mm long, including the terminal spine (2–2.5 mm long), 2 mm wide, acuminate, subcarinate, coriaceous, the costa prominent, terminating in a spine sparingly ciliolate; calyx 1 cm long, the segments subequal, chartaceous, lanceolate, 2.5–4 mm wide, abruptly acute and at least some of them minutely dentate near tip (2–4 teeth), all terminating in a spine about 1 mm long, glabrous or bearing a few minute hairs, sparingly ciliolate; corolla 4.5–5 cm long, yellow distally, orange proximally, finely pubescent, the hairs segmented, up to 0.5 mm long or a few of them slightly longer, the tube slightly curved, 3 mm broad at base, narrowed at about 5 mm above base to 2.5 mm, thence rather abruptly enlarged to 5.5 mm, the throat 6 mm broad, the portion from about 1.5 cm above base to mouth

tubular, the upper lip obovate, erect, 1 cm long, 3 mm wide at base, 4 mm wide near tip, emarginate, the lobes triangular, obtuse, sometimes bilobed at tip, the lower lip 3-lobed, more or less spreading, the lobes oval, 5 mm long, 3.5–4 mm wide, obtuse or rounded, the sinuses rounded; stamens and pistil as long as the upper corolla lip; anthers 5 mm long, pilose at tip; filaments glabrous except at juncture with connective, here dorsally pilose; style glabrous; ovary glabrous; mature capsule not seen.

TYPE.—*J. Cuatrecasas 20236* (holotype US), Colombia, Valle, Valley of the Rio Bugalagrande, at Cuchilla de Barragán, 3320–3300 m alt, 20 Mar 1946.

DISTRIBUTION.—Known only from the type-locality.

13. *Aphelandra phaina* Wasshausen

Aphelandra phaina Wasshausen, *Phytologia* 25:492. 1973.

Suffrutescent, branched shrub, 2 m high; stems sparingly subtomentose toward tips, terete; leaf blades oblong, 12–15 cm long, 4.5–5.5 cm wide, acuminate, gradually narrowed and obtuse at base, firm, coriaceous, glabrous or the costa and veins (numerous) bearing a few hairs, the margins serrate-dentate, the teeth triangular, 4–5 mm high, ending in sharp spreading spines 2–3 mm long, the upper surface drying bright yellowish green, the lower surface drying a dull olivaceous, the venation very prominent, especially on the lower surface, the veinlets coarsely reticulate toward margins; petioles 1–1.5 cm long, glabrous or sparingly tomentose; interpetiolar bracts oblong to ovate, 16 mm long, 9 mm wide, serrate-dentate, the teeth terminating in spines, the terminal one short, 1 mm long, the lateral ones 4 mm long; flowers borne in terminal, peduncled spikes 17.5 cm long and about 3 cm broad (excluding corollas), the peduncle (about 5.5 cm long) and rachis glabrous; bracts reddish, ovate, 20–23 mm long, 11.5–12 mm wide, acuminate and occasionally spine-tipped, nitid, coriaceous, striate-nerved, entire, glabrous; bractlets lanceolate, 12 mm long, 4 mm wide, short-acuminate, the tip a small mucro, subcarinate, coriaceous, striate-nerved, glabrous; calyx segments red, oblong-elliptic, 16–17 cm long, acute and mucronulate, striate-nerved, glabrous, the segments subequal, the posterior one 4.5 mm wide, the ante-

rior pair 4 mm wide and the lateral pair 3.5 mm wide; corolla crimson, glabrous, 5–5.5 cm long, the tube 4 mm broad at base, narrowed to 3 mm at 1 cm above base, thence gradually enlarged to 7 mm at mouth, the upper lip erect, elliptic, 14 mm long, 7 mm wide, the tip obtuse and entire, the lower lip 3-lobed, more or less spreading, the middle lobe obovate, 8 mm long, 7 mm wide, obtuse, the lateral lobes 8 mm long, 7 mm wide, obtuse or rounded; stamens terminating at tip of upper corolla lip; anthers 9 mm long, 1.5 mm wide, acute, glabrous; capsule not seen.

TYPE.—*W. H. Camp E-4292* (holotype US, isotype NY), Ecuador, Azuay, Eastern Cordillera, 1–8 km N of Sevilla de Oro, 2400–2700 m alt, 27 Jul 1945.

DISTRIBUTION.—Endemic to Ecuador, in the provinces of El Oro and Azuay at elevations between 2135–2700 meters. ECUADOR. EL ORO: Near Pampa de los Cedros, south of Cerro Chivo-Turco, forested slopes along quebradas tributary to Río Palma, 2135–2285 m alt, 11 Aug 1943, *Steyermark 53783* (F).

Aphelandra phaina is closely related to *A. chrysantha* Wasshausen, but the bracts of that relative are pale green, the calyx yellowish green, and the corolla yellow.

14. *Aphelandra chrysantha* Wasshausen

FIGURES 45, 46

Aphelandra chrysantha Wasshausen, *Phytologia* 25:483. 1973.

Suffrutescent shrub, branched near base, 3 m high; stems subtomentose toward tips, subquadrangular; leaf blades oblong to elliptic, 17.5–18.5 cm long, 4.5–5 cm wide, acuminate, gradually narrowed and obtuse at base, firm, coriaceous, glabrous or the costa and veins (15–17 pairs) bearing a few weak hairs, the margins serrate-dentate, the teeth triangular, 4–7 mm high, ending in sharp spreading spines 3 mm long, the upper surface drying bright yellowish green, the lower surface drying dull olivaceous, the venation rather prominent below; petioles about 1.5 cm long, rather sparingly tomentose; interpetiolar bracts ovate or suborbiculate, 12 mm long, 7.5 mm wide, serrate-dentate, the teeth terminating in spines, the terminal one as much as 7 mm long; flowers borne in terminal,

peduncled spikes 17–18.5 cm long and about 3 cm broad (the corollas excluded), the peduncle (about 7 cm long) and rachis glabrous; bracts pale green, ovate, 25 mm long, 13 mm wide, acuminate and spine-tipped, coriaceous, striate-nerved, entire, glabrous; bractlets lanceolate, 13–14 mm long, 5.5 mm wide, short-acuminate, the tip itself a small mucro, subcarinate, coriaceous, striate-nerved, glabrous; calyx segments pale yellowish green, oblong-elliptic, 18 mm long, acute and mucronulate, striate-nerved, glabrous, subequal, the posterior one 6 mm wide, the anterior pair 5 mm wide and the lateral pair 4 mm wide; corolla bright yellow, glabrous, 5–5.5 cm long, the tube 4 mm broad at base, narrowed to 3 mm at 1 cm above base, thence gradually enlarged to 12 mm at mouth, the upper lip erect, oblong, 14 mm long, 8 mm wide, the tip obtuse and entire, the lower lip 3-lobed, more or less spreading, the middle lobe ovate, 6 mm long, 7.5 mm wide, retuse at apex, the lateral lobes 6 mm long, 7 mm wide, obtuse or rounded; stamens terminating at tip of upper corolla lip; anthers 8–9 mm long, arachnoid at tip, bearing a sterile theca; capsule ovate, 2 cm long, 9 mm broad, acute, dark-brown, nitid, minutely pitted; seeds muricate, dark brown, 5 mm long, 3 mm wide.

TYPE.—*W. H. Camp E-4291* (holotype US, isotype NY), Ecuador, Azuay, Eastern Cordillera, 1–8 km N of Sevilla de Oro, 2400–2700 m alt, 27 Jul 1945.

DISTRIBUTION.—Andean Ecuador in the provinces of Azuay and Loja at elevations between 1600–2800 meters. ECUADOR. LOJA: Above Loja towards Catamayo, 2800 m alt, 9 Oct 1955, *Asplund 18060* (S); road from Loja to La Tuna, km 14–34, 1600–2600 m alt, 21 Nov 1961, *Dobson & Thien 1515* (US); slopes of Cerro Villonaco, 10 km W of Loja, 2400 m alt, 6 Mar 1966, *Knight 520* (US).

Aphelandra chrysantha is closely related to *A. phaina* Wasshausen, but the bracts of that relative are reddish, the calyx red, and the corolla crimson.

15. *Aphelandra rusbyi* Britton

Aphelandra rusbyi Britton, Bull. Torr. Bot. Club 27:77. 1900.
Aphelandra cryptantha Rusby, Mem. N.Y. Bot. Gard. 7:364. 1927.

Suffrutescent, 40–60 cm high or more; stems terete, the upper portion pilose, the hairs whitish, to 2 mm long, appressed or somewhat spreading;

leaves sessile or the lower with very short broad petioles, the blades oblanceolate to oblong-obovate, 10–22 cm long, 2–9 cm wide, narrowly cuneate at base, acute and spine-tipped at apex, both surfaces sparingly pilose or glabrous, the hairs spreading and confined chiefly to the costa and lateral veins (8–10 on each side), the upper surface green, the lower paler, the upper fourth of the margin entire and ciliate, the remainder spinose-dentate, the teeth (2–5 pairs) produced by the continuation of the lateral veins, successively larger and more spinose toward base, the spines 3–4 mm long; interpetiolar bracts small, oblanceolate, about 4 mm long, spine-tipped; spike single, terminal, solitary or several, the lower in the axils of the upper leaves, to 9 cm long, about 2 cm in diameter, the bracts closely imbricate, the peduncles 3–5 cm long, these and the rachis rather densely pilosulous; bracts lanceolate to ovate, the upper side reddish, the lower green with reddish and orange-yellowish spots, 1.5–2.4 cm long, 5–7 mm wide, acute and spine-tipped, puberulent, the margins pilose and bearing on each side 4–6 slender, spinose teeth, these ascending, the spines to 7 mm long; bractlets linear-falcate, acuminate, 11–14 mm long, 1.5–2 mm wide, puberulent and pilose, carinate, 1-nerved; calyx segments thin, almost transparent, puberulent, striate-nerved, the posterior segment oblong, obtuse, 13 mm long, 3 mm wide at base, 4.5 mm wide about two-thirds the distance from base, the anterior pair lanceolate, slightly oblique, acuminate, 14 mm long, 2.5 mm wide, the lateral pair linear-lanceolate, 8 mm long, 1 mm wide; corolla reddish orange (red at the summit, yellowish below), slightly exceeding the calyx, 15 mm long, the lips subequal, about 3.5 mm long, the upper erect, 2-lobed, the lobes triangular, 2 mm long, acute, the lower lip 3-lobed, the lobes ovate, obtuse; stamens reaching the base of the corolla lips; capsule 1 cm long.

TYPE.—*H. H. Rusby 1108* (holotype NY, isotypes K, P, US), Bolivia, Beni, Yucuma, Reis, 450 m alt, June 1886.

DISTRIBUTION.—Restricted to the Bolivian Andes. BOLIVIA. BENI: Yucuma: Rurrenabaque at the Rio Beni (vicinity of Reyes), 10 Dec 1930, *Fleischmann 313* (S); LA PAZ, Sur Yungas: Huachi, head of the Beni River, 540 m alt, 12 Aug. 1921, *White 542* (NY, holotype of *A. cryptantha* Rusby, isotypes K, US). SANTA CRUZ: Sara: Buenavista, 27 Jun

1925, *J. Steinbach* 7157 (S); Angostura, 550 m alt, 16 Jul 1966, *R. Steinbach* 338 (US); May 1892, *O. Kuntze s.n.* (NY).

Aphelandra rusbyi is distinguished by its spiny bracts and papery calyx segments the lateral pair of which are comparatively small. With the availability of additional material, the differences noted by Rusby between *A. rusbyi* and *A. cryptantha* can no longer be substantiated.

16. *Aphelandra rubra* Wasshausen

Aphelandra rubra Wasshausen, *Phytologia* 25:494. 1973.

Suffrutescent herb; stems terete, the upper portion moderately strigose, the hairs appressed; leaf blades elliptic to oblong, 27–36 cm long and 7–7.5 cm wide, short-acuminate, narrowed from middle or slightly below middle to a long-attenuate base, serrate, the veins terminating above middle in about 4 pairs of teeth, these ascending, about 5 mm long and 15 mm broad, the attenuate portion of the leaf blades armed with 3–4 spine-tipped teeth, the upper surface sparingly strigose, the lower surface more densely so, the hairs subappressed, those of the costa and lateral veins (about 19 pairs) appressed, the venation rather prominent, more so beneath than above; petioles 1.5–3 cm long, strigose, the hairs upwardly appressed; interpetiolar bracts small, leaf-like, triangular, about 7 mm long, densely strigulose, spine-tipped, the spine about 1 mm long; flowers borne in 1 or several, terminal, peduncled spikes, 15–24 cm long, 2–3 cm wide, moderately dense, the peduncle 2–3 cm long, strigulose, the rachis puberulous, the hairs whitish; bracts red, greenish at tip, ovate, 20 mm long and 15 mm wide including the spines, acuminate, subchartaceous, striate-nerved, glabrous, the margins spinose-toothed, the teeth (11–13 pairs) produced by the continuation of the lateral veins, successively larger and more spinose toward apex, the spines ascending, 2 mm long; bractlets subulate, red, 15 mm long, 2 mm wide, long-acuminate, glabrous, the margins sparingly ciliolate; calyx segments subequal, triangular, 10–17 mm long, the posterior segment 16–17 mm long, 5 mm wide at base, the anterior pair 16 mm long, 3 mm wide, the lateral pair 10 mm long, 2 mm wide, carinate, all striate-nerved, subhyaline, the margins entire; corollas wanting; capsule oblong, 12.5 mm long, 4 mm

broad, shining, light brown, muriform; seeds drying light brown, 3 mm long, 2.5 mm wide, densely hirsute and glandular-punctate.

TYPE.—*B. A. Krukoff* 10146 (holotype US, isotype NY), Bolivia, La Paz, S. Yungas, basin of Río Bopi, San Bartolome (near Calisaya), 750–900 m alt, 1–22 Jul 1939.

DISTRIBUTION.—Andean Peru and Bolivia, at elevations between 450–750 meters. PERU. LIMA: Valley below Chaclla, 750 m alt, May 1866, *Pearce s.n.* (K). BOLIVIA. BENI: Near Maia, 36 km W of Rurrenabaque, 450 m alt, Apr 1947, *Cutler* 9071 (F). LA PAZ: San Buenaventura 450 m alt, 19 Nov 1901, *Williams* 646 (K). WITHOUT EXACT LOCALITY. "Peru," 1820, *Haenka s.n.* (M, F photo 20495). The locality here is possibly erroneous; Haenke could have collected this specimen in Bolivia and not Peru.

Aphelandra rubra is perhaps nearest in relationship to *A. rusbyi*, but differs markedly in that its bracts are glabrous, acuminate, and the margins bearing on each side 11–13 slender, spinose teeth.

17. *Aphelandra dasyantha* Wasshausen

Aphelandra dasyantha Wasshausen, *Phytologia* 25:474. 1973.

Shrub 1–3 m high; stems terete, sparingly strigose; leaf blades oblong to ovate, 27–32 cm long, 12–14 cm wide, short-acuminate, gradually narrowed and attenuate at base, thin, submembranaceous, the upper surface dark green, strigose, the lower surface paler green, densely strigillose, the margins serrate-dentate, the teeth to 2 cm long, tipped by a spine 1 mm long, ciliate, the costa and lateral veins (9–10 pairs) prominent, especially on the lower surface, the veinlets reticulate toward margins; petioles (unwinged portion) about 2 cm long, densely pilose; interpetiolar bracts ovate or suborbicular, 1 cm long, 6 mm wide, serrate-dentate, the teeth terminating in spines, the terminal one as much as 6 mm long; flowers borne in terminal and subterminal spikes 8–15 cm long and about 2.5 cm broad, the peduncles (about 3 cm long) and rachis densely pilose, the hairs yellowish brown; bracts green, lance-ovate, 22 mm long, 8 mm wide (without spines), acute, terminating in a spine about 2 mm long, strigose, the margins serrate-dentate with 3 pairs of teeth, these ascending, 2 mm long, spine-tipped, the spines 3 mm

long, ciliolate; bractlets lanceolate, 13 mm long, 3 mm wide, acuminate and spine-tipped, subcarinate, striate-nerved, sparingly pilose, the margins entire, ciliate; calyx segments lance-ovate, 6–7 mm long, 3.5–4 mm wide, short-acuminate and spine-tipped, the nerves callose below, striate-nerved, reticulate toward margins, puberulous, the margins ciliate; corolla red, 5–5.6 cm long, densely strigose, the hairs yellowish, the tube 4 mm broad at base, narrowed to 3 mm at 9 mm above base, thence gradually enlarged to 8 mm at mouth, the upper lip oblong, erect, 11 mm long, 5 mm wide, bilobed, the lobes ovate, 5 mm long, 2.5 mm wide, retuse, the lower lip 10 mm long, 3-lobed, the middle lobe ovate, concave, 6 mm long and 5 mm wide, obtuse, the lateral lobes oblong, 7 mm long, 3.5 mm wide, obtuse; stamens reaching the tip of the upper lip; anthers 6 mm long, 1 mm wide; capsule oblong, 15 mm long, 7 mm wide, nitid, glabrous; seeds triangular-ovate, 5 mm long, 3.5 mm broad, dark brown, muricate.

TYPE.—*Vidal Sénège s.n.* (holotype P), Ecuador and Peru, 1876–1877.

DISTRIBUTION.—Southern Ecuador and northern Peru. PERU. AMAZONAS: Bagua Chica, 25 Jan 1877, *Vidal-Sénège 4811* (P); San Carlos, 7 Feb 1877, *Vidal-Sénège 4833* (P); Guayabamba, 1877, *Vidal-Sénège s.n.* (P).

Aphelandra dasyantha is not nearly allied to the other species.

18. *Aphelandra juninensis* Wasshausen

FIGURE 37

Aphelandra juninensis Wasshausen, *Phytologia* 25:471. 1973.

Shrub; stems quadrangular, sparingly tomentose; leaf blades opposite or occasionally ternate, oblong-lanceolate, 21–24 cm long and 5.5–6.5 cm wide, gradually narrowed to a slender acuminate tip, cuneate at base, thick, firm, coriaceous, irregularly serrate-dentate, the teeth broadly triangular, armed with slender spines to 2 mm long, both surfaces glabrous except the costa and lateral nerves, these sometimes sparingly tomentose, the smaller veins forming a rather conspicuous reticulation; petioles about 1 cm long, sparingly tomentose; interpetiolar bracts minute, armed with one or more straight, slender spines; spikes one to several,

terminal and in the axils of the upper leaves, short, 3–5.5 cm long, slender-peduncled, the peduncles 1.5–5.5 cm long, these and the rachis tomentose; bracts green, oblong-ovate, 12–15 mm long, about 5 mm wide, rather abruptly acuminate, armed with about 6 slender spines on each side to 3.5 mm long and terminating in a similar spine, glabrous or the costa, base, and margins pilose; bractlets triangular-ovate, 10 mm long, 3 mm wide at base, gradually narrowed to a slender point tipped by a spine about 3 mm long, pilose without, glabrous within, one margin entire, the other bearing a pair of spines, one 0.5 mm long, the other 1 mm long, ciliate; calyx segments lanceolate, subequal, 10–11 mm long, 2–3 mm wide, slenderly acuminate, spine-tipped, glandular-ciliate; corolla puberulent, 3–3.5 cm long, the tube 3 mm broad at base; narrowed to 2 mm at 7 mm above base, thence gradually enlarged to 8 mm at mouth, the upper lip erect, recurved at tip, elliptic, 7 mm long and 5 mm wide, bilobed, the lobes obovate, 2 mm long and 2.5 mm wide, mucronulate, the lower lip 3-lobed, the lobes obovate, subequal, erect, the middle lobe 3 mm long and 6.5 mm wide, the lateral lobes 4 mm long and wide, all obtuse; stamens barely exerted beyond the mouth of the corolla tube; anthers 5 mm long, 1 mm wide, acute at both ends; capsule not seen.

TYPE.—*A. Weberbauer 6537* (holotype F, isotype GH), Peru, Junín, Huancayo, valley of Pariahuanca, between Panti and Rocchac, 2400 m alt, Mar 1913.

DISTRIBUTION.—Known only from the type locality.

Aphelandra juninensis is closely allied with *A. macrosiphon*, from Bolivia. It has, however, relatively narrower leaf blades than the Bolivian species, oblong-ovate bracts rather than lanceolate, and triangular, slenderly acuminate bractlets rather than lanceolate ones as pictured on the type sheet of *A. macrosiphon*, by Lindau.

19. *Aphelandra superba* Lindau

Aphelandra superba Lindau, *Ann. K. K. Naturh. Hofmus. Wien* 16:71. 1901.

Shrubby, to 2 m high; the young branches pubescent, becoming glabrous, bearing a pair of small 1- or 2-spined bracts opposite the base of the petioles; leaf blades oblong to oblong-ovate, acute

to acuminate at apex, narrowed at base, 21 cm long, 9 cm wide, thick coriaceous, the margins irregularly spinose-serrate (the spines to 2 mm long), both surfaces velutinous-pubescent, the hairs of the upper surface straight, about 0.5 mm long, those of the lower longer, softer and webby, the costa and lateral veins (17 or 18 on each side) prominent, the small veins more or less reticulate; petiole about 0.5 cm long, thick tomentose beneath, short-pilose above; inflorescence a dense panicle of short spikes, the bracts closely imbricate, the rachis tomentose; bracts ovate, 15 mm long, 7–8 mm wide (without teeth), velutinous-pubescent, green, the nerves projecting into 6 or 7 slender spinose teeth to 3 mm long, the tip acuminate; bractlets lanceolate, 11 mm long, 2.5 mm wide just above base, slenderly acuminate and tipped by a spine 0.5 mm long; calyx segments lanceolate 10–11 mm long, 2–3 mm wide, slenderly acuminate and tipped by a minute spine, striate-nerved, glabrous below, sericeous-pubescent above, the margins more or less scarios; corolla minutely pubescent, to 4 cm long, salmon color, the tube about 4 mm wide at base, constricted to 2.5 mm about 5 mm above base, thence gradually enlarged to about 8 mm at mouth, the upper lip about 1 cm long, divided into 2 obtuse lobes about 3 mm long, the lower lip 3-lobed, the lobes about 4 mm in diameter; filaments about 3.5 cm long; anthers 4.5 mm long; pollen grains typical, 77 μ –88 μ long, 27 μ –30 μ diameter; ovary 4 mm high, glabrous; style ca 5 cm long, glabrous; mature capsule not seen.

TYPE.—*Lobb s.n.* (holotype, W; isotype B, destroyed, F photo 8678), "Peru." This is probably one of the specimens collected by Lobb in Ecuador and erroneously ascribed to Peru (Killip, 1932).

DISTRIBUTION.—Southern Ecuador. ECUADOR. LOJA: Between La Toma and Loja, 1800–2600 m alt, 4 Sep 1923, *Hitchcock 21391* (US).

Aphelandra superba superficially resembles *A. acanthifolia*. It differs strikingly, however, in its larger, thicker, tomentose leaf blades and strongly spinose-dentate bracts. The description was compiled from the holotype at Vienna.

20. *Aphelandra benoistii* Wasshausen

Aphelandra benoistii Wasshausen, *Phytologia* 25:489. 1973.

Shrub; stems terete, minutely and inconspicu-

ously tomentose; leaf blades oblong-lanceolate, 5.5–9.5 cm long and 3–4 cm wide, gradually narrowed to a slender acuminate tip, cuneate at base, thick, subcoriaceous, serrate, the teeth rather closely set, 2–3 mm long, each terminating in sharp, straight, yellowish spines 1–2 mm long, the upper surface nitid, sparingly tomentose, the lower surface glabrous or the costa and lateral veins (12–13 pairs) sparingly tomentose, the costa and veins prominent, the veinlets reticulately anastomosing; petioles 1 cm long, densely tomentose; interpetiolar bracts small, triangular, 2–3 mm long, subtomentose, the veins excurrent, ending in 1–5 straight sharp yellowish spines to 5 mm long, the middle one longer than the others; spikes one to several, terminal and in the axils of the upper leaves, sessile, short, 5–6 cm long, 1.5 cm wide, the rachis tomentose; bracts green, rhombate, 18 mm long, 11 mm wide, acuminate and spine-tipped, the margins ending in a pair of distinctively yellow spines, tomentose especially near the base, 3-nerved, rather conspicuously reticulate near tip; bractlets lanceolate, 12 mm long, 3 mm wide, subfalcate, carinate, gradually narrowed to a slender point tipped by a spine 1.5 mm long, pilose without, especially near the margins, striate-nerved; calyx segments oblong, subequal, 9 mm long, acuminate and cuspidate, pilose, ciliate, striate-nerved, the posterior segment 3 mm wide, the anterior pair 2.5 mm wide, the lateral pair 2 mm wide; corolla orange, moderately pilose, 3–3.5 cm long, the tube 2 mm broad at base, gradually enlarged to 6 mm at mouth, the upper lip erect, elliptic, 8 mm long and 4 mm wide, bilobed, the lobes elliptic, 3.5 mm long, 2 mm wide, obtuse, the lower lip 3-lobed, the lobes oblong, subequal, erect, the middle lobe 4 mm long and 2.5 mm wide, the lateral lobes 4 mm long and 1.5 mm wide, all obtuse; stamens barely extending beyond the mouth of the corolla tube; anthers 5 mm long, 1 mm wide, acute at both ends; capsules not seen.

TYPE.—*R. Benoist 3986* (holotype P), Ecuador, Pinchincha, Mojanda, 3 Mar 1931.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra benoistii is perhaps nearest in relationship to *A. grangeri*, but differs markedly in its much longer and broader, rhombate, tomentose, and spiny-margined bracts.

21. *Aphelandra cirsioides* Lindau

Aphelandra cirsioides Lindau, Fedde Repert. Nov. Sp. 1:157. 1905.

Shrub 2 m high; bark light gray, bearing numerous fissured lenticels, the smaller twigs more or less pilose; leaf blades oblong-lanceolate, to 13 cm long and 3 cm wide, but usually somewhat smaller at base, acute and mucronate at apex, firm, thick, the margins sinuate-dentate, the nerves ending with the formation of sharp spines 2–4 mm long, the upper surface shining, sparingly pilose, the hairs confined chiefly to the costa and nerves, the lower surface glabrous except the sparingly pilose, prominent costa and veins; petioles to 1 cm long, pilose, the hairs 1 mm long or less, each petiole flanked at base by a pair of interpetiolar bracts, these ovate 3 mm long or less, the nerves terminating in 1–5 sharp spines to 4 mm long, these more or less retrorse; lower flowers solitary, axillary, the upper forming spikes at the tips of the branches, the rachis rather densely pilose; lower bracts leaflike, the upper green, ovate to obovate, 10–15 mm long, 5 mm wide, the margin spinose-dentate, with 3–5 pairs of spines, usually strongly pilose; bractlets lanceolate, 9–11 mm long, 2.5–3 mm broad near base, gradually narrowed to a spinose tip, the middle nerve prominent, the margins ciliate, often bearing one or two spines; calyx segments oblong-ovate, 8–10 mm long, 2.5–3.5 mm wide, acuminate, spine-tipped, striate-nerved, ciliolate; corolla 3–4.5 cm long, orange or yellowish red, the throat yellow, finely pubescent, the tube suberect, more or less curved, 2–3 mm in diameter at base, gradually enlarged to 10 mm at mouth, the upper lip oblong, 2–3 mm wide at base, 3.5–4 mm wide at tip, 2-lobed or emarginate at apex, the lobes as much as 3 mm in diameter, the lower lip 3-lobed, the lobes rounded, about 5 mm long and 4 mm wide; filaments 27 mm long, sparingly pilose; style about 43 mm long, exerted; anthers exerted, 5 mm long, dorsally pilose and united; pollen grains typical, 77 μ –88 μ long, 27 μ –35 μ diameter; capsule cylindrical, about 15 mm long, 6 mm in diameter, glabrous, obtusely pointed at apex; seeds wanting.

TYPE.—*A. Weberbauer 3901* (holotype B, destroyed), Peru, Cajamarca, Hualgayoc, above San Miguel, 2600–2700 m alt, 3 May 1904.

DISTRIBUTION.—Along the Andes from southern Ecuador to central Peru. ECUADOR. LOJA: Be-

tween La Toma and Loja, 1800–2600 m alt, 4 Sep 1923, *Hitchcock 21423* (US). PERU. PIURA: Huancabamba: N of Huancabamba, Jicate, 2700–2800 m alt, May 1912, *Weberbauer 6328* (US, GH, F photo 8661). HUÁNUCO: Cani, pueblo 7 m NE of Mito, 2500 m alt, 16–26 Apr 1923, *Macbride 3448 e.p.* (F, N, US). JUNÍN: La Merced, 600 m alt, 10–24 Aug 1923, *Macbride 3448 e.p.* (F, US).

Aphelandra cirsioides is readily distinguished from *A. formosa* in that the latter has densely tomentose leaf blades and stems. Also, *A. hieronymi* is clearly distinguished from *A. cirsioides* because the former has short, unbranched spikes.

22. *Aphelandra formosa* (Humboldt & Bonpland) Nees

FIGURES 2, 33

Aphelandra formosa (Humboldt & Bonpland) Nees in de Candolle, Prodr. 11:301. 1847.

Ruellia formosa Humboldt & Bonpland, Pl. Aequin. 1:167. pl. 48. 1813 [non Andrews, 1810].

Hygrophila formosa [Humboldt & Bonpland] Sprengel, Syst. Veg. 2:828. 1825.

Aphelandra formosa (Humboldt & Bonpland) Nees var. *polystachya* Nees in de Candolle, Prodr. 11:302. 1847.

Aphelandra cardusifolia Hooker, Ic. Pl. 8. pl. 718. 1848.

Shrub or small tree to 3 m high, much branched; the tips of the leaf bearing twigs densely brown velvety pilose, the hairs about 1.5 mm long, and bearing under petioles a pair of small bracts, armed with one to several straight slender spreading spines (those of the flowering twigs to 4 mm long); leaf blades opposite or occasionally alternate, oblong, to 12 cm long and 3.5 cm wide, acute, cuneate or obtusish at base, coriaceous, spinose-dentate, the teeth in pairs, the spines to 2 mm long, the upper surface shining, bright green, sparingly to rather densely pilose, the hairs densest on the costa and veins, the lower surface paler, and more densely pilose with brownish hairs; petioles to 5 mm long, densely covered with brown-velvety hairs, as are the young stems; the lower flowers axillary (in the axils of the upper leaves) the upper forming a terminal spike; bracts similar to the leaf blades but much smaller, the uppermost triangular-ovate, 5–10 mm long, about 4 mm wide, spine-tipped and bearing one to several spines on the margins; bractlets lanceolate, 8–10 mm long, 2–4 mm above the base, acuminate, tipped by a small spine, entire or

bearing a small spine on each margin, striate-nerved, pilosulous and ciliate; calyx segments subequal, lanceolate, 8–10 mm long, 2–4 mm wide, acuminate, spine-tipped, glabrous below, pilosulous and ciliate above; corolla about 3 cm long, bright red, finely pubescent, the tube cylindrical, slightly curved, 2 mm in diameter at base, enlarging at about 5 mm above base, first abruptly, then gradually to 8 mm in diameter at mouth, the upper lip erect, 6–7 mm long, 3 mm wide, emarginate, the lobes about 2.5 mm long, rounded, the lower lip 3-lobed, the lobes orbicular, about 5 mm in diameter, erect or slightly spreading; stamens about as long as the corolla, the interior pair slightly shorter than the outer pair; anthers 5.5 mm long; style equalling the stamens in length; capsule ovate, flattened, acute.

TYPE.—*Bonpland s.n.* (syntype P, F photo 39427), Peru, Piura, in cool mountains, páramo do Guamani.

DISTRIBUTION.—At elevations above 2000 meters in Ecuador, Peru, and Bolivia. ECUADOR. IMBABURA: Mojanda, on road Otavalo Minas, at the cross road to Cerro Blanco, 3200 m alt, 3 Jun 1967, *Sparre 16843* (S). BOLIVAR: Around Chapacoto, near Guaranda, 2600–2800 m alt, *Lehmann 7848* (K); San José, western slope of Chimborazo, 2700 m alt, Jul 1876, *André 3198* (K); Guaranda, 2600 m alt, 13 Aug 1939, *Asplund 8222* (S, US); near Guaranda, valley of Río Chimbo, 2800 m alt, Dec, *Rimbach 630* (NA, S). AZUAY: Sevilla de Oro, river slope, 2500 m alt, 26 Jun 1947, *Harling 1180* (S); around Huarainac on the Río Paute, east Andes of Cuenca, 2300–2800 m alt, *Lehmann 6546* (K, US). WITHOUT EXACT LOCALITY: Andes of Quito, 1846–69, *Jameson 166* (K, holotype, W, US, isotypes of *A. carduifolia* Hooker). PERU. CAJAMARCA: Cutervo: 4 km E of Huambos on Cutervo trail, 2800 m alt, 17 Dec 1938, *Stork & Horton 10196* (F, UC); San Pablo: ca 1 km above NE town, 2630 m alt, 13 May 1964, *Hutchison & Wright 5039* (UC, US); Contumazá: El Puquio, 2900 m alt, 21 Jun 1962, *Segástegui 3907* (US), San Miguel, 2100–2400 m alt, *Hall s.n.* (K, holotype of *A. formosa* Humboldt & Bonpland var. *polystachya* Nees). HUANUCO: Huasahuassi, *Ruiz & Pavón s.n.*; *Dombey s.n.* (G, P). Summit of Pisagua, 2400 m alt, *Hall s.n.* (K). BOLIVIA. Eastern Andes, *Pearce 368* (K). WITHOUT EXACT LOCALITY. Equateur et Perou, 1872, *Grisar s.n.* (P); Peru, *Lobb s.n.* (K, W).

23. *Aphelandra mutisii* Leonard

FIGURE 20

Aphelandra mutisii Leonard, Contrib. U.S. Nat. Herb. 31:136. 1953.

Shrubby plants to 4 m high; stems densely and softly pilose or subtomentose, the hairs yellowish, to 1 mm long, spreading or retrorse; leaf blades oblong to oblanceolate or narrowly obovate, to 9 cm long and 4 cm wide, acute to acuminate, narrowed at base, thick, subcoriaceous, serrate, the teeth rather closely set, 2–3 mm long, each terminated by sharp, straight spines 2–3 mm long, the upper surface nitid, rather sparingly pilose, the costa densely so, the hairs to 1 mm long, yellowish, the costa, lateral veins (about 20 pairs) and veinlets shallowly impressed, the veinlets reticulately anastomosing, the lower surface densely and softly tawny pilose or subtomentose, the costa and veins prominent, the reticulation obscured by the dense pubescence; petioles to 5 mm long, the pubescence similar to that of the stems; interpetiolar bracts small triangular, to 4 mm long, sparingly pilose, the veins excurrent, ending in 1–5 straight sharp yellowish spines to 6 mm long, the middle one longer than the others; flowers borne in terminal or, with maturity both terminal and lateral spikes, these dense, to 7 cm long and 3 cm broad, the lowermost bracts intergrading into stem leaves, the rachis densely tawny pilose; bracts narrowly oblong, 15–20 mm long, about 6 mm wide, otherwise resembling the leaf blades; bractlets narrowly lanceolate, to 8 mm long and 3 mm wide near the base, ending in a spine about 3 mm long and bearing 1 or 2 shorter spines on the margins, rather densely pilosulous and ciliate except at the base, the hairs yellowish, the nerves prominent; calyx segments oblong-lanceolate, about 1 cm long, 2–3 mm wide, tipped by a weak spine, puberulous toward tip, glabrous below, ciliate, some of the marginal hairs glandular; corolla about 3 cm long, 7 mm broad at mouth, bright orange-red to red, sparingly and minutely pubescent, the upper lip erect, arched, about 9 mm long and 4 mm wide, 2-lobed, the lobes oval, about 2.5 mm long and 1.5 mm wide, rounded, the lower lip 3-lobed nearly to the base, the lobes subequal, about 5 mm long, rounded; capsule 15 mm long, 6 mm broad, 4 or 5 mm thick, blunt at tip, glabrous, nitid, minutely punctate.

TYPE.—*J. C. Mutis 1943* (holotype US), Colombia, 1760–1808.

DISTRIBUTION.—Southern Colombia and Ecuador. COLOMBIA. NARIÑO: Near Pasto, 2500 m alt, 1851–1857, *Triana s.n.* (K, P, NY, US, W); Pasto, 2137 m alt, *Karsten s.n.* (W); Pasto, 2000 m alt, *Engels s.n.* (LE); near Túquerres, 3000 m alt, 16 May 1876, *André 3198* (K). ECUADOR. PICHINCHA: Near Tigua, *Sodirol 122/10* (P); TUNGURAHUA: Pangor, Oct 1858, *Spruce 5573* (K, W). BOLÍVAR: Vinchoa, 2800 m alt, 29 Sep 1943, *Acosta 5939* (F); San Simón, near Guaranda, 2700 m alt, 18 Nov 1943, *Acosta 6811* (F); Atio de Telimbela, 2800 m alt, 24 Jan 1944, *Acosta 7162* (F). CAÑAR: N. rim of the valley of the Río de Cañar, between Tambo and Suscal, 2000–3000 m alt, 23 Apr 1945, *Camp E-2751* (NY, US).

24. *Aphelandra luyensis* Lindau

Aphelandra luyensis Lindau, Notizbl. 8:245. 1921.

Shrub to 4 m high; stems sparingly pilose, later glabrous, the hairs 0.5–1.5 mm long, yellowish brown, more or less appressed; leaf blades elliptic-ovate, acuminate at both ends, to 20 cm long and 9 cm wide, both surfaces densely pubescent with yellowish spreading hairs, to 1 mm long, the lower surface velvety, the margins finely serrate, the teeth tipped by rigid spines 1–1.5 mm long; petioles 1–2 cm long, sparingly pilose, the hairs spreading above, more or less appressed beneath; inflorescence a terminal spike and several axillary similar spikes in the axils of the upper leaves, to 8 cm long, about 2 cm in diameter, closely imbricate, both rachis and peduncle 1–2 cm long, rather densely pilose with yellowish hairs; bracts triangular-ovate, 12–13 mm long, 5–6 mm wide near base, slenderly acuminate, terminating in a small spine, entire or bearing one or two minute teeth near the tip, glabrous toward base within, otherwise pilose with yellowish, appressed or spreading hairs; bractlets triangular-ovate, 8–10 mm long, 3–4 mm wide near base, abruptly and slenderly acuminate, spine-tipped, rounded, somewhat carinate, sparingly pilose, striate-nerved toward base; calyx segments oblong-ovate, spine-tipped, minutely and rather sparingly puberulent, striate-nerved, the nerves callous below, the margins scarious-cilliolate, the posterior 9–11 mm long, 4 mm wide, abruptly

acuminate, the anterior and lateral pairs 9 mm long, 3–4 mm wide, acute; corolla scarlet with a yellow tube, sparingly pilose without, glabrous within, the tube about 40 mm long, 5 mm wide at base, 9 mm wide at mouth, the upper lip 18 mm long, 2-dentate, the lobes 6 mm long, 4 mm wide, the lower lip 9 mm long, 3-lobed, the middle lobe concave, about 7 mm long and broad, the lateral lobes about 4 mm long and broad; stamens about equaling the corolla in length; filaments about 40 mm long, the lower portions pubescent; anthers about 6 mm long; pollen grains typical, 92 μ long, 34 μ –38 μ wide; ovary 4 mm long, glabrous; style about 50 mm long, glabrous; capsule ovate, but slightly stipitate, 1 mm long, 5 mm wide; seeds about 3 mm in diameter, the margins puberulent.

TYPE.—*A. Weberbauer 7163* (holotype B, destroyed, F photo 8672, isotype GH), Peru, Amazonas, Luya, above Congo, on the banks of Río de Vilaya (a tributary of the Río Marañon), 2800–2900 m alt, 2 Jul 1915.

DISTRIBUTION.—Southern Ecuador and northern Peru, at elevations between 1500–2900 meters. ECUADOR. SANTIAGO-ZAMORA: Huamboya, between La Esperanza and Santa Ana, 1500–2000 m alt, 15 Feb 1944, *Acosta 7425* (F).

As suggested by Lindau in his observations on the type, this species can be compared with *A. superba*. The undersurfaces of the leaves of that species, however, are tomentose rather than pilose and the bracts are strongly pectinate instead of entire or nearly so. This description was compiled in part from the isotype deposited in the Gray Herbarium.

25. *Aphelandra wurdackii* Wasshausen

FIGURE 30

Aphelandra wurdackii Wasshausen, Phytologia 25:472. 1973.

Shrub 1–2.5 m high; stems terete, glabrous or minutely and inconspicuously puberulous; leaf blades elliptic to oblong, 8–11 cm long and to 4 cm wide, short-acuminate, the tip a short spine, cuneate at base, submembranaceous, serrate, the teeth rather closely set, 1–2 mm long, each terminating in sharp, straight, yellowish spines 1–2 mm long, the upper surface nitid, glabrous, the lower surface glabrous or the costa and lateral

veins (8–13 pairs) sparingly and inconspicuously strigillose, the costa and veins prominent beneath, more so than above; petioles to 5 mm long, sparingly strigillose; flowers borne in 5–6 spikes, these subsessile, terminal and in the axils of the upper leaves, 6–8 cm long, 1–2 cm wide, the peduncle about 1 cm long, both it and the rachis strigillose; bracts small, green, barely imbricate, entire, lanceolate, 6–7 mm long, 2 mm wide, acuminate and spine-tipped, glabrous, subcoriaceous, ciliolate; bractlets lanceolate, 6 mm long, 1.5 mm wide, subfalcate, gradually narrowed to a slender point tipped by a spine 0.5 mm long, glabrous, striate-nerved, ciliate; calyx segments lanceolate, subequal, 7 mm long, acuminate and spine-tipped, glabrous, ciliate, striate-nerved, the posterior segment 2.5 mm wide, the anterior pair 2 mm wide, the lateral pair 1.5 mm wide; corolla pink, puberulous, 4–4.5 cm long, the tube 4 mm broad at base, narrowed to 2 mm at 7 mm above base, thence gradually enlarged to 6 mm at mouth, the upper lip erect, oblong, 9 mm long and 4 mm wide, bilobed, the lobes elliptic, 5 mm long, 2.5 wide, retuse, the lower lip 3-lobed, the lobes ovate, subequal, spreading, the middle lobe 4 mm long and wide, the lateral lobes 4 mm long and 3 mm wide, all obtuse; stamens almost reaching the tip of the upper lip; anthers 4.5 mm long, 1 mm wide, acute and arachnoid; capsule oblong, 11 mm long, 6 mm broad, nitid, glabrous, minutely pitted; seeds dark brown, rugose, 3 mm in diameter.

TYPE.—*J. Wurdack 1487* (holotype US, isotypes K, P), Peru, Amazonas, Chachapoyas, 1–2 km W of Molinopampa, along Río Ventilla, 2350–2400 m alt, 23–25 Jul 1962.

DISTRIBUTION.—Known only from around the type-locality. PERU. AMAZONAS: E of Leimebamba, 3000 m alt, 20 Aug 1943, *Evinger 496* (US).

Distantly related to *Aphelandra tillettii* Wasshausen, of Peru, *A. wurdackii* differs in having smaller and narrower leaf blades, shorter spikes, lanceolate bracts, and puberulous corolla.

26. *Aphelandra weberbaueri* Mildbraed

FIGURE 43

Aphelandra weberbaueri Mildbraed, Notizbl. 11:67. 1930.

Shrub to 3 m high; branches glabrous or sparingly tomentose; leaf blades oblong-elliptic to

oblong-ovate, 20–25 cm long and 8.5 cm wide, acuminate at apex, cuneate at base, the margins serrate-dentate, the teeth distant, 2–3 cm apart, tipped by spines 2–4 mm long, these formed by the production of the lateral nerves, both surfaces glabrous or the costa and nerves (8–12 on each side of the costa) sparingly and minutely tomentose, the costa broad, the lateral nerves rather obscure; petioles 3–5 cm long, sparingly tomentose; inflorescence a terminal spike to 35 cm long, 1 cm in diameter, lax, the distant bracts scarcely imbricate, the rachis sparingly tomentose, the peduncle about 3 cm long; bracts triangular-ovate, 5–7 mm long, 4–5 mm wide, acuminate, entire, glabrous within, webby-villous without, striate-nerved; bractlets 4 mm long, 2 mm wide, otherwise similar to the bracts; calyx segments ovate to broadly oblong, 4–6 mm long, 2.5–4 mm wide, broadly truncate at base, rounded or truncate and mucronulate at apex, the margin densely white-villous; corolla purplish red, glabrous without, puberulent within, the tube about 3 cm long, 5 mm wide at base, narrowed to 3 mm at 5 mm above base then enlarged to 6 mm, curved, somewhat ventricose, the mouth strongly oblique, the upper lip 18–22 mm long, 4–5 mm wide, gradually narrowed to 2.5 mm near base, the tip bilobed, the lobes about 3 mm long, 1 mm wide, obtuse or rounded, lower lip 3-lobed, the lobes semi-oval, 6 mm long, 5 mm wide at base, rounded at apex, the margins reflexed, villous-ciliate; stamens about equaling the upper lip, one pair about 5 mm longer than the other; anthers 4 mm long, apically obtuse, bearing tufts of long weak hairs; pollen grains obtuse, somewhat pyriform, $51\mu \times 135\mu$; ovary and style glabrous; capsules not seen.

TYPE.—*A. Weberbauer 6657* (holotype B, destroyed, F photo 8719, isotype GH), Peru, Junin, Juaja, at Hacienda La Libertad on the banks of the Río Masamerich (known today as Río Portachuelo), 800–1000 m alt, May 1913. The corolla was scarlet, the lobes of the lower lip yellow with a red middle stripe.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra weberbaueri is characterized by a slender lax spike, small bracts, and the broad mucronulate calyx segments. This description was compiled from the isotype deposited in the Gray Herbarium.

27. *Aphelandra mucronata* (Ruiz & Pavon) Nees

FRONTISPIECE

Aphelandra mucronata (Ruiz & Pavón) Nees in de Candolle, Prodr. 11:301. 1847.

Justicia mucronata Ruiz & Pavón, Fl. Peruv. & Chil. Prodr. 1:8. pl. 10. 1798.

Erect, branched shrub to 2 m high; branches terete, glabrous or sparingly hirsute; leaf blades oblong-obovate, 25–30 cm long and 11 cm wide, mucronate, cuneate at base, shining above, the margins spinose-dentate, the teeth incurved, distant, 2.5–4 cm apart, tipped by spines 2–4 mm long, these formed by the outgrowth of the lateral nerves, both surfaces glabrous or the costa and nerves (8–12 on each side of the costa) sparingly and minutely tomentose, the costa broad, the lateral nerves rather obscure; petioles 2–3 cm long, sparingly tomentose; inflorescence a terminal spike to 30 cm long, 1.5–2 cm in diameter, lax, the flowers opposite or in threes, distant, the rachis sparingly tomentose, the peduncle about 10 cm long; bracts green, ovate, 15 mm long, 5 mm wide, entire, acute, glabrous within, glabrous to sparingly hirsute without, striate-nerved; bractlets 1.3 cm long, 4.5 mm wide, the margins obsolete denticulate, otherwise similar to the bracts; calyx segments oblong, 13–15 mm long, 5 mm wide, broadly truncate at base, acuminate with indurate apex, membranaceous, the margins denticulate and sparingly pilose; corolla red, apically yellow, glabrous both within and without, the tube about 3.5 cm long, 6 mm wide at base, narrowed to 4 mm at 5 mm above base then enlarged to 10 mm, curved, somewhat ventricose, the mouth strongly oblique, the upper lip 18 mm long, 4 mm wide, gradually enlarged to 5 mm near base, the tip bilobed, the lobes about 2 mm long, 2 mm wide, obtuse or rounded, lower lip 3-lobed, the lobes semi-oval, 6 mm long, 5 mm wide at base, rounded at apex, the margins villous-ciliate; stamens about equaling the upper lip, one pair about 5 mm longer than the other; anthers 5 mm long, apically obtuse, bearing tufts of long weak hair; pollen grains obtuse, $66\mu \times 30\mu$; ovary and style glabrous; capsule oblong-obovate, three times as long as the calyx.

TYPE.—*Ruiz & Pavón s.n.* (holotype MA, isotypes F, G), Peru, Huánuco, Huánuco, in woods at Pati near Chinchao.

DISTRIBUTION.—Huánuco, Peru at altitudes between 600–800 meters. PERU. HUÁNUCO: Tingo María, 600–650 m alt, 10 Jul 1955, *Ferreyra 13134* (USM, US); 8 Jul 1940, *Asplund 12080* (S); along river, 700 m alt, 21 Oct 1938, *Stork & Horton 9468* (F, NA); Huamalies: Right side of Río Monzon, trail of Cueva de las Lechuzas, 700–800 m alt, 18 Jul 1948, *Ferreyra 4235* (USM, US); Leoncio Prado: 5 km from Tingo María, 672 m alt, 4 Jul 1969, *Schunke 3254* (F, US).

Superficially *Aphelandra mucronata* strongly resembles *A. weberbaueri*. The leaves and bracts (except for size) compared to Ruiz and Pavón's illustrations are practically identical. The calyx segments of *A. weberbaueri* are more truncate or rounded than those portrayed in Ruiz and Pavón's drawing of *A. mucronata*. The spike of *A. mucronata* is pictured as bearing but 13 flowers, whereas that of *Weberbauer 6657* bears from 40–50 flowers.

28. *Aphelandra crispata* Leonard

Aphelandra crispata Leonard, Contrib. U.S. Nat. Herb. 31: 151. 1953.

Suffrutescent herbs, to 1.5 m high; stems glabrous below, the upper portions sparingly hirsute, the hairs spreading, about 1 mm long; leaf blades oblong-elliptic, 30–40 cm long and 14 cm wide, acuminate, narrowed from middle or slightly above middle to a very narrow, obliquely truncate or subcordate base 1 cm wide, the veins terminating in broad teeth 1–2 mm high and 2–2.5 cm apart, the upper surface sparingly strigillose, the hairs about 1.25 mm long, the lower surface sparingly strigillose, the hair brownish, 0.75–1.25 mm long, subappressed, those of the costa and veins (about 20 pairs) spreading horizontally, the venation prominent, particularly below; petioles about 5 mm long, glabrous or sparingly hirsute; spikes solitary, terminal, 12–13 cm long and 5 cm broad, moderately dense, spreading with age, the peduncle about 5 mm long, hirsute, subtended by a pair of lanceolate, acuminate, leaf-like bracts about 2.5 cm long and 8 mm wide, the rachis glabrous; bracts oblong-ovate, 3.5–4.5 cm long and 17.5 mm wide, slightly obtuse at apex and minutely apiculate, livid purple or red, coriaceous, glabrous, noticeably crisped or twisted, closely veined, the margins subhyaline; bractlets oblong, 14 mm long, 5.5 mm wide at middle,

acute, carinate and oblique at base, glabrous, the margins entire, subhyaline; calyx segments oblong-lanceolate, the posterior segment 16 mm long and 4 mm wide, the anterior pair 16 mm long and 3.5 mm wide, the lateral pair 13 mm long and 3 mm wide, all acute, glabrous, their margins subhyaline; corolla (immature) canary-yellow, densely pubescent or subtomentose, the hairs 0.5 mm long, the upper lip shorter than the middle lobe of the lower lip, ovate, minutely 2-lobed tip, the lobes rounded, the lower lip 3-lobed, the middle lobe cordate, obtuse, the lateral lobes lanceolate, slightly shorter than the middle one; ovary glabrous; capsule not seen.

TYPE.—*J. Cuatrecasas 11352* (holotype US), Colombia, Putumayo, in wet forest of Quebrada del Río Afán, near Mocoa, 570–680 m alt, 27 Dec 1940.

DISTRIBUTION.—Known only from around type-locality. COLOMBIA. PUTUMAYO: Mocoa and vicinity, 1800–2400 m alt, 16 Mar 1953, *Schultes & Cabrera 19093* (US).

Aphelandra crispata can readily be distinguished by its oblong-elliptic leaves with their coarsely serrate margins, bright yellow corollas, and large coriaceous, crisped, livid purple bracts.

29. *Aphelandra peruviana* Wasshausen

FIGURES 26, 27

Aphelandra peruviana Wasshausen, *Phytologia* 25:470. 1973.

Shrub; stems quadrangular, pilose, the hairs about 1 cm long; leaf blades oblong-elliptic, 20–23 cm long, 6.5–10.5 cm wide, acuminate, cuneate at base, glabrous and minutely faveolate above except the costa which is pubescent, the costa and lateral veins (14 or 15 pairs) strigillose, the lower surface otherwise glabrous or very sparingly pilosulous, the margins undulate-dentate, bordered by a pilose veinlike ridge, the teeth curved and tipped by a small spine about 0.5 mm long; petioles about 1 cm long, pilose; spike terminal, solitary, 6–7 cm long, about 2 cm in diameter (excluding corollas), the bracts rather loosely imbricate and appressed, the rachis pilose; bracts lanceolate, subfalcate, 30 mm long, 4 mm wide at base, gradually narrowed to a slender tip, ending in a small spine 0.5 mm long, carinate and striate-nerved, moderately pilose,

especially toward the base, the margins repand-crenate, ciliate; bractlets lanceolate, subfalcate, 25 mm long, 3.5 mm wide, acuminate, ending in a small spine, striate-nerved, pilosulous dorsally, the margins glabrous and subscarios except the tip; calyx segments unequal, striate-nerved, the nerves ending at base in a thickened callus, scarios-margined, glabrous below, pilosulous near the acuminate tip, the posterior segment narrowly lanceolate, 21 mm long, 4 mm wide at about 4 mm above base, the anterior pair linear, 19 mm long, 2.5 mm wide, the lateral pair 15 mm long, 2 mm wide; corolla purple, glandular-pilose, 6–7 cm long, the tube 4 cm long, 4 mm wide at base, narrowed to 2 mm at 7 mm above base, thence gradually enlarged to 9 mm at mouth, the upper lip erect, obovate, 20 mm long, 11 mm wide, 2-lobed, the lobes 10 mm long, 6 mm wide, oblique, slightly acute, the lower lip 3-lobed, the middle lobe obovate, 20 mm long, 10 mm wide, rounded, the lateral lobes narrowly elliptic, 15 mm long, 1.5–2 mm wide, slightly acute, partly adnate to the upper lip, the free portion about 10 mm long; stamens almost reaching the tip of upper lip; anthers 4 mm long, arcuate; ovary glabrous; style glabrous; capsule not seen.

TYPE.—*A. Weberbauer 6952* (holotype F, isotype GH), Peru, Cusco, Paucartambo, Cosñipata, 700–800 m alt, May 1914.

DISTRIBUTION.—Around Cusco, Peru, at elevations between 670–800 meters. PERU. CUSCO: Paucartambo: Pilcopata-Keros, 780 m alt, 6 Mar 1964, *Vargas 15249* (US); Salvación-Cosñipata, 670 m alt, 8 Oct 1965, *Vargas 16636* (US). WITHOUT EXACT LOCALITY. 1839–1840, *Gay s.n.* (P).

Aphelandra peruviana is closely related to *A. limbatifolia* but differs markedly in the leaf blades, pubescence, and bracts. In *A. limbatifolia* the stems are pubescent only when young, becoming glabrous with age, the leaf blades are undulate, the bracts ovate, 15 mm long, 6 mm wide, and puberulent, the bractlets are 20 mm long, 4 mm wide and also puberulent, and the calyx segments 10–16 mm long. Contrasting to these characters, the stem of this new species is pilose, the leaf margins are dentate, the teeth ending in small spines, the bracts falcate, 30 mm long and 4 mm wide, pilose, the bractlets 25 mm long and 3.5 mm wide, and the calyx segments 15–21 mm long. The corollas of the two species appear to be nearly identical.

30. *Aphelandra castanifolia* Britton

Aphelandra castanifolia Britton, Bull. Torr. Bot. Club 27:76. 1900.

Suffrutescent, to 1 m high; stems terete below, quadrangular above, pilose, the hairs closely appressed, 0.5–1 mm long, yellowish; leaf blades oblong-obovate, 23–28 cm long and 8.5 cm wide, narrowed into the petiole, abruptly short-acuminate and acute at apex, both surfaces glabrous or sparingly pilosulous, those on the costa and lateral veins (about 16 pairs) appressed, the margins coarsely serrate with rounded sinuses, the veinlets coarsely reticulate, the spines 2–3 mm long; petioles 1–2 cm long, broad and stout; spikes single, solitary, terminal or sometimes on short axillary branches, dense, 10–12 cm long, 1 cm wide, the bracts rather loosely imbricate, the peduncles 1–2 cm long, these and the rachis minutely pubescent; bracts lanceolate, 1–2.5 cm long, 3 mm wide at base thence acuminate to a slender spine-tipped point, entire, rigid, puberulent without, the hairs appressed; bractlets 15–17 mm long, one or two of the lower pairs larger and leaf-like, about 5 mm wide at base, gradually narrowed to an obtuse-mucronate tip, the costa prominent finely and rather densely pubescent dorsally, obscurely striate, the margins thin and coriaceous; calyx segments oblong-lanceolate, finely striate, minutely pubescent at tip, otherwise glabrous, the posterior 13 mm long, 3.5 mm wide at base, the anterior pair 13 mm long, 2.5 mm wide at base, the lateral pair 11 mm long, 1.5 mm wide at middle, slightly narrower at base, all acuminate or acute and tipped by a weak spine; corolla 5.4 cm long, red, finely pubescent, the lips about 1.5 cm long, the upper lip 2-lobed, the lobes 6 mm long, slightly acute, the middle lobe of the lower lip about 15 mm long and 8 mm wide, obovate, the lateral lobes oblong, 8 mm long and 2–3 mm wide, acutish; stamens equaling the upper lip; anthers 5 mm long; mature capsule not seen.

TYPE.—*H. H. Rusby 1098* (holotype NY, isotype US), Bolivia, Yungas, 1200 m alt, 1885.

DISTRIBUTION.—Bolivian Andes in the Department of La Paz. BOLIVIA. LA PAZ: Larecaja: Mapi-ri, 750 m alt, May 1886, *Rusby 1112* (NY, US); Mapi-ri Region: San Carlos, 850 m, 12 Mar 1927, *Buchtien 1363* (NY, US).

Aphelandra castanifolia is readily distinguished by the nearly glabrous leaves and narrow scarious-margined bracts. *Buchtien 1363* disagrees slightly with the type in having somewhat smaller bracts, bractlets and calyces, and a single terminal spike.

31. *Aphelandra viscosa* Mildbraed

Aphelandra viscosa Mildbraed, Notizbl. 11:66. 1930.

Shrubby; branches terete, glabrous; leaf blades glabrous, membranaceous, the upper oblong-obovate, acute or somewhat acuminate at apex, the base sessile, round or subcordate, somewhat amplexant, 10–15 cm long, 4–7 cm wide, the margins repand-dentate, the teeth 5–8 on each side, the excurrent nerves forming small slender spines, the lower leaves lyrate, the lobes two on each side, 18 cm long or longer; inflorescence pyramidal, the spikes short, the lower ones axillary, borne on slender peduncles, to 8 cm long; bracts broadly elliptic to elliptic-obovate, acute at apex ending in a small spine, 18–22 mm long, 8–11 mm wide, 5–7 nerved, densely glandular-pilose, spinose-toothed; bractlets about 15 mm long, 1.5 mm wide, long-acute, thick-nerved; calyx segments equal in length, glandular-pilose toward the tip, the posterior segment bidentate at apex, 3 mm wide, the anterior segments 2.5 mm wide, the lateral segments slightly narrower; corolla red, the tube 22–28 mm long, contracted above base, the upper lip 13 mm long, 2-lobed, the lobes rounded, 6 mm long, the lower lip 3-lobed, the middle lobe cuneate-obovate, 10–14 mm long and wide, broadly rounded, the lateral lobes 4–7 mm wide; stamens about equalling the upper lip, one pair about 5 mm longer than the other; filaments 25 mm long, sparingly pilose; anthers 6 mm long, glabrous; ovary 4 mm long, glabrous; style glabrous, about 3.5 cm long; capsule not seen.

TYPE.—*A. Raimondi 7133* (holotype B, destroyed, F photo 8718), Peru, Cajamarca, Contumazá, Chorillos, 2000–2200 m alt, 8 Jun 1875.

DISTRIBUTION.—Northern Andean Peru, at elevations between 2000–2900 m alt. PERU. CAJAMARCA: Contumazá: Around Guzmango, 2600–2700 m alt, 6 Aug 1957, *Sagástegui 0124* (US); between Tucac and Hacienda San Lorenzo, 2900 m alt, 18 Jun 1962 *Sagástegui 3762* (US). LA LIBERTAD: Otuzco;

El Carpish (Sinsicap), 2700 m alt, 9 Aug. 1953, Vargas 0100 (US).

LOCAL NAMES.—“Zarcillejo.”

Aphelandra viscosa is readily distinguished by its thin leaves and glandular bracts, bractlets, and calyx segments. This description was compiled from the original publication and type-photograph.

32. *Aphelandra lyrata* Nees

Aphelandra lyrata Nees in de Candolle, Prodr. 11:302. 1847.—Leonard, Contrib. U.S. Nat. Herb. 31:150. 1953.

Aphelandra lyrata Nees var. *latibractea* Nees in de Candolle, Prodr. 11:302. 1847.

Aphelandra lyrata Nees var. *laxior* Nees in de Candolle, Prodr. 11:303. 1847.

Aphelandra lyrata Nees var. *arguta* Nees in de Candolle, Prodr. 11:303. 1847.

Aphelandra cajatambensis, Lindau, Bull. Herb. Boiss. ser. 2, 5:368. 1905.

Herb to 0.5 m high; stem erect, angled, often purple, sparingly pilose; leaf blades oblong-obovate in outline, to 30 cm long and 9 cm wide, obtuse to acute, lyrate-pinnatifid, divided into 5 or 6 lobes, those at and below middle largest, oblong, about 4 cm long and 2 cm wide, becoming smaller toward tip and base, the sinuses rounded or obtuse, becoming larger and broader toward base (lowest 2 cm broad) the margins angulate-dentate, the teeth mucronate, unarmed, both surfaces laxly pilose; petioles about 1 cm long; flowers borne in a terminal, solitary, peduncled spike, to 13 cm long, more or less lax, the peduncle to 9 cm long, both peduncle and rachis sparingly pilose; bracts lance-subulate to oblong, 10–12 mm long and about 4 mm wide, becoming smaller toward tip of spike, relatively thin, acute or acuminate, sparingly pilosulous, ciliate, the marginal hairs to 1 mm long, the lowermost serrate-dentate (3 teeth to 1.5 mm long on each side) the upper bearing 1 or 2 teeth or the uppermost entire; bractlets linear-lanceolate, 10 mm long, 1 mm wide, sparingly puberulent, the margins pilose, entire, sometimes bearing one or two minute teeth; calyx segments lanceolate, ciliate, the posterior segment 10–11 mm long, about 4 mm wide, deeply cleft sometimes nearly to base, the teeth acuminate sometimes 2-toothed at tip, the other segments 9–10 mm long, 2–3.5 mm wide; corolla 3.5–4 cm long, scarlet or orange-red, the lobes yellow, glandular-pubescent,

the tube nearly straight, about 3 cm long, 4 mm wide at base, narrowed slightly about 7 mm above base thence enlarged to 9 mm and again slightly narrowed at throat, the upper lip 10–11 mm long, 2-parted, the lobes rounded, the lower lip similar but slightly shorter; the longer pair of the stamens slightly exceeding the corolla; the filaments glabrous, anthers 3–3.5 mm long; pollen grains oblong, $61\mu \times 26\mu$.

TYPE.—*McLean s.n.* (holotype K), Peru, Lima, Canta, Canta.

DISTRIBUTION.—In Peru, from Cajamarca southward to Lima, at altitudes of 2300–2960 m. PERU. CAJAMARCA: Contumaza: Chausivolan, Guzmango, 2800 m alt, 1 Jun 1959, *Sagástegui 2985* (HUT, US). AMAZONAS: Chachapoyas, *Mathews s.n.* (K). LA LIBERTAD: Otuzco: Llacmóm (Sinsicap), 2500 m alt, 16 Mar 1954, *Vargas 0164* (CUZ, US). ANCASH: Cajatambo: Ocros, 2300–2400 m alt, Mar 1903, *Weberbauer 2715* (F photo 8660, holotype of *A. cajatambensis* Lindau). LIMA: Lima, 1840, *McLean s.n.* (K); Cuesta de Puruchuco, *Mathews 782* (K, holotype of *A. lyrata* var. *laxior* Nees); Canta: Between Canta and Yangas, 2300–2400 m alt, 16 Mar 1950, *Ferreyra 6929* (US, USM); steep hillsides above Canta, 2960 m alt, 6 Mar 1960, *Saunders 464* (K, US); Obrajillo, 1838–1942, *Wilkes Expedition* (G, NY, US). WITHOUT EXACT LOCALITY: *Nuñez 4781* (US); “Colombia” probably Peru, *Lobb s.n.* (K, holotype of *A. lyrata* var. *arguta* Nees).

In his treatment of this species Nees cites the material examined under three varieties. His variety *latibractea* is based on a specimen collected at Canta, Peru, by McLean. The leaves are broad and subsessile, the peduncle longer, and the bracts all oval, mucronate, and closely toothed.

Variety *laxior* is based on a specimen collected at Cuesta de Puruchuco, Peru, by Mathews. The bracts in this form are described as oblong or oblong-spatulate and at least the lowermost closely dentate.

Variety *arguta* was collected in “Colombia,” probably Peru, by Lobb. Its bracts are oblong or linear-oblong, subspatulate, slightly obtuse, sparingly and obscurely toothed toward apex.

The author has examined these varieties deposited in the Hooker Herbarium and concludes from the descriptions and the additional material available that *A. lyrata* is just a variable species consisting of a number of races or forms.

33. *Aphelandra cuscoensis* Wasshausen

Aphelandra cuscoensis Wasshausen, *Phytologia* 25:469. 1973.

Suffrutescent shrub about 1 m high; stems glabrous below, the upper portions sparingly sericeous, the hairs spreading, about 2 mm long; leaf blades elliptic, 30 cm long and 9.5 cm wide, acuminate, narrowed from middle or slightly below middle to a long-attenuate base, serrate, the veins terminating in sharp spines, 3–4 mm long, the upper surface sparingly strigose, the hairs about 1.5 mm long, the lower surface rather densely strigose, the hairs whitish, 1.5 mm long, subappressed, those of the costa and veins (about 18 pairs) spreading horizontally, the venation not very prominent but more so beneath than above; petioles about 5 mm long, strigose, the hairs spreading; spikes solitary, terminal, 12 cm long and 4 cm broad, moderately dense, the peduncle about 1.5 cm long, strigose, the rachis densely sericeous; bracts red, elliptic, about 35 mm long and 15 mm wide, acute, subchartaceous, conspicuously sericeous without, the margins spinose-toothed, the teeth (about 10 pairs) produced by the continuation of the lateral veins, successively larger and more spinose toward apex, the spines ascending, 3–4 mm long; bractlets lanceolate, 3.2 cm long, 4 mm wide, aristate, carinate, the keel puberulous and sericeous, subhyaline, striate-nerved; calyx segments oblong-lanceolate, the posterior segment 2.8 cm long and 3.5 mm wide, the anterior pair 2.6 cm long and 3 mm wide, the lateral pair 2 cm long and 2 mm wide, all long-acuminate at apex, glabrous, striate-nerved, subhyaline, the margins ciliate; corolla (immature) about 3.5 cm long, red, densely sericeous at tip, the hairs yellowish.

TYPE.—*C. Vargas 15415* (holotype US), Peru, Cusco, Quispicanchi, 520 m alt, 14 May 1964.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra cuscoensis may be allied to *A. rubra* Wasshausen, which differs in its smaller (20 mm long), ovate, and acuminate bracts.

34. *Aphelandra macrosiphon* Lindau

Aphelandra macrosiphon Lindau, *Bull. Herb. Boiss.* 3:367. 1895.

Shrub 2–3 m high; branches terete, velvety-pubescent, the hairs appressed; leaf blades oblong,

20–27 cm long, 5–9 cm wide, probably larger near base, gradually acuminate at apex, narrowed at base, pubescent, the margins coarsely serrate, the teeth spine-tipped; petioles 0.5–2 cm long; spikes terminal, racemose, pedunculate, the peduncles to 8 cm long, appressed-pubescent; bracts lanceolate, to 20 cm long, 4 mm wide, acuminate and spine-tipped at apex, green, pubescent, the margins armed with 4–7 pairs of acute teeth; bractlets lanceolate, 20 mm long, 4 mm wide, long-acuminate at apex, concave, glabrous or sparingly puberulent at tip; calyx segments lanceolate, long-acuminate, slightly unequal, glabrous, the posterior 16.5 mm long and 4 mm wide, the anterior pair 16 mm long and 3 mm wide, the lateral pair 14 mm long and 2.5 mm wide; corolla red, the tube 47 mm long, gradually and obliquely enlarged from 2 mm at base to 7 mm at mouth, puberulent without, glabrous within, the upper lip 12 mm long, 3 mm wide at base, scarcely bifid, the lobes of the lower lip equal, 18 mm long, 6 mm wide; filaments 46 mm long; anthers 6 mm long; pollen grains typical, 57 μ –65 μ long, 38 μ –42 μ wide; style 62 mm long; mature capsule not seen.

TYPE.—*O. Kuntze s.n.* (holotype B, destroyed, F photo 8673, isotype NY), Bolivia, on the Rio Yuntas, 1000–2000 m alt, 13–21 Apr 1892.

DISTRIBUTION.—Peru and Bolivia at elevations above 1000 meters. PERU. CUZCO: Rio Marcapata, 1000 m alt, 21 May 1954, *Rauh-Hirsch P-1304* (F). BOLIVIA. *Lobb s.n.* (W); *Pearce 733* (K).

According to Lindau, *Aphelandra macrosiphon* is closely related to *A. runcinata*; it differs, however, from it and other closely related species by its bracts which have spiny-toothed margins.

35. *Aphelandra inaequalis* Lindau

FIGURE 21

Aphelandria inaequalis Lindau, *Bull. Herb. Boiss. Ser.*, 3:368. 1895.

Shrubby, 0.5–2 m high; the branches glabrous or rarely pilose; leaf blades oblong, 9–23 cm long, 3–7 cm wide, long-acuminate and mucronate at apex, gradually narrowed from above middle to base, both surfaces sparingly pilose, the margins sinuate-serrate, the teeth spine-tipped; petioles 1.5–3 cm long, sparingly pilose; spikes dense, fleshy, terminal, to 10 cm long, pedunculate, the peduncle to 5.5 cm long, both rachis and peduncle glabrous;

bracts ovate, 0.8–1.5 cm long, 0.7 cm wide, long-acuminate, green, even, glabrate, the uppermost tip 2 mm wide, the margins dentate-ciliate; bractlets lanceolate, 11 mm long, 3–4 mm wide, concave, glabrous; calyx glabrous, the posterior segment 9 mm long, 3 mm wide, the anterior pair 9 mm long and 2 mm wide, the lateral pair 6.5 mm long and 1 mm wide; corolla yellow, the tube 40 mm long, 3 mm wide at base, gradually narrowed to 5 mm at mouth, puberulent without, pubescent at base within, the upper lip 22 mm long, 8 mm wide at base, 2-lobed, the lobes 10 mm long and 4 mm wide, acute, the lower lip 24 mm long, 7 mm wide at base, the middle lobe 14 mm long and 5 mm wide, obtuse, the lateral lobes 12 mm long and 2 mm wide; filaments 45 mm long; anthers 6 mm long; pollen grains $70\mu \times 34\mu\text{--}38\mu$; ovary 3 mm long; style 40 mm long or more; mature capsule not seen.

TYPE.—*O. Kuntze s.n.* (holotype B, destroyed, isotype NY, F photo 8665), Bolivia, Cochabamba, between Tiraqui and Santa Rosa, 2000 m alt, Apr 1892.

DISTRIBUTION.—Known only from around the type-locality. BOLIVIA. COCHABAMBA: Chapare, on new road to Todos Santos, about 130 km NE of Cochabamba, 800 m alt, 10 Mar 1939, *Eyerdam 24827* (UC).

According to Lindau, the short thick spikes and the very unequal calyx segments are the distinguishing characters of *Aphelandra inaequalis*.

36. *Aphelandra hieronymi* Grisebach

Aphelandra hieronymi Grisebach, Abh. Ges. Wiss. Goettingen 24:260. 1879.

Shrubby plants to 1.5 m high; stems 2–4 mm in diameter, green or the older portion brown, pilose to glabrate, the hairs 1.5 mm long, upwardly appressed to spreading, the lenticels conspicuous, whitish, about 0.5 mm wide and 2–3 mm long; leaf blades oblong-lanceolate, 5–13 cm long, 1.4–3 cm wide, acuminate, gradually narrowed from above the middle to base, rather thin, serrate, the teeth and tips ending in slender spines 1–1.5 mm long, the upper surface sparingly pilose, the hairs 0.5 mm long, the lower surface more densely so, the hairs confined chiefly to the costa and veins, these together with the veinlets conspicuous; petioles 5 mm long, pilose; spikes terminal and lateral, in-

cluding the flowers, 2–4 cm long, sessile or pedunculate, more or less interrupted, the peduncles up to 3 cm long, appressed-pubescent; bracts similar to the leaf blades but much smaller, triangular-ovate, 15–20 mm long, 2–3 mm wide at base, spine-tipped and bearing 2–3 pairs of spines on the margin, sparingly pilose, the hairs appressed; bractlets oblong, 8 mm long, 2 mm wide near base, acuminate at tip and terminated by a slender spine about 1 mm long, subcoriaceous, obscurely nerved, dorsally pubescent, the margins subhyaline; calyx segments unequal, the two outermost broadly lanceolate, 7 mm long, 3 mm wide, the 3 inner ones lanceolate, 6 mm long and 1.5 mm wide, all acute, subcoriaceous, glabrous, striate, the margins subhyaline; corolla red, finely pubescent, 2.5–4.5 cm long, 2 mm broad at base, slightly narrowed above the ovary, thence gradually enlarged to 7 mm, the erect upper lip oblong, 13 mm long, 6 mm wide, bilobed at apex, the lobes 5 mm long and 2.5 mm wide, obtuse or rounded, the lower lip spreading, about 10 mm long, the middle lobe broadly oblanceolate, 5 mm wide, rounded, the lateral ones linear-lanceolate, 7 mm long, 1.5 mm wide near tip, acute; stamens slightly exerted beyond the upper lip; filaments glabrous toward tips, the inner surface of the basal portions densely and retrorsely pubescent; anthers 5 mm long, 0.5 mm wide, linear, straight or slightly curved, dorsally pilose, the hairs about 1 mm long causing the anthers to cohere; ovary glabrous; style slender, slightly longer than the stamens, glabrous; capsule oblong-lanceolate, shining, 1.8–2.2 cm long, 2-celled nearly to base, 4-seeded.

TYPE.—*Lorentz & Hieronymus 270* (syntype CORD), Argentina, Salta, San Andrés cerca de Orán, 17–24 Sep 1873; *Lorentz & Hieronymus 918* (syntypes B, destroyed, CORD, S, F photo 8663), Bolivia, Prov. de Las Salinas, Cuesta Colorado entre San Luis y Amareta, 14 Jun 1873.

DISTRIBUTION.—This species is, evidently, extremely limited in its distribution, occurring in northern Argentina, chiefly in the vicinity of the Provinces of Jujuy and Salta and in adjacent regions of southern Bolivia. ARGENTINA. LEDESMA: Jujuy: Calilegua, Cerro de San Francisco, 1600 m alt, 17 Jun 1911, *Lillo 10791* (LIL, US, W). BOLIVIA. Rosal, 1800 m alt, 3 Oct 1949, *Brooke 5743* (F); San Luis, 2100 m alt, Apr 1864, *Pearce s.n.* (K).

37. *Aphelandra longibracteata* Lindau

Aphelandra longibracteata Lindau, Bull. Herb. Boiss. Ser., 3:367. 1895.

Shrubby, to 2 m high; the young branches pubescent; leaf blades oblong, 15–24 cm long, 5–9 cm wide, acuminate and mucronulate at apex, gradually narrowed from middle to base, both surfaces pubescent with white hairs, the margins sinuate-serrate, the teeth tipped with small spines; petioles 1–2 cm long; spikes short, terminal and in the axils of the upper leaves, long-pedunculate, with the peduncles to 14 cm long, appressed-pubescent; bracts ovate, to 20 mm long, 5 mm wide, acuminate, the upper becoming gradually smaller, green, the margins spinose-dentate, the teeth about 2 mm long, sericeous without, the hair appressed; bractlets lanceolate, 22 mm long, 2–2.5 mm wide, long acuminate at apex, glabrous or sparingly puberulous without; calyx segments lanceolate, long-acuminate, the posterior 16 mm long and 4 mm wide, glabrous, the anterior pair 15 mm long and 2.5 mm wide, the lateral pair 14 mm long and 2 mm wide; corolla red, the tube 43 mm long, 4 mm in diameter at base, 5 mm at mouth, puberulent without, pubescent at base within, the upper lip 14 mm long, 8 mm wide at base, 2-lobed, the lobes 9 mm long and 4 mm wide, acute, the lower lip 15 mm long, 5 mm wide at base, the lobes obtuse, the middle 12 mm long and 7 mm wide, the lateral 5 mm long and 1.5 mm wide; filaments 44 mm long; anthers 6 mm long; pollen grains typical, 73 μ –78 μ long and 38 μ wide; ovary 2.5 mm long; style 50 mm long; mature capsule not seen.

TYPE.—*O. Kuntze s.n.* (holotype B, destroyed, F photo 8670, isotype NY), Bolivia, Cochabamba, between Tiraqui and Santa Rosa, 2000 m alt, Apr 1892.

DISTRIBUTION.—Known only from the type-locality.

Lindau compares this species with *A. hieronymi* described from Argentina. In that species, however, the leaves are glabrous and the flowers and bracts much shorter.

38. *Aphelandra lamprantha* Leonard

Aphelandra lamprantha Leonard, Contrib. U.S. Nat. Herb. 31:176. 1958.

Herbs to 50 cm high; stems mostly simple, as-

ending, subquadrangular, hirtellous, the hairs upwardly curved, the internodes to 2 cm long; leaves numerous, erect or ascending, the blades narrowly lanceolate, to 12 cm long and 21 cm wide, the tip blunt, narrowed and decurrent on the petiole, submembranaceous, undulate, both surfaces sparingly hirtellous, the costa and lateral veins of the lower surface densely so, the venation moderately prominent; petioles slender, to 3 cm long, hirtellous; spikes solitary, terminal, subsessile, about 6 cm long and 1.5 cm broad, the rachis sparingly pubescent; bracts imbricate, ascending, lanceolate, 23 mm long, 6 mm wide above the middle, the pubescence of the outer surface a mixture of minute spreading hairs and larger ascending ones, the inner surface merely puberulous and glabrous toward base, the venation of both surfaces prominent, the veinlets coarsely reticulate towards margins, ending in slender spinose teeth (usually 8 pairs), to 3 mm long, sparingly puberulous, ocelli minutely elliptic, about 125 μ long, aggregated in a veinless depressed area about 0.75 mm in diameter, irregularly margined and located near the base of the third tooth from the tip on either side of the bract; bractlets lanceolate, 9 mm long and 1.5 mm wide near base, acuminate, subhyaline, finely striate, the dorsal region sparingly hirtellous, the costa ending at base in a swollen callus; calyx segments lanceolate, subhyaline, finely striate but thickened and smooth at base, hirtellous and ciliate at tip, the posterior segment 11 mm long, 2.25 mm wide at 3 mm above the base, obtuse, ending in a mucro 1.5 mm long, the anterior segments 13 mm long and 1.5 mm wide near base, acuminate, the lateral ones 12 mm long, 1.25 mm wide near base, acuminate; corolla 5 cm long, a vivid scarlet, sparingly pilosulous toward tip, the tube slightly curved, 2 mm broad at base, 1.5 mm broad at 5 mm above base, 6 mm broad at mouth, the upper lip ovate, about 17 mm long and 12 mm wide, acute, the lower lip 3-lobed, the lobes oblanceolate, the middle lobe 12 mm long, 5.5 mm wide, subacute, the lateral lobes similar but slightly smaller; stamens slightly exerted beyond mouth of corolla tube; anthers lying in the concavity of the upper lip; ovary glabrous; mature capsule not seen.

TYPE.—*E. F. André 1055* (holotype K, US photo 3615, isotype K), Colombia, Boyacá, "Llanos" in the vicinity of Salitre, 408 m alt, 10 Jan 1876.

DISTRIBUTION.—At elevations between 400–500 meters in the departments of Boyacá and Meta, Colombia. COLOMBIA. META: Sabanas de San Juan de Arama, 500 m alt, 22 Jan 1951, *Idrobo & Schultes 1270* (US); Sierra de la Macarena, forest of Plaza Bonita, 400 m alt, 14 Nov 1949, *Philipson, Idrobo & Fernandez 1419* (BM, COI).

39. *Aphelandra dukei* Wasshausen

Aphelandra dukei Wasshausen, *Phytologia* 25:475. 1973.

Suffrutescent shrub about 1 m high; stems erect, glabrous to subtomentose, the hairs sordid, variously curved, the internodes 1–5 cm long, the lenticels oval to linear, 1 mm long or less; leaf blades narrowly lanceolate, 12–15 cm long and 1–2 cm wide, acuminate (the tip obtuse), gradually narrowed and decurrent on the petiole, entire, firm, the upper surface dark green, glabrous or inconspicuously strigose, the costa impressed, this and the lateral veins (11–13 pairs) often strigose, the lower surface light green, glabrous or sparingly strigose, the hairs sordid; petioles (unwinged portion) 0.5–1.5 cm long, the pubescence that of the stem; flowers borne in one or several, terminal, subsessile spikes, these 9–14 cm long and 1–3 cm wide; bracts imbricate, green, elliptic, 15 mm long and 6 mm wide just above the middle, acuminate, sparingly sericeous both within and without, especially near the base, striate-nerved, bearing above the middle about 3 pairs of slender marginal teeth, these 0.5–2 mm long, spine-tipped and bearing near the middle of the dorsal surface, 2–7 small submarginal glands about 0.5 mm in diameter; bractlets lanceolate, 10 mm long, 1–1.25 mm wide, striate-nerved carinate, dorsally pilosulous; calyx segments subequal, ovate to lanceolate, 9–10 mm long, the posterior segment 2 mm wide, the lateral pair 1.25 mm wide, the anterior pair 1 mm wide, all finely striate-nerved, subhyaline, glabrous; corolla red, about 4 cm long, sparingly puberulent, minutely papillose, the tube subcylindric, 2 mm broad at base, constricted to 1.5 mm at 5 mm above base, about 4.5 mm broad at mouth, the lips oblong-ovate, 4.5–5 mm wide, subequal, the upper one erect, 10 mm long, 2-lobed, the lobes narrowly triangular, 5 mm long, 2 mm wide at base, acuminate, outwardly curved, the lower lip spreading, entire, acuminate, the tip recurved, or if 3-lobed,

the lateral lobes vestigial, appearing as mere notches near the base of the upper lip; stamens exerted; capsule green, ovate, 12 mm long, 6 mm broad, acute, glabrous, minutely and inconspicuously punctate; mature seeds not seen.

TYPE.—*J. A. Duke 14397* (holotype US, isotype MO), Panama, Panamá, Río Bayano, 1–4 m above Piria, 100 m alt, 23 Sep 1967.

DISTRIBUTION.—Known only from around the type-locality in Panama. PANAMA. PANAMÁ: Along Pan-Am Highway, Río Canita near Janine, 24 Sep 1961, *Duke 3840* (US); tributary of Río Chagres, 5 m SW of Cerro Brewster, 300 m alt, 14 Dec 1967, *Lewis, Blackwell, Hawker, Little, Nowicke, & Oliver 3426* (MO).

Aphelandra dukei is perhaps nearest in relationship to *A. deppeana*, but differs markedly in its narrower, lanceolate leaf blades.

40. *Aphelandra impressa* Lindau

Aphelandra impressa Lindau, *Bull. Herb. Boiss. Ser.*, 5:657. 1897.—Leonard, *Contrib. U.S. Nat. Herb.* 31:175. 1953.

Stems terete, the lower portions glabrous, the upper parts sparingly strigillose; leaf blades oblong-elliptic, 9–28 cm long (including the winged petiole), 2.5–6 cm wide, acuminate and more or less falcate, the tip blunt, gradually narrowed from about the middle into a winged petiole, the margins entire or shallowly crenate, both surfaces sparingly strigillose, the pubescence more numerous on the costa and veins (10–13 pairs), these rather prominent; petioles (unwinged portion) 5–15 mm long, often densely strigillose; spikes solitary or in 3's, terminal, 8–14 cm long and 2 cm broad (excluding corollas and tips of bracts), the rachis densely brown puberulous; bracts closely imbricate, subrhombic, acuminate, the tips spreading or recurved, both surfaces brown-puberulous, the teeth 8–10 on each side, these slender, ending in spines, 1.5–4.5 mm long, the glandular area on either side of the midrib deeply impressed dorsally, the pit about 1.5 mm long and 1 mm broad; bractlets subulate, 8 mm long and 11 mm wide near the base, curved, carinate, puberulent dorsally; calyx puberulous toward tip, 10 mm long, the segments lanceolate, the posterior segment acuminate, 2.5 mm wide, the others ending in a spinelike tip, 1.5 mm wide near base; corolla purple or red, puberulent,

5.5–6 cm long, the tube 2.5 mm broad at base, 5–7 mm broad at mouth, the upper lip ovate, about 13 mm long, 9 mm wide, acuminate, entire, the lower lip 3-lobed nearly to base, the lobes oblong-elliptic, acuminate, the middle lobe 15 mm long and 4.5 mm wide, the lateral lobes 12 mm long and 3.5 mm wide; stamens exerted beyond the mouth of the corolla tube but not exceeding the upper lip; filaments 3.3–4 cm long, pubescent toward base; anthers 5.5 mm long and 0.5 mm broad; pollen grains typical, 40 μ –45 μ long, 27 μ wide; style 4–5 mm long; ovary glabrous; capsule not seen.

TYPE.—*Funck & Schlim 1244* (holotype B, destroyed, isotype BR, G, P), Venezuela, Mérida, San Cristóbal, 950 m alt.

DISTRIBUTION.—Between the altitudes of 250 and 1240 meters in Venezuela and northern Colombia. VENEZUELA. MÉRIDA: Timotes, Jul 1948, *Vogel 1499* (M). BARINAS: Ticoporo forest reserve, 370 m alt, 22 Jan 1964, *Breteler 3528* (US, VEN); Feb 1969, *Aristeguieta & Zabala 6958* (VEN); between Barinas and Pedraza, Apr 1959, *Aristeguieta 3863* (US, VEN). APURE: Reserva Forestal San Camilo, 250 m alt, 28 Mar 1968, *Steyermark, Bunting & Blanco 101437* (US). COLOMBIA. Anchuelita, along the Río Curbatico, 300–400 m alt, 10 Dec 1954, *Bernardi 1713* (K); Pedraza LaVieja, 300 m alt, 16 Feb 1957, *Bernardii 1111* (VEN). NORTE DE SANTANDER: Región del Sarare, valley of the Río Margua between Junín and Córdoba, 920–1240 m alt, 22 Nov 1941, *Cuatrecasas 13374* (US). META: Between Villavicencio and Bogotá, 1898–99, *Sprague s.n.* (K).

41. *Aphelandra deppeana* Schlechtendal & Chamisso

Aphelandra deppeana Schlechtendal & Chamisso, *Linnaea* 5: 96. 1830.

Aphelandra pulcherrima sensu Humboldt, Bonpland, & Kunth, *Nov. Gen. & Sp.* 2:236. 1817 [pro parte, non *Aphelandra pulcherrima* (Jacquin) Humboldt, Bonpland & Kunth].

Aphelandra pectinata Willdenow ex Nees in de Candolle, *Prodr.* 11:297. 1847.

Aphelandra pectinata Willdenow ex Nees var. *macra* Nees in de Candolle, *Prodr.* 11:298. 1847.

Aphelandra haenkeana Nees in de Candolle, *Prodr.* 11:298. 1847.

Aphelandra fulgens Decaisne, *Rev. Hort. Ser.* 3. 1:21. 1847.

Shrubs to 4 m high; stems stout, pubescent to subtomentose, the hairs sordid, variously curved, the internodes 5–7 cm long; leaf blades ovate-elliptic to lanceolate, 5–20 cm long, 3–10 cm wide, acuminate, gradually to rather abruptly narrowed and decurrent on the petiole at base, entire, undulate, the upper surface more or less scabridulous, subnitid, glabrous to sparingly puberulous or pilose, the hairs to 0.5 mm long, the costa impressed, this and the lateral veins (12–16 pairs) often strigose, the lower surface sparingly to densely pubescent or tomentose, the hairs sordid; petiole (the unwinged portion) 1 cm long or less, the pubescence that of the stems; flowers in spikes to 20 cm long and about 1 cm broad, these terminal or both terminal and lateral, then forming a narrow terminal spicate thyrses; bracts ovate-elliptic, 8–15 mm long, 4–6 mm wide, acuminate, sparingly pilosulous without, glabrous within, rather strongly 5-nerved, bearing above the middle 1-several slender marginal teeth to 1.5 mm long and, near the middle of the dorsal surface, 2 small submarginal glands about 0.5 mm in diameter; bractlets lanceolate, 6–7 mm long, 1.75 mm wide, acuminate, dorsally pilosulous, the margins subhyaline; calyx lobes subequal, ovate to lanceolate, the posterior one about 3 mm wide, the lateral pair 1.5 mm wide, the anterior pair barely 2 mm wide, all finely striate-nerved, subhyaline, sparingly pilosulous dorsally; corolla pale to bright red, orange, or crimson, pubescent distally, glabrous proximally, about 4 cm long, the tube subcylindric, about 3 mm broad at base, constricted to 2 mm at 5 mm above base, about 5 mm broad at throat, the lips oblong-ovate, 4.5–5 mm wide, subequal, the upper one erect, 2-lobed, narrowly triangular, the lobes 3.5 mm long, 1.5 mm wide at the base, acuminate, outwardly curved, the lower lip spreading, entire, acuminate, the tip curved, or if 3-lobed, the lateral lobes vestigial, appearing as mere notches near the base of the upper lip; stamens exerted; capsule oblong, 15–20 mm long, about 8 mm broad and 3 mm thick, obtuse, glabrous, inconspicuously punctulate; seed dull brown, orbicular, 4 mm in diameter, 2 mm thick, minutely roughened.

TYPE.—*Schiede & Deppe s.n.* (holotype B, destroyed, F photo 8704) Mexico, Hacienda de la Laguna.

DISTRIBUTION.—Southern Mexico to northern South America. MEXICO. VERACRUZ: Cordillerâ de

Vera Cruz, Jun–Oct 1840, *Galeotti 909* (K, P, US, W, syntype of *A. haenkeana* Nees); Mirador, 900–1140 m alt, *Hohenacker s.n.* (W); Mirador, Dec 1838, *Linden 189* (K, syntype of *A. haenkeana* Nees); Consoquitla, near Mirador, Oct–Nov 1861, *Liebmann s.n.* (K, P); 1867, *Gouin s.n.* (P); Zacuapan, Nov 1861, *Liebmann s.n.* (K); Zacuapan and vicinity, Sep 1906; *Purpus 1938* (US); Oct 1926, *Purpus 10878* (US); region of San Andrés Tuxtla, 31 Aug 1953, *Dressler & Jones 230* (US). GUERRERO: Near Acapulco, *Haenke s.n.* (PR, syntype of *A. haenkeana* Nees); 23 Nov 1882, *Hancock 47* (K); Acapulco, 1840, *Voyage Venus s.n.* (P); Acapulco and vicinity, Oct 1894–Mar 1895, *Palmer 174* (US); road between Copala & Juchitango, 60–180 m alt, 9 Feb 1895, *Nelson 2297* (US); La Botella, 400 m alt, 28 Nov 1898, *Langlassé 679* (K, US); Montes de Oca, Vallecitos, 520 m alt, 25 Nov 1936, *Hinton 9903* (K, US, W); 10 Jul 1937, *Hinton 11477* (K, US, W); Galeana, Atoyac, 220 m alt, 14 Nov 1937, *Hinton 10919* (K, US); Carrizo-El Rio, 700 m alt, 20 Oct 1939, *Hinton 14691* (US, W); La Roqueta-island off Acapulco, 8 Feb 1941, *Langman 3309* (US); near kms 337–8 beyond Acahuizotla on highway to Acapulco, 900 m alt, 30 Sep 1949, *Moore 5108* (US); vicinity of Acahuizotla between Chilpancingo and Acapulco, 17 Oct 1959, *Moore 8124* (US); Highway 95, 5–6 m E of Acapulco, 20 Jan 1955, *Carlson 3066* (US). OAXACA: Mirador, 1842, *Ghiesbreght 57* (P, isotype of *A. fulgens* De-caisne) between Tehuantepec and Gulf of Mexico, Sep 1834, *Andrieux 131* (K, P, W, syntype of *A. haenkeana* Nees); Cafetal Concordia (Cerro Espino), 600 m alt, 30 Nov 1917, *Reko 3626* (US); Juchitan, Santo Domingo, 240 m alt, 23 Oct 1919, *Conzatti 3735* (US); Cerro Concordia, 650–800 m alt, 8–14 Apr 1923, *Morton & Makrinius 2676* (US); Tuxtepec, Chiltepec and vicinity, 20 m alt, Jul 1940–Feb 1941, *Martinez 205, 254* (US); El Cerro de Cosolapa, Cosolapa, 22 Oct 1943, *Santos 2617* (US); Comaltepec, *Liebmann s.n.* (K). TABASCO: Between San Juan Bautiste and Atasta, 23 Oct 1887, *Roviroso 11* (US). CHIAPAS: Between Teneapa and Yajalon, 900–1500 m alt, 13 Oct 1895, *Nelson 3245* (US); San Pedro, 3 Apr 1930, *Mell 561* (US); Escuintla, 4 Nov 1936, *Matuda 151* (US); Tenejapa, along Ala Shashib River above Habenal, 1200 m alt, 14 Jul 1964, *Breedlove 6463* (US); Tenejapa, 1110 m alt, 25 Nov 1964, *Breedlove 7609* (US); Tuxtla Gutiérrez, 840 m alt, *Breedlove & Raven 13351* (US); 750 m alt, 27 Oct 1965, *Breedlove 13879* (US); Tenejapa, 1080 m alt, 28 Oct 1966, *Ton 1395* (US); Venustiano Carranza, 1050 m alt, 12 Sep 1966, *Laughlin 2024* (US); 1864–1870, *Ghiesbreght 700* (K). CAMPECHE: On Campeche-Merida road, beyond Hopalchen, 3 Oct 1959, *Moore 8078* (US). YUCATAN: Chicheh, Mar 1917, *Gaumer 23798* (US); Chichankanab, *Gaumer 1488, 1569* (US); Apr 1917, *Gaumer 23650* (US); Izamal, Oct–Mar 1895, *Gaumer 300* (US, W); S Kancabconot, Mar 1917, *Gaumer 23587* (US); Progreso, 11–15 Aug 1932, *Steere 3012* (US); Tepakaam, 15 Jan 1895, *Millsbaugh 91* (US); Coba, 24 Jan 1938, *Crocket 150* (US); Maskal, 20 Jul 1934, *Gentle 1304* (P); Uxmal, 29 Sep 1959, *Degener 26785* (NY, US); Chichen Itza, near Cenote Sagrada, 2 Dec 1966, *Rudd 2033* (US). QUINTANA ROO: 35 Km S of Dzuiche, 30 m alt, 21 Aug 1965, *Roe, Roe & Mori 1349* (US, WIS). WITHOUT EXACT LOCALITY: *Sessé & Mociño s.n.* (FI), 279, 280, 290 (MA, US photos 4501, 4565, 4559); 13 Nov 1907, *Kerber s.n.* (P, US). GUATEMALA. EL PETÉN: La Libertad, 24 Apr 1933, *Lundell 3004* (US); El Paso, 3 Apr 1932, *Lundell 1447* (US); Cerro Ceibal, on left side of Río Cancuen, 75–150 m alt, 30 Apr 1942, *Steyermark 46080* (US); San Clemente to Dos Arroyos, 1 May 1931, *Bartlett 12827* (US); Ceibal, 150 m alt, 18 Nov 1965, *Molina 15861* (US); Parque Nacional de Tikán, 28 Aug 1970, *Ortiz 1248* (US). HUEHUETENANGO: Along Río Trapichillo below La Libertad, 1200–1300 m alt, 21 Aug 1942, *Steyermark 51194* (US). ALTA VERAPAZ: Sacolol, 900 m alt, Oct 1855, *von Tuerckheim 825* (P, US); Secanquim, trail to Cahaban, 12 Aug 1904, *Goll 139* (US); Finca Mocca, 450 m alt, 4 Dec 1919, *Johnson 85* (US); near Pancajché, 900 m alt, 10 Apr 1941, *Standley 91831* (US); between Chirriacté and Semococh, 500–900 m alt, 10 May 1942, *Steyermark 46351* (US); between Sachaj and Sacacac, 150–180 m alt, 20 Mar 1942, *Steyermark 45175* (US); Cacao, Finca Trece Aguas, 270–330 m, 30 Sep 1905, *Goll 3* (US); 20 Apr 1906, *Lewton 360* (US). VERAPAZ-CHIQUIMULA: 1885, *Watson 127* (US). IZABAL: Los Amates, 15 Feb 1908, *Kellerman 7479* (US); vicinity of Quirigua, 75–225 m alt, 15–31 May 1922, *Standley 23910, 23914* (US). QUEZALTENANGO: Colomba, 570 m alt, 4 Oct 1934, *Skutch 1370* (US). ZACAPA: Between Zacapa and Chiquimula, 500–660 m alt, 9 Oct 1940, *Standley 73849* (US); base of Sierra de las Minas, 300 m alt, 11 Oct 1940, *Standley*

74061 (US); along Río Teculután, above Teculután, 250–275 m alt, 7 Jan 1942, *Steyermark 42150* (US). CHIQUIMULA: 3 m SE of Quezaltepeque, 1200–1500 m alt, 6 Nov 1939, *Steyermark 31291* (US); between Esquipulas and Ataluapa, 800 m alt, 11 Dec 1969, *Molina 25346* (US). JALAPA: Between Jalapa and San Pedro Pinula, 1400–1800 m alt, 12 Nov 1940, *Standley 77087* (US). GUATEMALA: Guatemala, San Antonio Mt. 1465 m alt, 11 Jan 1906, *Kellerman 5911* (US); Sanarate, 810 m alt, 28 Dec 1906, *Kellerman 6653* (US). SOLOLÁ: Patalul, 411 m alt, Aug 1891, *Shannon 154* (US). RETALHULEU: Retalhuleu, 237 m alt, 10 Jan 1907, *Kellerman 6584* (US); between Nueva Linda and Champerico, 120 m alt, 18 Feb 1941, *Standley 87523, 87650* (US). SUCHITEPÉQUEZ: near Patulul, 330–600 m, 5 Jan 1939, *Standley 62184* (US). ESCUINTLA: Santa Lucía, 318 m alt, 3 Mar 1905, *Kellerman 4564, 5270* (US); Escuintla, 330 m alt, 1890, *John Donnell Smith 1976* (US); near Las Lajas, 1200 m alt, 28 Nov 1938, *Standley 58152* (US); near San José, sea level, 30–31 Jan 1939, *Standley 64076* (US); San Antonio Jute, 780 m alt, 9 Feb 1939, *Standley 64897, 64901* (US); SE of Escuintla, along Río Michatoya, 12 Mar 1941, *Standley 89138* (US). SANTA ROSA: Jumaytepeque, 1800 m alt, Nov 1892, *Heyde et Lux 4379* (US); about Guazacapán, 220 m alt, 29 Nov–3 Dec 1940, *Standley 78702* (US); SE of Chiquimulilla, 150 m alt, 30 Nov 1940, *Standley 78737* (US). JUTIAPA: Vicinity of Jutiapa, 850 m alt, 24 Oct–5 Nov 1940, *Standley 75121* (US). WITHOUT EXACT LOCALITY: 1841, *Friedrichstahl 688* (W); 1892, *Heyde 414* (US). BRITISH HONDURAS. NORTHERN DISTRICT: Corozal-Santa Helena road, Aug 1933, *Gentle 4865* (US); San Antonio, Sep 1933, *Gentle 4969* (US); 1931–1932, *Gentle 202* (US); Maskall, 9 Apr 1934, *Gentle 1185* (US). BELIZE: Mt. Polo group, 2 Feb 1931, *Bartlett 11349* (US). STANN CREEK: 24 Feb 1929, *Schipp 37* (K, US). EL CAYO: Augustine, Mountain Pine Ridge, 28 Aug 1959, *Hunt 42* (US); El Cayo and vicinity, Mar–Jun 1933, *Chanek 38* (US); N of El Cayo, Branch Mouth, 19 Feb 1931, *Bartlett 11942, 11947* (US). TOLEDO: Swasey Branch, Monkey River, 11 Nov 1941, *Gentle 3774* (US); 12 Nov 1941, *Gentle 3775* (US). WITHOUT EXACT LOCALITY: Tower Hill Estate, 1927, *Karling 12, 51* (US). HONDURAS. ISLA DE LA BAHÍA: Ruatan Island, Aug 1886, *Gaumer s.n.* (US). SANTA BÁRBARA: San Pedro Sula, 300 m alt, *Thieme 5403* (US); 1 km from Santa Bárbara, 300 m alt, 11 Dec 1950, *Molina 3669* (US). COMAYAGUA: Vicinity of Siguatepeque, 1080–1400 m alt, 14–28 Feb 1928, *Standley 56067* (US); 1110 m alt, 21 Sep 1932, *Edwards 486* (US); 1100 m alt, 29 Sep–5 Oct 1951, *Williams 18475* (US). EL PARAÍSO: Road to Yuscarán, 5 Nov 1951, *Swallen 11335* (US); Gulf of Fonseca, *Sinclair s.n.* (K, syntype of *A. pectinata* Willd. ex Nees). EL SALVADOR. AHUACHAPÁN: Vicinity of Ahuachapán, 800–1000 m alt, 9–27 Jan 1922, *Standley 19893* (US). SONSONATE: Vicinity of San Antonio del Monte, 250 m alt, 23 Mar 1922, *Standley 22166* (US). SAN SALVADOR: Vicinity of Tonacatepeque, 30–31 Dec 1921, *Standley 19440* (US); 31 Dec 1921, *Calderón 210* (US). SAN VICENTE: San Vicente, 350–500 m alt, 2–11 Mar 1922, *Standley 21220* (US). SAN MIGUEL: S side of Lake Olomega, 75 m alt, 8 Feb 1942, *Tucker 931* (P, US). MORAZÁN: 15 km NE of San Miguel, 200 m alt, 2 Dec 1941, *Tucker 450* (US). LA UNIÓN: Gulf of Conchagua, Nov 1838, Voyage Sulphur, *Barkley 2597* (US); La Unión, 150 m alt, 13–21 Feb 1922, *Standley 20672, 20855* (US). NICARAGUA. MATAGALPA: 5–10 km W of Matagalpa, 600–700 m alt, 13 Jan 1963, *Williams, Molina & Williams 23801* (US, W); Matagalpa, 12 Jan 1928, *Mell 33* (US). CHINANDEGA: Chinandega, 1 Jan 1903, *Baker 2057* (K, US, W). MANAGUA: Vicinity of Managua, *Garnier 55* (US); 2 Nov 1923, *Chaves 45* (US). GRANADA: Jan 1870, *Lévy 349* (P). RIVAS: Finca Coacojoche, near Tola & Rivas, 16 Jan 1945, *White 5354* (US). Lake Nicaragua, Ometepe Island, 1893, *Shimek & Smith 146* (US). WITHOUT EXACT LOCALITY: U. S. North Pacific Exploring Expedition, *Wright s.n.* (US). COSTA RICA. Mt. Mombacho, 1845–46, *Ørsted 10614* (US). GUANACASTE: Around Nicoya, Dec 1899, *Tonduz 13633* (F, K, P, US, W); vicinity of Tilarán, 500–650 m alt, 10–31 Jan 1926, *Standley & Valerio 44293, 45686* (US); Cataract Falls, 16 Feb 1956, *Schubert 1071* (US). PUNTARENAS: Jan 1854, *Scherzer s.n.* (W); along Río Ceibo, near Buenos Aires, Jan 1892, *Tonduz 6707* (US). ALAJUELA: San Mateo, Jan 1892, *Biolley 7073, 7074, 7075* (US); Grecia, Dec 1917, *Jiménez 1142* (US); San Ramón, 1000 m alt, 5 Feb 1940, *Austin Smith 2359* (K, US); Finca Prado, above Atenas, 7 Feb 1956, *Schubert & Madriz 1036* (US). SAN JOSÉ: Bois du Rodeo de Pacaca, 400–700 m alt, *Pittier & Durand 1592* (US); La Caja, Dec 1890, *Biolley 3210* (US); San José,

- Dec 1896, *Tonduz 10401* (US); Escasú, 1250 m alt, 29 Jan 1924, *Standley 32370* (US); Las Pavas, 1070 m alt, 29 Feb 1924, *Standley 36057* (US). WITHOUT EXACT LOCALITY: Gulf of Nicoya, *Sinclair s.n.* (K, syntype of *A. pectinata* Willdenow ex Nees). PANAMA. CHIRIQUÍ: 12.4 m N of David, 14 Dec 1966, *Lewis et al. 718* (MO, US). VERAGUAS: Ila de Uva, Contreras group, 11 Dec 1911, *Pittier 5113* (US); hills W of Soná, 500 m alt, 24 Nov 1938, *Allen 1042* (MO, US); Bahía Honda, 28 Mar 1939, *Elmore H15* (US). LOS SANTOS: Tonosí, 35 m alt, 27 Feb 1963, *Stern, Eyde, & Ayensu 1854* (US); 25 m SW of Tonosí, Río Pedregal, 750–900 m alt, 7 Dec 1967, *Lewis et al. 2954* (MO, US). HERRERA: Ocú, 100 m alt, 22 Jan 1947, *Allen 4066* (US); Ocú, banks of Río Pasoancho, 19 Feb 1963, *Stern, Eyde, & Ayensu 1738* (US); between Las Minas and Pesé, 25 Dec 1966, *Burch, Oliver, & Robertson 1349* (US). COCLÉ: Penonome, 15–300 m alt, 23 Feb–22 Mar 1908, *Williams 217* (US); between Paso del Arado and Olá, 20–280 m alt, 7–9 Dec 1911, *Pittier 5026* (US); Olá, 100–350 m alt, 7–9 Dec 1911, *Pittier 5036* (US); El Valle, 800–1000 m alt, 22 Dec 1936, *Allen 96* (US); El Valle de Antón, 300–600 m alt, 2–3 Dec 1967, *Lewis et al. 2595* (MO, US). CANAL ZONE. Paraiso, Dec 1857, *Wagner s.n.* (W); 29 Nov 1967, *Dyer 7143* (US); Balboa, Nov 1923–Jan 1924, *Standley 25439, 26047, 29258* (US); Pueblo Nuevo, 10 Mar 1940, *White 299* (US); Miraflores, 27 Dec 1937, *White 49* (US); Fort Kobe, 15 Oct 1939, *Allen 2022* (US); between Fort Clayton and Corozal, 31 Dec 1923, *Standley 29011* (US); Santa Rita hills, 4 Jan 1958, *C. Earle Smith, Jr. & H. Morgan Smith 3433* (PH, US); between Rodman Marine Base and Chorrera, 17 Dec 1967, *Nowicke, Blackwell & Hawker 3582* (MO, US). PANAMÁ: Río Tapia, 7 Dec 1923–11 Jan 1924, *Standley 26193, 28091* (US); near Matías Hernández, 30 Dec 1923, *Standley 28971* (US); Río Tecumen, 3 Jan 1924, *Standley 29455* (US); Juan Díaz, 11 Jan 1924, *Standley 30601* (US); between Las Sabanas and Matías Hernández, 21 Jan 1924, *Standley 31911* (US); 2–3 m S of Goofy Lake, on road to Jefe, 600–660 m alt, 10 Dec 1966, *Lewis, Burch, Dwyer & Elias 282* (MO, US); Chimán, 12 Dec 1967, *Lewis et al. 3331* (MO, US). SAN BLAS: Between Ríos Diablo and Acuati, 11 Mar 1967, *Duke 14887* (US). DARIÉN: Punta Garachine, 28 Feb 1967, *Duke 10475* (US). Taboga Island, 0–250 m alt, 20–23 May 1911, *Pittier 3620* (US); 1912, *Celestino 43* (US); 26 Jan–7 Feb 1923, *Macbride 2770* (US); Dec 1923, *Standley 27864* (US); *Hinds s.n.* (K, syntype of *A. pectinata* Willdenow ex Nees). Taboguilla Island, 30 Mar 1937, *Miller 1999* (US). WITHOUT EXACT LOCALITY: 1851, *Duchassaing s.n.* (P); Central America, *Barkley s.n.* (K, syntype of *A. haenkeana* Nees); journey to Chile, 9 Dec 1905, *Sargent 17* (US); 22 Feb 1923, *Macbride 2666* (US). SURINAM. 1846, *Hostmann & Kappler 539* (K, LE, MO, P, W, syntype of *A. pectinata* Willdenow ex Nees); Paramaribo, *Wullschlägl 422* (W); Jul 1844, *Kegel 56* (P); 3 km N of Paramaribo, 5 Apr 1944, *Maguire & Stahel 22727* (NY, W); Charlesburg near Paramaribo, 21 Jul 1933, *Lanjouw 100* (K); Saramacca River, 18 Jun 1944, *Maguire 23873* (NY, P, US). GUYANA. Along banks of Sururu River, Jun 1839, *Schomburgk 180* (K, W, syntype of *A. pectinata* Willdenow ex Nees); 1841, *Schomburgk 888* (P, W), *1461* (US); Corentyne River, Sep 1879, *Jenman 368* (P); SE of Georgetown, 26 Nov 1919, *Hitchcock 16916* (US); Akyma, Demerara River above Wismar, 9–10 Jan 1920, *Hitchcock 17419* (US); junction of Mazaruni and Cuyuni Rivers, Kartabo Station, 23 Jul 1924, *Graham 336* (US); Mazaruni River & Essequibo, Aug 1933, *Martyn 398* (K); Matope Falls, Cuyuni River, 4 Jun 1952, *Forest Dept. 6942* (K); Maniparu Falls, 14 Feb 1949, *Atkinson 59* (BM, K, US); Essequibo River, Uiridan savanna, 12 Jun 1951, *Forest Dept. 6453* (K, P); Keriti Creek, Essequibo River, 4 Oct 1942, *Forest Dept. F875* (K); Essequibo River, first falls, 10 Sep 1929, *Sandwith 194* (K); Issororo, Pomeroun River, 5 Jun 1909, *Anderson s.n.* (K). WITHOUT EXACT LOCALITY: Sep 1879, *im Thurm s.n.* (K); Apr 1887, *Jenman 3785* (K). VENEZUELA. ANZOÁTEGUI: Barcelona, valleys of Neveri and Nevicual, 1885, *Chaper s.n.* (P); Paria-guán, 14 Dec 1940, *Pittier 14530* (F, US, VEN); Guanta-Cumaná, Sep 1959, *Aristeguieta 3981* (VEN). GUÁRICO: Ortíz, Oct 1963, *Aristeguieta 5197* (VEN); Llanos de Calabozo, Mision Abajo, 9 Nov 1941, *Lasser 134* (US, VEN). MIRANDA: Parque Nacional de Guatopo, Sep 1966, *Aristeguieta & Agostini 6429* (US). TRUJILLO: El Divi-dive, 29 Nov 1922, *Pittier 10855* (US, VEN). BOLÍ-var: Angostura or Ciudad Bolívar, 1864, *Grosourdy 13* (P); Cariben on Río Orinoco, 3 Apr 1887, *Chaf-fanjon 130* (P); La Urbana, Jan 1892, *Guyon 50* (P); La Unión, Medio Caura, 90 m alt, 14 Feb 1939, *Williams 11254* (US, VEN); 30 km below La

Urbana, 100 m alt, 14–15 Mar 1949, *Maguire & Maguire 29035* (NY, P, US); Hato la Vergareña, E of Cerro Coroba, 420 m alt, 25 Oct 1954, *Wurdack & Guppy 203* (US, VEN); Caicara (Orinoco), 1898–99, *Sprague s.n.* (K); Ciudad Piar, 450 m alt, Apr 1954, *Aristeguieta 2233* (VEN). AMAZONAS: Mouth of Río Sanariapo, 140 m alt, 22 May 1940, *Williams 13061* (US, VEN); Alto Ventuari, junction of the Río Jenete, 500 m alt, Dec 1940, *Cardona 165* (US, VEN); Base River (Caño Negro), at SE base of Cerro Duida, 215 m alt, 23 Aug 1944, *Steyermark 57909* (US, VEN); Río Negro, Piedra de Cocuí, 22–23 Dec 1947, *Schultes & López 9422* (US); Río Cuao, Río Orinoco, Murcielago Falls, 17 Nov 1948, *Maguire & Politi 27318* (US, VEN); Cerro Sipapo (Paráque), 28 Dec 1948, *Maguire & Politi 27984* (US, VEN); 25 Jan 1949, *Maguire & Politi 28606* (US, VEN); Cerro Huachamacari, Río Cunucunuma, 400 m alt, 21 Dec 1950, *Maguire, Cowan, & Wurdack 29987* (US, VEN); Serranía Parú, Río Parú, Caño Arisa, Río Ventuari, 250 m alt, 17 Feb 1951, *Cowan & Wurdack 31541* (US, VEN); Puerto Ayacucho, Great Rapids of the Orinoco, 100–120 m alt, 8 Nov 1953, *Maguire, Wurdack, & Bunting 36078* (US, VEN); 10 Nov 1953, *Maguire, Wurdack, & Bunting 36114* (US, VEN); Alto Río Orinoco, 30 km above Santa Barbara, 125 m alt, 15 Sep 1957, *Maguire, Wurdack, Keith 41480* (US, VEN, W); Orinoco River, S part of Isla del Ratón, 90 m alt, 19 Nov 1965, *Breteler 4740* (US, VEN). COLOMBIA. BOLÍVAR: Vicinity of Cartagena, 1920, *Heriberto 357* (US); Sincelejo, 150–200 m alt, 26 Jan 1918, *Pennell 4057* (NY, US); between savanna Beltrán and Juanarias, 15 Sep 1963, *Romero 9939* (COL); Sincé, 18 Sep 1963, *Romero 9986* (COL); San Martín de Loba, Lands of Loba, Apr–May 1916, *Curran 99, 111* (US). NORTE DE SANTANDER: Ocaña, Aquachica, 1846–52, *Schlim 278* (K, P). BOYACÁ: 10 km above Mani, San Antonio on Río Cusiana, 250 m alt, 16 Feb 1939, *Haught 2613* (US). META: Apiay, plains of San Martín, 300 m alt, Feb 1856, *Triana s.n.* (COL, P); Río Casanare, at Esmeralda, 130 m alt, 19–20 Oct 1938, *Cuatrecasas 3810* (COL), *3816* (US); Río Orinoco, Puerto Carreño, 23–24 Oct 1938, *Cuatrecasas 4046* (US); Río Meta, La Venturosa, 27 Oct 1938, *Cuatrecasas 4185* (US); Río Meta, Metabubosa, 29 Oct 1938, *Cuatrecasas 4235* (COL); 65 km E of Villavicencio, 28 Dec 1938, *Haught 2501* (US); Sabanas de San Juan de Arama, 500 m alt, 5–20 Dec 1950,

Idrobo & Schultes 1223 (US); Llanos Orientales, Serranía de Menegua, 250 m alt, 17 Sep 1958, *Jaramillo, Hernández & van der Hammen 1265, 1268* (COL); 34 km E of Villavicencio, 300 m alt, 17 Sep 1958, *Jaramillo, Hernández & van der Hammen 1275* (COL). VICHADA: Along the Río Vichada, 7 km NE of San José de Ocuté, 100 m alt, 19 Jan 1944, *Hermann 10973* (US). VAUPÉS: Cerro de Mitú, 380 m alt, 17 Sep 1939, *Cuatrecasas 6878* (US); Calamar, on the Río Unilla, 240 m alt, 30 Oct 1939, *Cuatrecasas 7339* (COL). WITHOUT EXACT LOCALITY: *Engels s.n.* (LE); *Cuming 1099* (K, syntype of *A. pectinata* Willdenow ex Nees). ECUADOR. WITHOUT EXACT LOCALITY: *Sinclair s.n.* (K, holotype of *A. pectinata* var. *macra* Nees); *Hegewisch s.n.* (K, syntype of *A. haenkeana* Nees). CULTIVATED MATERIAL. Hope Gardens, Jamaica, Dec 1904, *Harris 75* (K); St. Vincent, *Guiding s.n.* (K).

42. *Aphelandra storkii* Leonard

Aphelandra storkii Leonard, Field Mus. Pub. Bot. 18:1197. 1938.

Suffrutescent; stems round, terete, sparingly pilose toward the tip, glabrous below; leaf blades ovate, 20 cm long, 13 cm wide, short-acuminate, abruptly narrowed at the base and decurrent on the petiole, undulate, sparingly pilose above, densely so beneath, the veins prominent, coarsely reticulate toward the margins; petioles about 10 cm long, winged, about 3 mm broad near the base of the leaf blade; spikes terminal, 11 cm long or longer, about 3 cm in diameter, the bracts closely imbricate, the rachis densely spreading-pilose; bracts oblong-ovate, 25–28 mm long, 10–12 mm wide, acute, red (?), veiny, puberulent within, pilose without, the middle portion of the margin denticulate, the few teeth about 0.25 mm long, also bearing on both sides near the middle a number of small, round, sessile, submarginal glands; bractlets linear-lanceolate, 12 mm long, 2.5 mm wide near the base, acuminate, pilose, striate; calyx segments subequal, 13–14 mm long, narrowly lanceolate, the posterior segment 3.5 mm wide, the anterior pair 2.5 mm wide, and the lateral pair 2 mm wide, all gradually narrowed to a slender point, pilosulous, striate; corolla red (?), pilose, the upper lip erect, acute, 2-toothed, the lower lip 3-lobed, probably

spreading, its middle lobe acute, much longer and larger than the obtuse lateral ones (mature corolla not seen).

TYPE.—*Rowles & Stork 690* (holotype US), Costa Rica, Limón, Livingston, Río Reventazón, July to Aug, 1920.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra storkii is closely related to *A. deppeana* but differs from it in its much larger bracts with very minute teeth. In *A. deppeana* the bracts are rarely as much as 15 mm long, whereas in this species they are at least 25 mm long.

43. *Aphelandra lasia* Leonard

Aphelandra lasia Leonard, Contrib. U.S. Nat. Herb. 31:179. 1953.

Shrubs to over 2 m high; stems subquadrangular, at least the upper portions densely pilose, the hairs whitish, to 2 mm long; leaf blades oblong-elliptic, to 29 cm long and 8 cm wide, subacuminate, narrowed from about the middle to a winged petiole, entire or undulate, rather thin, the upper surface sparingly whitish strigose, moderately strigose beneath especially on the costa and lateral veins (about 22 pairs); petiole (unwinged portion) 5–10 mm long, the winged portion 6–7 cm long, both densely pilose; spikes to 5 or more in number, terminal and subterminal, 5–10 cm long, 2 cm broad, the rachis densely pilose; bracts ascending, light brown, rhombic, about 18 mm long and 9 mm wide, densely pilose, the margins bearing 1 or 2 pairs of minute ascending teeth, the glandular areas consisting usually of 5–20 elliptical ocelli 0.75 mm long and barely 0.5 mm wide, these dark brown, conspicuous against the light brown of the bracts; bractlets narrowly lanceolate, carinate, 16 mm long, 3 mm wide near base, densely pilose without; calyx 19 mm long, the segments lanceolate, the posterior one 5.5 mm wide at about the middle, the anterior pair 3.5 mm wide, the lateral pair 3 mm wide, all indurate, glabrate to about 5 mm from base, upper portions densely pilose; corolla bright red, rather sparingly puberulous, 6 cm long, the tube 3 cm long, 6 mm broad at base, contracted at tip of ovary to 3 mm, thence gradually expanded to 7 mm at mouth, the lips erect, about equal, 3 cm long, the upper lip about 8 mm wide at basal

part of the 2 lobes, these lanceolate, 17 mm long, 5 mm wide at middle, acuminate, spreading, the lower lip 3-lobed, the middle lobe free to base, oblong-lanceolate, 33 mm long, 7 mm wide at about the middle, the lateral lobes triangular, 8 mm long, 2.5 mm wide near the base, acute, their upper margins adhering in part to the upper lip; stamens almost reaching the tip of the upper lip, 5 cm long; anthers 6.5 mm long, adhering at tip, dorsally pubescent; filaments glabrous; style about 5.5 cm long, glabrous; capsules not seen.

TYPE.—*O. Haught 3945* (holotype US), Colombia, Magdalena, near stream in forest above Ma-naure, 800 m alt, 16 Jan 1944.

DISTRIBUTION.—Andean Colombia at elevations above 800 meters, in the departments of Magdalena, Santander, Cundinamarca, and Tolima. COLOMBIA. SANTANDER: Santa Bárbara, Jul 1879, *Kal-breyer 794* (K). CUNDINAMARCA: Around Guaduas, *Hartweg 1267* (K, syntype of *A. pectinata* Willdenow ex Nees); Aug 1852, *Triana 267* (COL, NY); 1100 m alt, Jun 1952, *Uribe 2337* (US); 1000 m alt, 10 Mar 1964, *Veléz & Murillo 226* (COL); E of Guaduas, between Guaduas and Alto de Aguacalara, 1040–1320 m alt, 3 Nov 1945, *Garcia-Barriga 11727* (US); 24 Jul 1947, *Garcia-Barriga 12323* (US); above San Juan de Rioseco, 1700 m alt, 18 Jun 1956, *Uribe 2787* (COL). TOLIMA: Between El Líbano and Murillo, Alto de Peñones, 2200–2950 m alt, 20 Jul 1947, *Garcia-Barriga 12268* (US). WITHOUT EXACT LOCALITY. 1760–1808, *Mutis 1489* (US).

44. *Aphelandra hylaea* Leonard

Aphelandra hylaea Leonard, *Wrightia* 2:146. 1961.

Shrub 1–2 m high; stems terete, glabrous or the upper portion strigose; leaves mostly spreading, the blades rather narrowly elliptic or ovate-lanceolate, 13–15 cm long and 4.5 cm wide, acute or subacuminate, the tip obtuse or rounded, cuneate at base, usually narrowly so, rather firm, entire or shallowly crenate, both surfaces glabrous except the costa and lateral veins (9 or 10 pairs), these sparingly strigose; petioles 5–15 mm long, the channels strigose, glabrous below; spikes dense, solitary and terminal or several, then terminal and subterminal, to 14 cm long and 4 cm broad, the rachis hirsute; bracts purplish, erect, imbricate,

rhombic-ovate, 21–27 mm long, 8–11 mm wide at middle to a base 3 mm wide, the costa and 3 pairs of lateral nerves rather prominent, the veinlets coarsely reticulate, the marginal veinlets terminating in a series of spikelike teeth to 3.5 mm long, the teeth ending about 8 mm below the tip of the bract, the outer surface of the bracts puberulous, the inner surface glabrous or puberulous at tip and margins, the ocelli minute, forming an oval, depressed area about 1.5 mm long and 1 mm wide, darker than the surrounding surface of the bract; bractlets narrowly triangular, 10 mm long, gradually narrowed from base to a slender subulate tip, 2.5 mm wide at base, carinate, the margins thin, rather sparingly hirtellous; calyx 14 mm long, the posterior segment 3 mm wide, the anterior segments 1.75 mm wide, the lateral pair 1.25 mm wide, all lanceolate, striate-nerved, glabrous or bearing a few rigid ascending hairs; corolla erect or ascending, 5.3 cm long from base to tip of upper lip, red, glabrous below, sparingly puberulous above, the tube 2 mm wide at base, enlarged gradually to 5 mm at tip, the upper lip erect, narrowly ovate, acute, 17 mm long, about 8 mm wide, the lower lip spreading, 15 mm long, 3-lobed, the lobes divided nearly to base, oblanceolate, about 4 mm wide, acute; stamens reaching to within 3 mm of the tip of the upper corolla lip and partly enfolded by it; anthers oblong, 5.5 mm long, 1.25 mm broad, glabrous; filaments glabrous; ovary glabrous.

TYPE.—*Kjell von Sneidern 1370* (holotype S, US photo 5380), Colombia, Caquetá, Morelia, 150 m alt, 26 Nov 1941.

DISTRIBUTION.—Amazonian Colombia, Ecuador, and Brazil. COLOMBIA. META: Guapayita, Cordillera La Macarena, 500–600 m alt, 20–28 Dec 1950, *Idrobo & Schultes 840* (US); Boca del Caño Cabra, junction of Caño Cabra and Río Guayabero, 23 Feb 1969, *Pinto & Sastre 991* (COL, P). VAUPÉS: Along the Río Guaviare, at San José del Guaviare, 240 m alt, 5 Nov 1939, *Cuatrecasas 7456* (US). PUTUMAYO: Quebrada de Sipeñae, left side of the Río San Miguel, 400 m alt, 12 Dec 1940, *Cuatrecasas 11007* (US); around Macao, between river locally called Río Rumiayaco and Filo de Barniz, 1200–1500 m alt, 8–9 Oct 1959, *Barclay & Juajibioy 9439* (US); Macoa, path to Río Rumiayaco, 700–850 m alt, 10 Oct 1965, *García-Barriga, Hashimoto, & Ishikawa 18688* (COL, US). ECUADOR. NAPO

PASTAZA: Río Napo, Yuralpa, riverside, 4–19 Dec 1958, *Harling 3614* (S); between Tena and Archidona, 2 Oct 1939, *Asplund 8976* (S); Cerro Antisana, 3 m SW of Tena, 600 m alt, 27 Aug 1960, *Grubb, Lloyd, Pennington & Whitmore 1478* (K, NY). BRAZIL. AMAZONAS: Codajas, 22 Aug 1950, *Froes 26345* (IAN). ACRE: Serinopal, Rio São Francisco, Mar 1911, *Ule 9806* (K, F photo 8664).

Leonard (1961, 2:148) states that *Aphelandra hylaea* is related to *A. impressa* and even more closely to *A. lamprantha* Leonard. All three species agree in having the glandular area of the bracts made up of numerous minute ocelli. *Aphelandra impressa* is characterized by the long, slender recurved tips of the bracts and by the long erect-ascending leaves (up to 28 cm). The bracts of *A. lamprantha* and *A. hylaea* are erect and merely acute at tip and very similar, differing mostly in their width, 8–11 mm wide in *A. hylaea* and 6 mm wide in *A. lamprantha*. The leaves of *A. lamprantha* are close to those of *A. impressa* but narrower and like it, strongly ascending. The leaves of *A. hylaea*, on the other hand, are more or less spreading and short-petioled.

45. *Aphelandra chamissoniana* Nees

FIGURE 28

Aphelandra chamissoniana Nees, in Martius, Fl. Bras. 9:90, 1847, in de Candolle, Prodr. 11:299, 1847; Bot. Mag. 108, pl. 6627, 1882.—Semaine Hort. 323, 1898.—Wasshausen and Smith, Fl. Illustr. Catar. 1, Fasc. ACAN: 73, 1969.
Aphelandra punctata Hort. Bull. Cat. 184:25, 1882.
Aphelandra chamissoniana Nees var. *paranaensis* Rizzini, Dusenja 3:191, 1952.

Shrub or suffrutescent herb to 2 m high; stems delicate, glabrous or the tip sparingly pilosulous; leaf blades oblanceolate, 15–18 cm long, 3–4.5 cm wide, acuminate, slenderly cuneate at base and decurrent on the petiole, entire or undulate, glabrous except the costa and lateral veins (7–8 pairs), these sparingly puberulent with curved hairs, the costa and lateral veins of the upper surface often bordered somewhat yellow; petioles (unwinged portion) about 1 cm long, glabrous; flowers borne in terminal (rarely axillary), sessile spikes, these 5–12 cm long (without flowers), about 3 cm wide, oval in outline, the rachis glabrous, the bracts imbricate or spreading with age; bracts oval, 2.2–3

cm long, 1.1–1.5 cm wide, yellow, conduplicate, long-cuspidate, cuneate at base, membranaceous, glabrous to puberulous, bearing 4–6 serrulate teeth on either side between the middle and base of cusp, to 2 mm long; bractlets lanceolate, 5–9 mm long, 1.5–2 mm wide near base, carinate, acuminate, subhyaline, finely striate-nerved, glabrous, the margins roughened; calyx 8–11 mm long, the segments subequal, lanceolate, subhyaline, finely striate-nerved, minutely puberulous, the posterior segment 8 mm long, 2.5 mm wide, acute, the anterior pair 10 mm long, 1.5 mm wide, the lateral pair 11 mm long, 1 mm wide, both anterior and lateral segments acute, ending in a stiff bristlelike awn; corolla 4.5–5.5 cm long, yellow, orange or red, glabrous, the tube curved, 3 mm wide at base, 2 mm wide at 5 mm above base, the throat obconic, 6 mm wide at mouth, the upper lip erect, obovate, 9–15 mm long, 8 mm wide, bifid, the lobes 4–6 mm long, 3.5–4 mm wide, more or less acute, the lower lip 3-lobed, the lobes equal, oblong, 7–15 mm long, 4 mm wide, acute; stamens as long as or slightly exceeding the upper lip; anthers 5 mm long, dorsally lanate; filaments flat, glabrous; capsule dark brown, shining, narrowly clavate, about 17 mm long and 3 mm wide, glabrous; seeds smooth, obliquely ovoid, 4 mm long, 3 mm wide, dark brown, wrinkled.

TYPE.—*Chamisso s.n.* (holotype LE), Brazil, Santa Catarina, Island of Santa Catarina.

DISTRIBUTION.—Southern coastal Brazil, in the states of São Paulo, Paraná, and Santa Catarina. BRAZIL. SÃO PAULO: Iporanga, Jul 1886, *Puiggary 3.042* (P). PARANÁ: Morretes, Picada Engo. Lange to Estação Marumbi, 20 Mar 1947, *Hatschbach 662* (US); Paranguá, Sitio do Meio, 29 Apr 1951, *Hatschbach 2251* (RB, holotype of *A. chamissoniana* var. *paranaensis* Rizzini); Porto de Cima, 200 m alt, 24 Jun 1914, *Dusén 589a* (GH, S); S. José dos Pinhaes, Pedra Branca de Araraquara, 25 May 1947, *Hatschbach 749* (US); Guaratuba, Divisa, 18 Jan 1970, *Hatschbach 23361* (US); Guaratuba, Serra de Aracatuba, 950 m alt, 10 Mar 1959, *Hatschbach 5520* (US); Guaratuba, Serra de Araraquara, 25 Jun 1968, *Hatschbach 19424* (US); Guaratuba, Alto da Serra, 26 Jul 1960, *Duarte 5353* (RB, US). SANTA CATARINA: Biguaçu, mata de fachinal, 600 m, 16 Dec 1945, *Reitz C-990* (HBR, US); Blumenau, Morro Spitzkopf, 350 m, 23 Apr 1953, *Reitz*

& *Klein 542* (HBR, US); Blumenau, Jan 1888, *Ule s.n.* (HBG); Bom Retiro, Mata da Companhia Hering, 400 m, 5 Feb 1960, *Reitz & Klein 4.158* (HBR); Bom Retiro, Mata da Companhia Hering, capoeirão, 250 m, 5 Jul 1960, *Reitz & Klein 4.165* (HBR, US); Brusque, capoeira e mata, 40 m, 30 Jun 1949, *Reitz 2.996* (HBR, US); Mata do Hoffmann, capoeirão, 50 m, 10 Oct 1949, *Reitz 3.093* (HBR, US); Ribeirão do Ouro, mata, 600 m alt, 8 May 1950, *Reitz 3.544, 3.546* (HBR, US); Mato do Hoffmann, capoeira, 40 m alt, 18 Aug 1953, *Klein 577* (HBR); Corupá, corrêa, mata, 600 m alt, 13 Jan 1958, *Reitz & Klein 6.194* (HBR, US); Florianópolis, St. Catherine, *Nadeaud s.n.* (P); Ile Ste. Catherine, *Guadichaud s.n.* (P); Ilha de S. Catarina, 22 Jan 1951, *Reitz 3.708b* (HBR, US); Ilha de S. Catarina, Naufragados, mata, 20 m alt, 14 Dec 1951, *Reitz 4.253, 4.364* (HBR, US); Morro do Ribeirão, mata, 400 m, 20 Dec 1966, *Klein 6.977* (HBR, US); Morro do Ribeirão, mata, 450 m alt, 16 Jan 1967, *Klein 7.079* (HBR, US); Ibirama, Horto Flórestal I.N.P., mata, 700 m alt, 18 May 1956, *Klein 1.980* (HBR, US); Ilhota, Morro do Baú, mata, 700 m alt, 29 Jun 1948, *Reitz 2.044* (HBR, US); Itajaí, Morro da Fazenda, mata, 50 m alt, 17 Mar 1954, *Klein 711* (HBR); Morro da Fazenda, mata, 50 m alt, 2 Jul 1954, *Reitz & Klein 1929* (HBR); Morro da Ressacada, mata, 300 m alt, 31 Mar 1955, *Klein 1.237* (HBR, US); em mata, Itajaí, Apr 1886, *Ule s.n.* (HBG); Lauro Mueller-Uruçanga, Pinhal da Companhia, mata de pinhal, 300 m alt, 14 Jul 1958, *Reitz & Klein 6.788*, ibidem, pinhal, 300 m alt, 17 Dec 1958, *Reitz & Klein 4.089* (HBR, US); Luís Alves, Braço Serafin, mata virgem, 100 m alt, 22 Jan 1948, *Reitz 2.010* (HBR); Palhoça, mata, Pilões, 50–700 m alt, 14 Mar 1952, *L. B. Smith 6210* (HBR, US); Pilões, mata, 200 m alt, 19 Jan 1956, *Reitz & Klein 2.424* (HBR, US); Pilões, mata, 350 m alt, 23 Feb 1956, *Reitz & Klein 2755* (HBR); Pilões, mata, 250 m alt, 9 Jul 1956, *Reitz & Klein 3.391* (HBR); Reserva Forestal dos Pilões, 250 m alt, 30 Nov 1950, *Duarte & Falcão 3189a* (RB, US); Taió, 400 m alt, May 1962, *Marchiori 6* (HBR); Garuva, Três Barras, mata, 50 m alt, 25 May 1951, *Reitz & Klein 3.980* (HBR); mata, 100 m alt, 22 Jun 1957, *Reitz & Klein 4.487* (HBR); mata, 200 m alt, 17 Apr 1958, *Reitz & Klein 6.694* (HBR, US); Vidal Ramos, Sabiá, mata, 750 m alt, 15 Jun 1957, *Reitz & Klein 4.357* (HBR, US); Apr 1869,

Mueller 316 (K). CULTIVATED MATERIAL. Herb. Hort. Kew, Aug 1889 (K); Palm House 1887 (K); Oct 1889, Sir G. Macleay's Garden (K).

LOCAL NAME.—Bálsamo-de-Chamisso.

Nicholson (1900:60) states that *A. chamissoniana* is the correct name for *A. punctata* Hort. Bull. Cat.

46. *Aphelandra ornata* (Nees) T. Anderson

Aphelandra ornata (Nees) T. Anderson, Journ. Bot. 2:289. 1864.—Morren in Belg. Hort. 15:33. 1965 [pro basionym, non sensu Anderson].

Stenandrium venatum Nees in Martius, Fl. Bras. 9:79. 1847 [errore typographico loco ornatum], in de Candolle, Prodr. 11:291. 1847.

Lagochilium ornatum (Nees) Nees in de Candolle, Prodr. 11:291. 1847.

Aphelandra ornata (Nees) Lindau in Engler and Prantl, Pflanzenfam. 4, Abt. 3b:322. 1895.

Aphelandra venosa Wasshausen & Smith in Reitz, Fl. Illustr. Catar. 1, Fasc. ACAN: 76. 1969.

Small decumbent herb or shrub, the reclining portion rooting, the erect portion to 50 cm high; stem subquadrangular, the upper portion strigose, the hairs about 0.75 mm long, yellowish, the lower portion glabrous; leaf blades oblong-elliptic, 5–9 cm long and 2–3.5 cm wide, obtusely acute, gradually narrowed at base, entire or faintly undulate, firm, both surfaces glabrous except the costa and lateral veins (7–9 pairs), these strigose, the costa and veins of the upper surface bordered with a narrow band of yellow, the lower surface green but lighter than the upper; petioles to 2 cm long, strigose; flowers borne in 1–3 terminal, sessile spikes, these 3–4 cm long, 2–2.5 cm wide (without flowers), the bracts closely appressed, the rachis glabrous; bracts ovate, conduplicate, slightly recurved, 15–20 mm long, 12–15 mm wide, mucronulate, cuneate at base, the costa and margins sparingly ciliate, otherwise glabrous, serrate-dentate, the teeth (6–14 on each side) triangular, sharply pointed, about 0.5 mm long, reticulate-nerved, green or whitish; bractlets small, lanceolate, 2–3 mm long, 0.5 mm wide just below the middle, acute, striate-nerved, subhaline, ciliate; calyx 5–7 mm long, the segments subequal, lanceolate, striate-nerved, subhyaline, ciliate, the posterior segment 1.5 mm wide, acute, ending in a stiff bristlelike awn, the anterior pair slightly narrower, the lateral pair 1 mm wide, both anterior and lateral pairs aristate; corolla yellow, 3 cm long, sparingly

glandular pilosulous, 2 mm wide at base, the tube narrow, 1.5 cm long, the throat obconical, 6 mm wide at mouth, the upper lip obovate, 8 mm long and 7 mm wide, bifid, the lobes 3 mm long, 3.5 mm wide, obtuse, the lower lip 3-lobed, the lobes subequal, the middle lobe obovate, 8 mm long, 7.5 mm wide, obtuse, the lateral lobes elliptic, 9 mm long, 5 mm wide, obtuse; stamens included, barely exceeding the mouth of the corolla; anthers 3 mm long, acute, rounded at base, glabrous; filaments epipetalous, flattened, glabrous; ovary sparsely pubescent; mature capsule not seen.

TYPE.—*Sellow s.n.* (holotype B, destroyed), Brazil.

DISTRIBUTION.—Southeastern coastal Brazil, in the states of São Paulo, Paraná, and Santa Catarina. BRAZIL. SÃO PAULO: Santos, Sororocaba, 20 Feb 1875, *Mosén 3200* (S); 1 Feb 1875, *Mosén 3201* (S); Santos, hill at beach, 19 Jan 1913, *Brade 6048* (S); Piassaguera (Santos), mata, May 1913, *Toledo s.n.* (RB); Santos, Sororocaba, 18 Jul 1901, *Hem-mendorff 480* (S). PARANÁ: Antonina, Estr. Cacatu-Serra Negra, 23 Mar 1966, *Hatschbach 14115* (K, US); Serra do Mar, Pôrto de Cima, 12 Sep 1910, *Dusén 10261* (S); Serra do Mar, Pôrto de Cima, 2 Jan 1914, *Dusén 14306* (GH); Pôrto de Cima, 17 Mar 1914, *Jönsson 52a* (K, LE, US); Jacareí, 11 Aug. 1915, *Dusén 17112* (GH); Paranaguá, Serra da Prata, 150 m alt, 26 Dec 1962, *Hatschbach 9620* (US); Serra da Prata, 5 Mar 1911, *Dusén 11478* (S); Serra da Prata, 20 Jul 1914, *Dusén 15304* (S); Serra da Prata, 100 m alt, 4 Dec 1909, *Dusén 8631* (S). SANTA CATARINA: São Francisco do Sul, mata, Pôrto das Canoas, 2 m alt, 21 Feb 1952, *Smith & Reitz 5718* (US); in humid places, São Francisco. Mar 1885, *Ule 324* (HBG).

LOCAL NAME.—Balsamo-de-lista.

47. *Aphelandra sulphurea* Hooker

Aphelandra sulphurea Hooker, Bot. Mag. 98, t. 5951. 1872.

Aphelandra herthae Mildbraed, Notizbl. Bot. Gard. Berlin 14:40. 1938.

Erect herb to 40 cm high; stems stout, glabrous, terete, sparingly branched; leaf blades broadly elliptic to elliptic-ovate, 15–23 cm long and 7–10 cm wide, abruptly acuminate, cuneate at base, the margins subentire or shallowly repand, the lateral nerves (12–14 pairs) inserted at a rather open

angle on the broad, flat costa, at first suberect, then becoming curved as ascending toward the margin, the upper surface bright green and glossy, the lower surface much paler green, sometimes violet-purple, both surfaces glabrous; petioles short, firm, 1.2–2 cm long; flowers borne in a solitary, terminal, sessile spike to 21 cm long and 15 mm wide (without corollas), surrounded at base by 2 small sessile, appressed leaves, these shorter than the bracts; bracts imbricate, green, elliptic-oblong, 30–32 mm long, 8.5–10 mm wide, acute, the veins prominent, the nerves excurrent, denticulate and covered with small inconspicuous sessile glands; bractlets lance-subulate, 4–5 mm long, 0.5 mm wide, subhyaline, the margins ciliate; calyx segments chaffy, oblong-lanceolate to lanceolate, puberulous, distinctly callose at base, the posterior segment 11 mm long, 2.25 mm wide, apically irregularly 2- or 3-toothed, the remaining segments subequal, the anterior pair 10.5 mm long, 1.5 mm wide, long-acuminate, the lateral pair 1 mm wide, otherwise similar to the anterior pair; corolla yellow, puberulent without, the tube 4 cm long, narrowly tubular, erect, scarcely enlarged, about 4 mm wide at base, 5 mm wide at mouth, the upper lip erect, about 2 cm long, cymbiform-complicate, about 1 cm wide, subacuate, the lower lip spreading with three nearly equal lobes, the middle lobe 2 cm long, 1 cm wide, apically obtuse, the lateral lobes similar, about 17 mm long and 6 mm wide; anthers nearly 5 mm long; filaments provided with long slender hairs on one side; ovary about 4 mm long, scarcely 1 mm thick, apically acute and minutely pubescent; style glabrous, long-attenuate; mature capsule not seen.

TYPE.—*Hort Veitch* (holotype K ?); typification is on the basis of the description and plate, especially the latter.

DISTRIBUTION.—Originally, this species was supposedly introduced by Messr. Veitch from Guayaquil, Ecuador. More recently, however, it has been collected in eastern Ecuador in the provinces of Napo-Pastaza and Zamora-Chinchepe. ECUADOR. NAPO-PASTAZA: Mera, 21 Apr 1940, *Lugo 218* (S); 2 km N of Shell-Mera, 1050 m alt, 6 Jun 1968, *Holm-Nielsen & Jeppesen 349* (AAU, US); Cerro Antisana, Talag near Río Napo, 600 m alt, 7 Dec 1960, *Grubb, Lloyd, Pennington, & Whitmore 148* (K, NY). ZAMORA-CHINCHEPE: Patuca, 600 m alt, 13 Jun 1947, *Harling 1142* (S).

The type of *A. herthae* was deposited in the Berlin herbarium. As far as I could ascertain, no duplicate specimens of the Hertha Schultze-Rhonhof collections were distributed. From the descriptions, *A. herthae* should be a synonym of *A. sulphurea*.

48. *Aphelandra nemoralis* Nees

FIGURE 3

Aphelandra nemoralis Nees in Martius, Fl. Bras. 9:90. pl. 11. 1847; in de Candolle, Prodr. 11:299. 1847.

Aphelandra edundoana Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:326. 1948.

Aphelandra edundoana Rizzini var. *monocephala* Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:327. 1948.

Aphelandra crenatifolia Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:327. 1948.

Erect, suffrutescent shrub; stem terete, 0.5–1 m high, glabrous, the bark white, tuberculate; leaf blades oblong, 15–20 cm long, the lower about 6 cm wide, the upper 4–5 cm wide, acuminate, the tip rounded, narrowed at base and decurrent on the petiole, rather firm, glabrous and deep green above, the margins somewhat crenate and undulate, rarely entire, the lower surface drying a lighter green, glabrous, the costa and lateral veins (7–9 pairs) conspicuous beneath, arcuate, glabrous; petioles (unwinged portion) 1.5–2 cm long, canaliculate, glabrous, drying brownish; flowers borne on 1–5 subterminal (rarely axillary), peduncled spikes, these 5–9 cm long, 2 cm wide (without flowers), the peduncle 2–5.5 cm long, canaliculate, glabrous, the bracts imbricate, not sufficiently spreading with age; bracts yellow, elliptic to ovate, 15–23 mm long, 8–12 mm wide just below the middle, acute, slightly narrowed and cuneate at base, membranaceous, distinctly 5-nerved, glabrous and glandular punctulate without, the margins with 2–3 denticulate teeth on each side, these 0.5 mm long; bractlets lance-subulate, 6–8 mm long, 1–1.5 mm wide, subulate-acuminate, striate-nerved, subhyaline, sparingly glandular punctulate without; calyx 9–13 mm long, the segments slenderly lanceolate, subequal, striate-nerved, subhyaline, setaceous-acuminate, glabrous and sparingly glandular punctulate, the posterior segment 2 mm wide near the middle, somewhat shorter than the other segments, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla yellow, 3.5–5 cm long, well exerted beyond the subtending bracts, gla-

brous to sparingly glandular-pilosulous, the limbs puberulous, the tube slightly curved 3–3.5 cm long, 4 mm wide at base, narrowed to 2 mm wide at 7 mm above base, thence gradually enlarged to 8 mm wide at mouth, the upper lip erect, oblong, 6–8 mm long and 4–6 mm wide, bifid, the lobes 3 mm long and 2–3 mm wide, mucronulate, the lower lip 3-lobed, the lobes subequal, the middle lobe ovate, 6–7 mm long, 6 mm wide, acute, the lateral lobes oblong, 6–7 mm long, 2–4 mm wide, acute, spreading; stamens almost equaling the lobes of the upper lip; filaments flattened, puberulous near top; anthers 5–6 mm long, mucicous at both apex and base, dorsally puberulous; style included, filiform, apically moderately puberulous; stigma dot-like; capsule glabrous, provided with aborted style, 7 mm long.

TYPE.—*Martius s.n.* (holotype M), Brazil, Guanabara, in the wooded mountains of Corcovado, Aug.

DISTRIBUTION.—Found in woods in the states of Rio de Janeiro and Guanabara. BRAZIL. RIO DE JANEIRO: Serra dos Orgãos-Barreira, 28 May 1946, *Pereira 516* (RB, holotype of *A. edmondoana* Rizzini, isotype K); Serra dos Orgãos-Barreira, 4 Apr 1956, *Pereira 1956* (RB, US); Barreira de Terezopolis, Jul 1961, *Duarte 5733* (RB); Therezopolis, Apr 1918, *Frasão 8619* (RB); Xerem, *Duarte s.n.* (RB); Serra do Tinguá, 13 May 1943, *Guerra & Octavio s.n.* (RB, no 48086, holotype of *A. crenatifolia* Rizzini); Tinguá, 29 Jun 1948, *Occhioni 1112* (RB); Santa Maria Madalena, Tamboril, 22 Mar 1955, *Pereira 1281* (RB, US); near base of "Dedo de Deus" mountain, 13 Jul 1948, *Rizzini 313* (RB, holotype of *A. edmondoana* var. *monocephala* Rizzini).

49. *Aphelandra phrynioides* Lindau

Aphelandra phrynioides Lindau, Bull. Herb. Boiss. ser. 2, 4: 326. 1904.

Plant small herb; stems almost absent or extremely short; leaves numerous from base; leaf blades oblanceolate, about 25 cm long, 5–8 cm wide, acuminate, gradually narrowed at base and decurrent on the petiole for about 15–18 cm, 3–4 mm wide near base, the upper surface glabrate, the lower surface pubescent, the margins entire, ciliolate; petioles (unwinged portion) 4–6 cm long,

pubescent; flowers borne in 1 or 2 axillary spikes arising at the base of the plant, these surpassed by the leaf blades by 15–18 cm, the peduncle 3–6 cm long, densely pubescent; bracts imbricate, broadly lanceolate, 22–23 mm long, 8 mm wide, acuminate, mucronulate, cuneate at base, densely sericeous, the margin with about 6 pair of serrulate teeth; bractlets linear, 6–7 mm long, 0.5 mm wide, glandular-pilose; calyx 11 mm long, the segments lanceolate, finely striate-nerved, glandular pilose, the posterior segment 2 mm wide, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide, all narrowed and aristate; corolla yellow, about 4 cm long, glandular-pilose, the tube cylindric, 20 mm long, 2 mm diameter, thence abruptly enlarged and campanulate, 11 mm long, 8 mm in diameter at mouth, the upper lip obovate, 8 mm long and 7 mm wide, bilobed, the lobes 2 mm long and 2 mm wide, obtuse, the lower lip 3-lobed, subequal, the middle lobe obovate, 10 mm long, 7 mm wide, rounded, the lateral lobes oblong, 9 mm long, 4 mm wide, obtuse; anthers 4 mm long, apiculate, apically and dorsally puberulent; filaments epipetalous, puberulent; pollen grains 70 μ –85 μ long, 38 μ –46 μ diameter, typical; ovary 2.5 cm high, disc small; style, 34 mm long, puberulous; mature capsule not seen.

TYPE.—*Luschnath s.n.* (holotype B, destroyed, F photo 8712, isotype BR), Brazil, Bahia, Ilhéos, wet woods and along stream banks, 23 Sep 1836.

DISTRIBUTION.—Known only from the type locality.

According to Lindau: "This species deviates from all other known species of *Aphelandra* because of its unique habitat. The short, compact stem probably possesses rhizomes from which the thick, unbranched secondary roots are formed. The long decurrent and numerous leaf blades by far exceed the stem and the flowering spike. The flowers do not possess the long, pointed corolla lobes that are so common in most of the other species and perhaps this characteristic could be used to initiate a new section with this its only species. The flood plain locality should have been sufficient motivation to cultivate this species."

This species, I believe, had indeed been introduced into cultivation. Anderson (1864:289) describes and illustrates a plant called *Aphelandra ornata* T. Anderson that had been introduced into the Belgian gardens in 1858, from Bahia,

Brazil, by Porte. This plant, misidentified by Anderson, is Lindau's *Aphelandra phrynioides*.

**50. *Aphelandra ignea*
(Schrader) Nees ex Steudel**

FIGURE 38

Aphelandra ignea (Schrader) Nees ex Steudel, Nom. ed. 2, 1:111. 1840.

Synandra ignea Schrader, Maxim. Princ. Videns. It. 2:343. 1821.

Synandra amoena Schrader, Goett. Gel. Anz. 1:715. 1821.—
Steudel in Nom. ed. 2, 1:111. 1840.

Stenandrium igneum Nees in Martius, Fl. Bras. 9:78. 1847.

Lagochilium igneum Nees in de Candolle, Prodr. 11:292. 1847.

Aphelandra pumila J. D. Hooker, Bot. Mag. 105, pl. 6467. 1879.

Aphelandra pumila J. D. Hooker var. *splendens* Regel, Gartenfl. 32:1. 1883.

A low decumbent herb; stems dichotomously branched, almost absent or extremely short, about 4 mm in diameter, densely pilose, each branch tipped by a spike and bearing two leaves; leaf blades elliptic-ovate, 10–12 cm long and 4.5–7 cm wide, rather gradually narrowed to an obtuse tip, cordate to subcordate at base, the lower leaves smaller and more densely cordate, firm, entire or undulate, the upper surface sparingly to densely pilose, the costa and lateral veins (7–9 pairs) conspicuous, arcuate, the lower surface drying a lighter reddish brown than the upper, moderately pilose, especially the costa and lateral veins; petioles 2–7 cm long, densely hirsute; flowers borne in 1 or 2 simple, terminal spikes, these 3.5–5 cm long, the peduncles as long as the spike, hirsutulous; bracts obovate-cuneate, 15–18 mm long, 6–10 mm wide above the middle, acuminate, mucronulate, narrowed at base, firm, nerved, glabrous to sparingly hirsute, the margins spinulose-serrate toward the tip, with 5–7 teeth on each side, sparingly ciliolate; bractlets linear, 4 mm long, 0.6 mm wide, subhyaline, mucronulate, ciliate; calyx 8–10 mm long, the posterior segment oblong-lanceolate, 2 mm wide, 3-lobed with excurrent midnerve, the anterior pair lanceolate, 1.5 mm wide, acuminate, mucronulate, the lateral pair linear, 1 mm wide, slenderly acuminate, mucronulate, all segments subhyaline, striate-nerved, glabrous, ciliolate; corolla 3 cm long, glabrous to sparingly puberulent, bright yellow, the tube cylindrical, 2 mm broad at

base, the upper narrowly ampliate, about 5 mm broad at mouth, the corolla lips oval, the upper lip erect, about 5 mm long and 5 mm wide, entire, rounded, the lower lip 3-lobed, the middle lobe broadest, 7 mm long, 5.5 mm wide, rounded, the two lateral lobes 5.5 mm long, 4.5 mm wide, rounded, the margins all undulate; stamens barely exceeding the mouth of the corolla tube; filaments glabrous; anthers hirsute, 2.5 mm long, apiculate at both apex and base.

TYPE.—*Maximilian Prinz zu Wied-Neuwied s.n.* (holotype BR), Brazil, in woods, Jan 1817.

DISTRIBUTION.—Southern Brazil. BRAZIL. MINAS GERAIS: Universidade Rural do Estado de Minas Gerais, Viçosa, 3937 (US). WITHOUT EXACT LOCALITY. Horto bot. Petropolitano, May 1880 (LE); 1876–77, cultivated by *Bull s.n.* (K, holotype of *A. pumila* Hooker).

**51. *Aphelandra obtusifolia*
(Nees) Wasshausen, new combination**

Stenandrium obtusifolium Nees in Martius, Fl. Bras. 9:78. 1847.

Lagochilium obtusifolium Nees in de Candolle, Prodr. 11:291. 1847.

Erect, shrubby plant 30–45 cm high; stem about 15 cm long, densely red-strigose-subtomentose toward tip; leaf blades narrowly ovate, 10–11 cm long, 4–5 cm wide, acute to obtuse, narrowed at base, somewhat narrowly decurrent on the petiole, thin, repand, the margins ciliate, the upper surface glabrous except the costa and lateral veins (8–10 pairs), these inconspicuous, arcuate, puberulous, the lower surface drying a lighter green than the upper, glabrous to sparingly puberulous, especially the costa and lateral veins; petioles 4–4.5 cm long, the pubescence similar to that of the stem; flowers borne in 1–3 terminal spikes, these 5–7.5 cm long, 2.5 cm wide (without corollas), the peduncle 1–2 cm long, densely red-strigose-subtomentose, the bracts closely imbricate, the spike supported by a pair of smaller leaves; bracts obovate, to 18 mm long, 14 mm wide just below the apex, purplish, reticulately veined, obtuse, the tip acuminate, cuneate at base, glabrate to sparingly pilose without, the margins spinulose-serrate toward apex with about 7 pairs of dentate teeth, ciliolate; bractlets lanceolate, 1 cm long, 0.5 mm wide, aristate, subhyaline, striate-nerved, somewhat sericeous;

calyx 1.3 cm long, the segments lanceolate, striate-nerve, inconspicuously puberulous, aristate-acuminate, the posterior segment 2 mm wide near base, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla red, about 3 cm long, glabrous or the tube sparingly glandular-pilosulous, the tube cylindric, 15 mm long, 3 mm wide at base then narrowed to 1.5 mm, thence abruptly enlarged and infundibular, 5 mm long, 7 mm in diameter at mouth, the upper lip obovate, 10 mm long and 7 mm wide, bifid, the lobes 3 mm long and 3 mm wide, obtuse, the lower lip 3-lobed, subequal, the middle lobe obovate, 8 mm long, 6.5 mm wide, slightly retuse, the lateral lobes elliptic, 8 mm long, 5 mm wide, obtuse; anthers 3 mm long, apiculate, apically and dorsally hirsute; filaments epipetalous, moderately hirsute; mature capsule not seen.

TYPE.—*Schott 6033* (holotype W), Brazil, Rio de Janeiro, Prov. Sebastianopolis, Serra de Macaçu.

DISTRIBUTION.—Known only from the type-locality.

52. *Aphelandra tridentata* Hemsley

Aphelandra tridentata Hemsley, Biol. Centr. Amer. Bot. 2: 513. 1882.—Leonard, Field Mus. Bot. 18:1200. 1938.

Shrubs, to 2 m high; the young stems unbranched, dark green, densely villous; leaf blades oblong ovate to elliptic, to 30 cm long and 8 cm wide, acuminate, narrowed at base and decurrent on the petiole, entire, thin, the upper surface glabrate, dark green, the lower somewhat paler, sparingly hirsute or the costa and lateral nerves (10–15 pairs) densely so; petioles slender, to 4 cm long, moderately pilose; flowers borne in terminal, solitary spikes, to 10 cm long and 3 cm in diameter, the rachis densely sericeous; bracts oblong-lanceolate 3.5–5 cm long, 7–10 mm wide (the uppermost often much smaller), acuminate, ascending, 3-nerve, moderately sericeous without, less conspicuously so within, bearing 1 to several subulate teeth on each side, these to 3 mm long; bractlets linear, 10–15 mm long, about 2 mm wide near base, gradually narrowed to a slender tip, carinate, densely sericeous without, glabrous within, the costa prominent; calyx scarlet, the segments subequal, striate-nerve, glabrous to puberulent without, glabrous within, the posterior segment lanceolate, about 13

mm long and 3.5 mm wide, gradually narrowed to a slender tip, the anterior pair narrowly lanceolate, 11–12 mm long and 2.5 mm wide, slenderly acuminate, the lateral pair narrowly lanceolate, 10–11 mm long and 1.5 mm wide, long slenderly acuminate, all glabrous to sparingly puberulent at the apex; corolla 5–6.5 cm long, bright red, sparingly sericeous, the tube lemon-yellow and 4 mm wide at base, narrowed to 2 mm at 5 mm above base, thence gradually enlarged to 6 mm at mouth, the lips 2.5 cm long, the upper lip erect, elliptic, 25 mm long, 8 mm wide, 2-lobed, the lobes deltoid, about 0.5 mm long, 1 mm wide at base, the lower lip spreading, recurved, entire, 25 mm long, 9 mm wide; stamens scarcely exerted, pale lemon yellow; filaments glabrous above, pilosulous below; anthers brown, about 6 mm long; ovary 5 mm long, glabrous; capsule oblong, 16 mm long, about 6 mm broad, blunt, glabrous, punctulate, shining; seeds dark brown, flat, about 4 mm long and 3 mm wide, pilosulous.

TYPE.—*Endres 236 pro parte* (holotype K), Costa Rica, without definite locality.

DISTRIBUTION.—Costa Rica, within Pacific cloud forest zone. COSTA RICA. GUANACASTE: Los Ayotes, near Tilarán, 600–700 m alt, 21 Jan 1926, *Standley & Valerio 45453* (US); Quebrada Serena, SE of Tilarán, 700 m alt, 27 Jan 1926, *Standley & Valerio 46138, 46203* (US). ALAJUELA: Zarcero, 1350 m alt, 22 Sep 1937, *Austin Smith A 445* (F, US); Alfaro Ruiz, San Louis de Zarcero, 1525 m alt, 2 Nov 1939, *Austin Smith P 1992* (US). SAN JOSÉ: La Hondura, 1300–1700 m alt, 2–4 Mar 1924, *Standley 36315* (US); Mountains E of San José, 17 Dec 1960, *Palmer s.n.* (NY).

53. *Aphelandra dunlapiana* Standley & L. O. Williams

Aphelandra dunlapiana Standley & L. O. Williams, Ceiba 1:164. 1950.

Shrub to 2 m high; stem sparingly branched, terete, internodes short, minutely velutinous, becoming densely so toward tip, the hairs tawny; leaf blades oblanceolate to narrowly oblanceolate, to 30 cm long and 6.5 cm wide, attenuate-acuminate, narrowed at base and attenuate on the slender petiole, entire, the upper surface drying dark green, sparingly puberulous, the costa subim-

pressed, the lateral veins (usually 10–11 pairs) slightly raised, less prominent than on the lower surface, this drying light green or olive, densely whitish to blackish glandular punctate, the costa and the lateral veins pilose; petioles (unwinged portion) 2–3 cm long, the pubescence similar to that of the stem; inflorescence a dense, terminal, solitary spike, to 12 cm long and 4–5 cm wide (excluding corollas), sessile or short-pedunculate, with numerous sessile or subsessile flowers; bracts closely imbricate or spreading retrorsely with age, narrowly oblong or oblong-lanceolate, about 2 cm long and 5–6 mm wide, acute and abruptly acuminate, reddish in vivo, purplish when dry, densely pilose, the tip itself glandular pilose, nerved, the margin provided about midway with 1 pair of spinescent-subulate teeth, these about 3 mm long; bractlets none; calyx segments subequal, linear oblong, 3 mm wide, the anterior and lateral pairs 10 sparingly puberulent, the margins, especially toward tip short-pilose, the posterior segment 11 mm long, 3 mm wide, the anterior and lateral pairs 10 mm long, 3 mm wide; corolla light red, 5.5–6 cm long and 0.5 cm wide, glabrous to sparingly puberulous, the tube 3.5 cm long, 0.7 cm wide at mouth, the upper lip erect, oblong, 1.5 cm long, 0.5 cm wide, 2-lobed, the lobes triangular, 0.5 mm long and wide, the middle lobe of the lower lip obovate, about 2 cm long, 7 mm wide, the lateral lobes linear-subulate, about 7 mm long, 2 mm wide, all rounded, sparingly pilose; stamens exerted about 1 cm beyond mouth of the corolla tube; the filaments 5.5 cm long, sparingly puberulous; the anthers 7 mm long, glabrous, apiculate; the ovary glabrous; mature capsule not seen.

TYPE.—*P. C. Standley 7618* (holotype F, isotypes EAP, US), Honduras, Atlántida, vicinity of San Alejo, at base of hills S of San Alejo near Río San Alejo, 150–270 m alt, 22–27 Apr 1947.

DISTRIBUTION.—Known only from the type-locality.

54. *Aphelandra aurantiaca* (Scheidweiler) Lindley

Aphelandra aurantiaca (Scheidweiler) Lindley, Bot. Reg. 31, pl. 12. 1845.

Hemisandra aurantiaca Scheidweiler, Bull. Acad. Sci. Bruxelles 9:22. 1842.

Aphelandra sciophila Martius ex Nees in Martius, Fl. Bras. 9:91. 1847.—Nees in de Candolle, Prodr. 11:299. 1847.

Aphelandra acutifolia Nees in de Candolle, Prodr. 11:299. 1847.

Aphelandra bullata H. Wendland, Hamb. Gart. Zeit. 19:30. 1863.

Aphelandra aurantiaca (Scheidweiler) Lindley var. *roezlii* Van Houtte, Fl. des Serres, ser. 2, 7, t. 1741, 1742. 1867–1868.

Aphelandra roezlei (Van Houtte), Carrière, Revue Horticole 44:100. 1872.

Aphelandra fascinator Linden & André, Ill. Hort. 21:42, pl. 164. 1874.

Aphelandra punctata Hortorum, Gard. Chron. 2:86. 1881; Ill. Hort. 29, pl. 457. 1882.

Aphelandra simplex Lindau, Bull. Herb. Boiss. 3:366. 1895.

Aphelandra paraensis Lindau, Bull. Herb. Boiss., ser. 2, 4: 324. 1904.

Aphelandra uribei Leonard, Contrib. U.S. Nat. Herb. 31:162. 1953.

Aphelandra puberula Leonard, Contrib. U.S. Nat. Herb. 31: 166. 1953.

Aphelandra leiophylla Leonard, Contrib. U.S. Nat. Herb. 31: 169. 1953.

Aphelandra nana Leonard, Contrib. U.S. Nat. Herb. 31:171. 1953.

Aphelandra sneidernii Leonard, Contrib. U.S. Nat. Herb. 31:174. 1953.

Aphelandra glichrochlamys Leonard, Contrib. U.S. Nat. Herb. 31:186. 1953.

Aphelandra phalacra Leonard, Contrib. U.S. Nat. Herb. 31: 712, 1958.

Herbaceous to suffrutescent plants; stems erect, to 1.5 m high, glabrous to sparingly pilose, the internodes 2–9 cm long; leaf blades oblong-ovate to elliptic or lanceolate, the majority of them 8–25 cm long and 2.5–12 cm wide, acute to acuminate or obtuse to subacute, cuneate or gradually to abruptly narrowed at base and more or less decurrent on the petiole, sometimes obliquely so, chartaceous or thick and coriaceous, glabrous on both surfaces or the costa and veins sometimes bearing a few subappressed hairs, especially underneath, the margins entire or undulate, sometimes thickened, or coarsely sinuate-repand, the costa broad, lateral veins (10–12 pairs) inconspicuous, arcuate, the upper surface nitid often a brilliant polished green, obscurely and rather coarsely reticulate, minutely alveolate, the lower surface pale green, whitish or purple to deep vinous purple, the reticulation obscure; petioles to 10 cm long, glabrous; flowers borne in simple terminal spikes to 15 cm long and 3 cm wide (excluding the corollas), the rachis puberulous, the nodes flattened and slightly excavate; bracts imbricate, oblong-lanceolate, to 3 cm long and 1 cm wide, acuminate, veiny,

densely puberulous, the margins ciliolate, serrate, the teeth to 1.5 mm long; bractlets narrowly lanceolate and acuminate; calyx about 1 cm long, the posterior segment oblong, 3 mm wide, acute, the lateral and anterior pairs linear-lanceolate, 1.5 mm wide, the 5 segments and bractlets striate-nerved and puberulous, the nerves ending at the base of each segment in a callus about 1 mm long; corollas 5–6 cm long, red, orange or scarlet, sparingly puberulous, the upper lip oblong-ovate, about 2 cm long and 1.2 cm wide above the base, slightly obtuse and entire, the lower lip spreading, the lobes elliptic-ovate, the middle one to 2.5 cm long and 1.8 cm wide, obtuse, the lateral ones similar but only about half as large; capsules 1.6 cm long, sparingly puberulous; seeds hispidulous.

Aphelandra aurantiaca is a variable species and perhaps consists of a number of races or forms. The Mexican and Central American specimens in the U. S. National Herbarium have as a rule smaller and more slenderly toothed bracts than do the South American collections. The bracts of some of the North American plants are in fact practically pectinate. Red flowers seem to be more prevalent than the orange ones.

**54a. *Aphelandra aurantiaca* (Scheidweiler) Lindley
var. *aurantiaca***

FIGURE 47

Leaf blades oblong-ovate to elliptic, 8–20 cm long and 2.5–12 cm wide, chartaceous, glabrous or essentially so, sometimes bearing a few minute white hairs on the veins, the margins entire or undulate, the upper surface nitid, obscurely and rather coarsely reticulate, the lower surface somewhat whitish, the reticulation obscure.

TYPE.—Grown in the Jardin Botanique de Bruxelles in the year 1839 from seeds procured from Mexico.

DISTRIBUTION.—Usually found in dense forest, from Mexico to Bolivia. MEXICO. VERACRUZ: Valley of Cordova, 1 Mar 1866, *Bourgeau 1998* (FI, K, P, US); Cordova, 1853, *Mueller 2215* (W); 7 m from Catamaco, between Catamaco and Zontecompan, 400 m alt, 11 Apr 1952, *Moore & Cetto 6256* (US); Catamaco, 9 Feb 1965, *MacDougall s.n.* (NY, US); 5.7–6 m from Catamaco on road to Sonte-

comapan, 380 m alt, 27 Sep 1961, *Moore & Bunting 8930* (US); Sontecomapan, 23 Dec 1968, *Fernández, Ramos & Cedillo 483* (US); Sierra de Tuxtla, 4 km NE of Tapalapan, 480 m alt, 1 Sep 1962, *Andrle 87* (US). OAXACA: Sierra San Pedro Nolasco, Talea, *Jürgensen 648* (K, syntype of *A. acutifolia* Nees); Comaltepec, *Liebmann s.n.* (K); Lalana, 900 m alt, Oct 1840, *Galeotti 946* (P, W). TABASCO: Teapa, 1839, *Linden 177* (K, P). CHIAPAS: Between Tumbala & El Salto, 450–1350 m alt, 29 Oct 1895, *Nelson 3377* (US). WITHOUT EXACT LOCALITY: *Sessé & Mociño 281* (MA, US photo 4564). GUATEMALA. EL PETÉN: San Luis, 4 Dec 1970, *Ortiz 1462* (F, US). HUEHUETENANGO: Between Ixcán and Río Ixcán, 150–200 m alt, 23 Jul 1942, *Steyermark 49248* (US). ALTA VERAPAZ: Cobán, 1350 m alt, Sep 1912, *von Tuerckheim 3858* (US); Cubilquitz, 350 m alt, Jan 1902, *von Tuerckheim 8254* (US), Sep 1906, *von Tuerckheim 11549* (W); Rubeleruz, 180 m alt, Aug 1885, *von Tuerckheim 674* (P, US); trail to Pazos, 18 Jan 1905, *Goll 215* (US); Finca Mocca, 900 m alt, 1 Dec 1919, *Johnson 67* (US); near Alta Verapaz-Petén boundary line, 100–150 m alt, 23 Mar 1942, *Steyermark 45283* (US). BAJA VERAPAZ: "Panjal", Oct 1912, *von Tuerckheim 3942* (US). IZABAL: Livingston, 18 Jan 1905, *Kellerman 5105* (US); along Río Escobas, Montaña Escobas, 20–50 m alt, 13 Dec 1941, *Steyermark 39885* (US); 25 km S-SW of Puerto Barrios, 75 m alt, 28 Feb 1966, *Gregory 611* (US). BRITISH HONDURAS: Forest Home, 60 m alt, 8 Dec 1932, *Schipp 1063* (K). HOUDURAS. SANTA BÁRBARA: Río Permejo, 180 m alt, Mar 1890, *Thieme 5404* (US). CORTÉS: Sierra de Oma, La Cumbre, 190 m alt, 30 Nov 1950, *Molina 3472* (US); Montaña of Río Piedras, 240 m alt, 4 Dec 1950, *Molina 3548* (US). ATLÁNTIDA: W of Tela River, 29 Jan 1903, *Wilson 218* (US); Lancetilla valley, near Tela, 20–600 m alt, 6 Dec 1927–20 Mar 1928, *Standley 52634, 53155, 53973* (US); Lancetilla valley, Aug 1960, *Pfeifer 2131, 2146, 2159* (US); 3 m S of Tela, 60–150 m alt, 28 Jul 1962, *Webster, Miller & Miller 12616* (US); near El Portillo, 500 m alt, 19 Mar 1962, *Molina 10466* (US). COSTA RICA. GUANACASTE: El Silencio, near Tilarán, 750 m alt, 13 Jan 1926, *Standley & Valerio 4452, 44736* (US); Los Ayotes, near Tilarán, 600–700 m alt, 21 Jan 1926, *Standley & Valerio 45495* (US); Tilarán, 750 m alt, 17 May 1923, *Valerio 58* (US). PUNTA-RENAS: Jan 1854, *Scherzer s.n.* (W). ALAJUELA:

Alfaro Ruiz, Zarcerro, 1300 m alt, 9 Dec 1946, *Austin Smith 35* (US). LIMÓN: Santa Clara, La Colombiana, 200 m alt, Jun 1899, *Pittier 13414* (K); Livingston on Reventazon, Jul and Aug 1920, *Rowlee & Stork 693* (US); Talamanca, forest of Shirores, 100 m alt, Feb 1895, *Tonduz 9301* (US); Zent, 31 m alt, Aug 1901, *Tonduz 14710* (K, P); Puerto Limón, 9 Aug 1923, *Stevens 844* (US); 28 m from Puerto Limón, 40 m alt, 12 May 1930, *Cufodontis 656* (W). CARTAGO: Tuis, 650 m alt, Nov 1897, *Tonduz 11504* (US, W); Turrialba, 620 m alt, Jul 1897, *Pittier 11259* (W); Chirripó, Jan 1900, *Pittier 16063* (US); Tucurrique, 29 Aug 1920, *Rowlee & Stork 843* (US). WITHOUT EXACT LOCALITY: *Lankester K194* (K); *Endres 236* (K). PANAMA. BOCAS DEL TORO: 16 Oct 1920, *Carleton 53* (US); 26 Jan 1921, *Carleton 79* (US); vicinity of Chiriqui Lagoon, 16 Oct 1940, *von Wedel 1161* (US); 24 Apr 1941, *von Wedel 2326* (US); Chiriquicito to 5 m S along Río Guarumo, 5–7 Jun 1967, *Lewis et al. 2078* (MO, US); Water Valley, 13 Sep 1940, *von Wedel 754* (US); 1 Oct 1940, *von Wedel 967* (US). COCLÉ: N of El Valle de Anton, 1000 m alt, 14 Jul 1940, *Allen 2196* (US); 31 Aug 1941, *Allen 2711* (US); 16 Sep 1946, *Allen 3694* (MO, P, US). FRENCH GUIANA. 1864, *Melinon s.n.* (P); Mana, 1887, *Sagot s.n.* (P). SURINAM. Near Para River, *Wullschlägel 1058* (W, isotype of *A. paraënsis* Lindau). *Hostman 167* (K, P, syntypes of *A. acutifolia* Nees); Marowijne River, 12 Jul 1965, *Hugh-Jones 8* (K). COLOMBIA. NORTE DE SANTANDER: Tabaca, in the forest-covered Magdalena watershed in the vicinity of Ocaña, 1500 m alt, 1851, *Schlim 780* (FI, K, holotype P, isotypes of *A. nana* Leonard); near Ocaña, 1650 m alt, 11 Oct 1877, *Kalbreyer 344* (K). AMAZONAS: Near base of Araracuara, mountains and along Enganos River, Dec, *Martius s.n.* (M, holotype of *A. sciophila* Martius); Loretoyacu River, Trapecio Amazónico, 100 m alt, 20–30 Oct 1945, *Schultes 6630* (US). ANTIOQUIA: Road to Sonsón, 1000 m alt, 1852, *Triana s.n.* (K, holotype, P, isotype of *A. glichrochlamys* Leonard); May 1873, *Patin s.n.* (K); *Jarvice s.n.* (K, holotype of *A. phalacra* Leonard); forest of Dabeiba, 400 m alt, 11 Jan 1947, *Uribe 1437* (US, holotype of *A. uribei* Leonard). VALLE: La Laguna on left bank of Río Sanquinini, 1250–1400 m alt, 10–20 Dec 1943, *Cuatrecasas 15436* (US, holotype of *A. leiophylla* Leonard). CAUCA: La Costa, 900 m alt, 27 Jul 1936, *von Sneidern 869* (S, holotype of *A. puberula* Leonard);

El Tambo, 1200 m alt, 27 Jul 1936, *von Sneidern 868* (S, holotype of *A. sneidernii* Leonard); around El Peñol on the western slopes of the W Andes of Popayán, 1800–2000 m alt, May, *Lehmann 8632* (K). WITHOUT EXACT LOCALITY: 1760–1808, *Mutis 1494* (US). ECUADOR. GUAYAS: Río Bulubulu, 100 m alt, 11 Oct 1939, *Haught 2912* (S, US). COTOPAXI: Río Guapara, 20 km NW of El Corazón, 250 m alt, 21 Jun 1967, *Sparre 17211* (S). BOLIVAR: Charquiyacu, 600 m alt, 3 Oct 1943, *Acosta 6091* (F). CHIMBORAZO: 750 m alt, *Spruce 6214* (K, W); Huigra, on Hacienda de Licay, 8 Sep 1918, *Rose & Rose 22598* (US). NAPO-PASTAZA: Río Napo, 19 Apr 1958, *Harling 3607* (S); Río Bermejo, tributary to Río San Miguel, 230 m alt, 26 Nov 1966, *Sparre 13153* (S). PERU. AMAZONAS: Bagua, valley of Río Marañón above Cascades de Mayasi, 450–500 m alt, 8 Sep 1962, *Wurdack 1901* (US). SAN MARTIN: Tarapoto, 1855–6, *Spruce 4952* (K); Pongo de Cainarachi, Río Cainarachi, 230 m alt, Sep–Oct 1932, *Klug 2743* (US); Chazuta, Río Huallaga, 260 m alt, Mar 1935, *Klug 3965* (US); Huahuiva to Saposoa, 450 m alt, 4 Oct 1959, *Woytkowski 5474* (F, LE, MO); Mariscal Caceras: Tocache Nuevo, Quebrada de Huaquisha, 17 May 1970, *Schunke 3988* (F, US). LORETO: Near Yurimaguas, May 1855, *Spruce 3867* (K, W); Río Ucayali, Jun 1847, *de Castelnau s.n.* (P); between Yurimaguas and Balsapuerto, 135–150 m alt, 26–31 Aug 1929, *Killip & A. C. Smith 28116, 28356* (US). HUÁNUCO: Marañón, junction of Río Monzón and Río Huallaga, 2 Aug 1940, *Asplund 12696* (S); Huánuco, Tingo María, 620 m alt, 18 Feb 1954, *Woytkowski 1115* (US); Pachitea, Honoria, Isla del Pacanase, 300–400 m alt, 29 Apr 1968, *Schunke 2557* (F, US); Honoria, Bosque Nacional de Iparia, 300–400 m alt, 3 May 1967, *Schunke 1907* (F, US). JUNÍN: Vitoc, *Ruiz & Pavón A.93* (MA, F photo 29177, syntype of *A. acutifolia* Nees); Vitoc, 27 Dec 1878, *Martinet 1537* (P); Vitoc, *McLean s.n.* (K, syntype of *A. acutifolia* Nees); Pichis Trail, Yapas, 1350–1600 m alt, 28–29 Jun 1929, *Killip & A. C. Smith 25583* (NY, US); Tarma, 16 km SW of San Ramon, 1300 m alt, 29 Nov 1962, *Iltis & Ugent 236* (K, US); Tarma: Utcuyacu, 1800 m alt, *Woytkowski 35372* (UC, F). CUSCO: Paucartambo, between Atalaya and Salyacion, 650 m alt, 1 May 1965, *Vargas 16278* (US). PUNO. Carabaya, San Gabán, 1100 m alt, 7 Feb 1967, *Vargas 018894* (US). WITHOUT EXACT LOCALITY: *McLean s.n.* (K); 1835,

Mathews 2011 (K, syntype of *A. acutifolia* Nees); 900–1200 m alt, 1909–14, *Weberbauer 5627* (F), 6655 (GH). BOLIVIA. LA PAZ: Mapiri Región, San Miguel, 800 m alt, 16 May 1927, *Buchtien 1368* (US); Chimate, 500 m alt, 28 Feb 1927, *Buchtien 1369* (US); San Carlos, near Sarampuini, 600 m alt, 15 May 1927, 1370 (US); La Paz; near Coroico Choro River crossing, 18 May 1964, 1200 m alt, *Badcock 135* (K); Tumapasa, 540 m alt, 6 Dec 1921, *White 1826* (K); Alto Beni, 600 m alt, 20 May 1964, *Badcock 154* (K); 450 m alt, 22 Jun 1964, *Badcock 214* (K). COCHABAMBA: Río Juntas, 800 m alt, 13–21 Apr 1892, *Kuntze s.n.* (NY, isotype of *A. simplex* Lindau). SANTA CRUZ: Pica del Lara, 450 m alt, 6 Aug 1916, *Steinbach 2750* (US); Río Japacari, Sara, 400 m alt, 16 Mar 1926, *Steinbach 7503* (F). WITHOUT EXACT LOCALITY: *Pearce 548* (K); 798 (K). BRAZIL. RIO BRANCO: Road between São Luiz and Maloca Tupari-Cabeceras, 1–29 Apr 1948, *Scolnik & Luti 728* (US). AMAZONAS: Tabatinga, 1877–78, *Jobert 902* (P). ACRE: Serinopal, Río São Francisco, Apr 1911, *Ule 9807* (K). CULTIVATED MATERIAL. At Río de Janeiro, Dec 1878, *Glaziou 9994* (K); Nov 1887, Cult. in Hort. Bot. Reg. Kew, (K, isotype of *A. fascinator* Lindau & André).

54b. *Aphelandra aurantiaca* (Scheidweiler) Lindley var. *stenophylla* Standley

Aphelandra aurantiaca (Scheidweiler) Lindley var. *stenophylla* Standley, Field Mus. Bot. Ser., 4:324. 1929; Field Mus. Bot. Ser., 10:359. 1931.

Aphelandra repanda Nees in de Candolle, Prodr. 11:728. 1847.—Leonard, Field Mus. Bot. Ser., 18:1196. 1938.

Aphelandra lonchochlamys Leonard, Contrib. U.S. Nat. Herb. 31:165. 1953.

Leaf blades petioled, lanceolate, 20–25 cm long, 2.5–3 cm wide, gradually narrowed at both ends, glabrous on both surfaces or the costa bearing a few subappressed hairs, especially underneath, the upper surface shining, the lower surface pale green or occasionally purple, the margins coarsely sinuate-repand, unarmed, the venation obscure but more prominent beneath than above.

TYPE.—*Standley 53487* (holotype F, isotype US), Honduras, Atlantida, Lancetilla Valley, near Tela, 20–600 m alt, 6 Dec 1927–20 Mar 1928.

DISTRIBUTION.—Commonly found in wet forests from Central America to Peru. GUATEMALA. IZABAL:

Jocoló, 25 Jan 1928, *Johnson 1144* (US). HONDURAS. ATLÁNTIDA: Lancetilla Valley, near Tela, 20–600 m alt, 6 Dec 1927–20 Mar 1928, *Standley 52635, 53875* (US). COSTA RICA: GUANACASTE: Guis, Apr 1899, *Pittier 16.088* (US); SE of Tilarán, Quebrada Serena, 700 m alt, 27 Jan 1926, *Standley & Valerio 46157, 46207* (US). ALAJUELA-HEREDIA: N slope of Central Cordillera, Vara Blanca de Sarapiquí, Jul–Sep 1937, *Skutch 3267* (US). SAN JOSÉ: San José, Sep 1853, *Scherzer s.n.* (W). WITHOUT EXACT LOCALITY. *Endres 236a* (K). CENTRAL AMERICA: *Lehmann s.n.* (W). COLOMBIA. PUTUMAYO: Mocoa, 1898–99, *Sprague 394* (K, holotype of *A. lonchochlamys* Leonard). ECUADOR. NAPO-PASTAZA: El Napo, Sep 1931, *Benoist 4765* (P); Mera, 6 Mar 1940, *Lugo 28* (S); 15 Apr 1940, *Lugo 190* (S); Tena, 14 Oct 1939, *Asplund 9320* (S, US); Cerro Antisana, 3 m SW of Tena, 600 m alt, 27 Aug 1960, *Grubb, Lloyd, Pennington & Whitmore, 1460* (NY). ZAMORA-CHINCHEPE: Cordillera Cutucú, opp Chupiantza, 600–690 m alt, 17 Nov 1944, *Camp E-1045* (NY). PERU. SAN MARTÍN: Mariscal Caceresa, Tocache Nuevo, 20 Apr 1970, *Schunke 3947* (F, US). HUÁNUCO: Huánuco, Cucharas, near Tingo María, 500 m alt, 15 Mar 1954, *Woytkowski 1182* (US). JUNÍN: Pangoa, *Mathews 1238* (K, holotype of *A. repanda* Nees); Jauja, Lagunas de Satipo, Aug 1940, *Ridoutt s.n.* (US). AYACUCHO: Río Apurímac Valley, near Kimpitiriki, 400 m alt, 10 May 1929, *Killip & A. C. Smith 22878* (US). BOLIVIA: *Pearce s.n.* (K).

Standley (1929:324) in describing the new variety, writes the following: "This form grown frequently with the typical one, which is common on the hills above Lancetilla. The leaves are so different from those of the type that at first glance one would assume that two species were represented, but apparently the two forms differ only in the shape of their leaves. I did not find any intermediate forms in the various localities where the two were growing together."

54c. *Aphelandra aurantiaca* (Scheidweiler) Lindley var. *nitens* (Hooker) Wasshausen, new combination

Aphelandra nitens Hooker, Bot. Mag. 94, pl. 5741. 1868;

Floral Mag. N. Ser., pl. 65. 1873; Garden 48:122. 1895;

Pflanzenfam. 4.3b:322. 1895; Hessedörffer. Handb. Zimmer-

gärtn. ed. 2, p. 176, fig. 95. 1900.

Aphelandra sinitzini Linden, Rev. Hort. 237, fig. 48. 1876.

Aphelandra nitens Hooker var. *sinitzini* (Linden) Fournier, Ill. Hort. 23:25, pl. 231. 1876.

Leaf blades ovate to oblong-elliptic, obtuse to subacuminate cuneate at base, to 25 cm long and 8 cm wide, but usually 5–12 cm long and 4–6 cm wide, thick and coriaceous, glabrous on both surfaces, the upper surface a brilliant polished green, the lower surface a deep vinous purple, the margins entire or undulate, thickened, the costa broad, the lateral veins (about 12 pairs) rather inconspicuous.

TYPE.—*Hort. Veitch* (holotype K), typification is on the basis of the description and the plate, especially the latter.

DISTRIBUTION.—Originally stated to be a native of Guayaquil, Ecuador, from whence it was sent by Mr. Pearce to Messrs. Veitch. More recently, however, this variety has been collected in eastern Peru in the departments of San Martín, Huánuco, and Junín. COLOMBIA. WITHOUT EXACT LOCALITY: Cult. Bot. Gard. Kew, Jan. 1907 (K). PERU: SAN MARTÍN: Tarapoto, *Spruce s.n.* (K); Mt. Guayrapurima, Jan 1856, *Spruce s.n.* (K); San Martín, 4 m E of Tarapoto, 890 m alt, 7 Mar 1947, *Woytkowski 35217* (F, MO, UC); Mariscal Caceres, Tocache Nuevo, 23 Apr 1970, *Schunke 3963* (F, US); Tocache Nuevo, Quebrada de Huaquisha, 4 Jun 1970, *Schunke 4027* (F, US). HUÁNUCO: Huánuco, Tingo María, 13 Jul 1940, *Asplund 12220* (S); Cucharas, near Tingo María, 400 m alt, 8 Feb 1954, *Woytkowski 1095* (US); Aqua Blanca (Carretera Monzón), 890 m alt, 25 Feb 1966, *Schunke 1130* (NY); Río Bella, 7 km from Tingo María, 670 m alt, 6 Aug 1946, *Soukup 3101* (F); southwestern slope of the Río LullaPichis watershed, on the ascent of Cerros del Sira, 250 m alt, 21 Jun 1969, *Wolfe 12131* (NA). JUNÍN: Puerto Bermudez, 375 m alt, 14–17 Jul 1929, *Killip & A. C. Smith 26512* (US); E of Quimiri Bridge, near La Merced, 800–1300 m alt, 1–3 Jun 1929, *Killip & A. C. Smith 23838* (P, US); Pichis Trail, San Nicolas, 1100 m alt, 4–5 Jul 1929, *Killip & A. C. Smith 26031* (GH, US). CULTIVATED MATERIAL. Cult. Hort. Vindob. Jan. 1922, *Rechinger s.n.* (W).

55. *Aphelandra heydeana* Donnell Smith

FIGURE 4

Aphelandra heydeana Donnell Smith, Bot. Gaz. 18:210. 1893.

Shrub or suffrutescent herbs to 3 m high; stems glabrous, erect, canaliculate, minutely alveolar, drying grayish white; leaf blades ovate to ovate-lanceolate or elliptic, to 20 cm long and 7 cm wide, acuminate, more or less sharp contracted and cuneately prolonged into a petiole 2–8 cm long, membranaceous, entire or undulate, the upper surface drying dark green, glabrous or sparingly pubescent, the costa and lateral veins (usually 6–8 pairs) plane or slightly elevated, less prominent than on the lower surface, this drying a lighter green, glabrous or sparingly pubescent, the hairs appressed, confined chiefly to the lateral veins; petioles (unwinged portion) about 1 cm long, glabrous or sparingly puberulent at base; spike terminal, usually solitary, 2–7 cm long and 2–3 cm broad (excluding corollas), the rachis angular, moderately pilose; bracts closely imbricate, retrorsely spreading with age, obovate-oblong, 1.3–1.5 cm long, 5–7 mm wide, prolonged into a recurved, convolute cusp about 6 mm long, nerved, veiny, more or less pubescent both within and without, the margins 1–2-spinulo-dentate, subscarios; bractlets similar to the calyx segments but slightly shorter, long linear-lanceolate, 11 mm long, 1.5 mm wide, carinate, striate-nerved, sparingly pilose at tip; calyx segments subequal, elongate-lanceolate, aristate, striate-nerved, glabrous, the posterior segment 12 mm long, 2.5 mm wide, the anterior and lateral pairs 12 mm long, 2 mm wide; corolla crimson, glandular-pubescent, 5.5–6 cm long, the tube 2.5 cm long, 5 mm wide at mouth, the upper lip erect, oblong, 2 cm long and 0.7 cm wide, entire, the middle lobe of the lower lip broadly obovate-oblong, 2 cm long and 1.2 cm wide, the lateral lobes ligulate, 7–10 mm long, 1–1.5 mm broad, all rounded at apex; stamens barely included; the filaments 3.5–4 cm long, glabrous; the anthers 5 mm long, glabrous, apiculate; the ovary 3 mm long, glabrous; mature capsule not seen.

TYPE.—*Heyde et Lux 4037* (holotype US, isotype P), Guatemala, Santa Rosa, Chupadero, 1500 m alt, Oct 1892.

DISTRIBUTION.—Damp, wet forests in southern Mexico, Guatemala, and El Salvador. MEXICO. CHIAPAS: near Tumbala, 1200–1650 m alt, 20 Oct 1895, *Nelson 3302* (US). GUATEMALA. SANTA ROSA: Cerro Redondo, 1350 m alt, Sep 1893, *Heyde et Lux 6212* (US); Río Chiquito, 1050 m alt, Oct 1893, *Heyde et Lux 6213* (US); near Oratorio,

1200 m alt, 21 Dec 1938, *Standley 60671* (US); Río Panal, lower slopes of Volcán de Tecuamburro, along the road between Cuilapa and Chiquimulilla, 28 Nov 1940, *Standley 78561, 78568* (US). WITHOUT EXACT LOCALITY: 1892, *Heyde 355* (US). EL SALVADOR. Camasagua, Dec 1922, *Calderón 1402* (US).

56. *Aphelandra guerrensis* Wasshausen

FIGURE 10

Aphelandra guerrensis Wasshausen, *Phytologia* 26:393. 1973.

Shrub or suffrutescent shrub to 2 m high; stems glabrous or sparingly and inconspicuously strigose toward tip; leaf blades oblong-lanceolate, 12–18 cm long, 4–5 cm wide, acuminate, narrowed at base and long-attenuate on the slender petiole, entire, the upper surface drying dark green, glabrous to glabrate, the costa and lateral veins (usually 8–10 pairs) less prominent above than on the lower surface, this drying light green or olive, glabrate to strigillose, the hairs evenly distributed or confined chiefly to the costa and the lateral veins, petioles (unwinged portion) 3–5 cm long, the pubescence similar to that of the stem; spikes terminal, solitary, 6–11 cm long and 2–3 cm broad (excluding corollas), the rachis densely pilose; bracts closely imbricate or spreading with age, lanceolate, 20–25 mm long, 7.5 mm wide, green, 3-nerved, veined, conspicuously pilose, the margins entire except for a pair of small and inconspicuous teeth above the middle, these 1–2 mm long; bractlets linear-lanceolate, aristate, 12 mm long, 1.5 mm wide, glandular-pilose; calyx segments subequal, lanceolate, aristate, 11–12 mm long, 1.5–2 mm wide near the base, striate-nerved, glandular-pilose; corolla red, about 6 cm long, glandular-pilose, the tube slightly oblique, 3.5 cm long, 1 mm wide at base, thence gradually enlarged to 5 mm at throat, the upper lip erect, oblong-ovate, cymbiform, arched at the tip, 2.2 cm long, 8.5 mm wide, entire, the tip acute, the middle lobe of the lower lip oblanceolate, about 2.5 cm long, 7 mm wide, the lateral lobes narrowly deflexed, obliquely lanceolate, 8 mm long, 1.8 mm wide; stamens exerted about 2 cm beyond mouth of the corolla tube; the filaments glabrous; the anthers 4 mm long, glabrous; pollen grains typical, prolate, 39 μ –42 μ

long, 28 μ –29 μ wide; the ovary glabrous, 3 mm long; mature capsule not seen.

TYPE.—*G. Hinton 11199* (holotype US, isotypes K, NY, UC, W), Mexico, Guerrero, Galeana, San Andrez, 600 m alt, 1 Jun 1938.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra guerrensis superficially resembles *A. gigantiflora*. In *A. gigantiflora* though, the spikes are 12–30 cm long, the bracts entire, broadly ovate, 10–12 mm wide, the middle lobe of the lower lip obovate, 15–17 mm wide, and the lateral segments of the lower lip oblong, 15 mm long, 5 mm wide.

57. *Aphelandra flammea* Wasshausen

FIGURE 49

Aphelandra flammea Wasshausen, *Phytologia* 26:394. 1973.

Herbaceous to suffrutescent perennial; stems erect, to 5 m high, glabrous to sparingly pilose, the internodes 2–9 cm long; leaf blades elliptic to obovate, 15–24 cm long and 6.2–12.3 cm wide, acuminate, cuneate or gradually narrowed at base and more or less decurrent on the petiole, chartaceous, minutely and inconspicuously puberulous on both surfaces, the margins entire, the costa broad, lateral veins (10–12 pairs) inconspicuous, arcuate, the upper surface nitid often a brilliant polished green, the lower surface pale green, the reticulation obscure; petioles 2–13 cm long, glabrous; flowers borne in simple terminal spikes 11–18 cm long and 1.5–2 cm broad (excluding the corollas), the rachis puberulous, the nodes flattened and slightly excavate; bracts imbricate, elliptic, 17–20 mm long and 7–10 mm wide, acuminate, veiny, glabrous, the margins serrate, the teeth to 1 mm long; bractlets narrowly lanceolate, 4 mm long, minutely and inconspicuously puberulous; calyx 11–12 mm long, the posterior segment lance-subulate, 3 mm wide, the lateral and anterior pairs linear-lanceolate, 1.5 mm wide, the 5 segments and bractlets striate-nerved and puberulous, the nerves ending at the base of each segment in a callus about 1 mm long; corollas 4.5–5.5 cm long, orange-red, sparingly puberulous, the upper lip oblong-elliptic, 17 mm long and 5 mm wide, acute to obtusish and entire, the lower lip spreading,

the lobes oblong-elliptic, the middle one 1.5 cm long and 1.8 cm wide, acuminate, the lateral ones similar but narrower, 3 mm wide; pollen grains atypical, prolate spheroidal, about 56 μ in diameter; mature capsule not seen.

TYPE.—*Y. Mexia 6700* (holotype US, isotype UC), Ecuador, Cotopaxi, Hacienda Solento, near Santa Rosa, Canton Pajile, 1000 m alt, 17–20 Nov 1934.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra flammea is perhaps nearest in relationship to *A. sulphurea*, but differs markedly in that its petioles are short, 1.2–2 cm long, the bracts 30–32 mm long, acute, denticulate and covered with small inconspicuous subsessile glands, the corolla yellow, the upper corolla lip about 10 mm wide, the middle lobe of the lower corolla lip 2 cm long and 1 cm wide, apically obtuse, and the lateral lobes 6 mm wide.

58. *Aphelandra arnoldii* Mildbraed

Aphelandra arnoldii Mildbraed, Notizbl. Bot. Gart. Berlin 11:63. 1930.—Leonard, Contrib. U.S. Nat. Herb. 31:153. 1953.

Herbs; stem short, less than 5 cm long; roots long and numerous, extending apparently a little above the ground; leaves subrosulate, crowded, the blades narrowly elliptic to oblanceolate, 15–30 cm long and 5.5 cm wide, short-acuminate, the tip obtuse, long and narrowly decurrent on the petiole, the upper surface short-pilose, the costa plane, the lateral veins (15–17 pairs) forming angles of about 70 degrees, arcuate, ascending; petioles 4–6 cm long; flowers borne in spikes, the scape axillary, about 25 cm long, puberulous, extending above the rosette of leaves, the spike itself 5–8 cm long; bracts erect-spreading, scarcely imbricate, lanceolate, 6–8 mm long, barely 2 mm wide, acute, scarcely pungent, ciliate, the hairs erect-spreading, the margins bearing a few minute teeth, the internodes about 5 mm long; bractlets similar to the bracts but only 4 mm long and slenderly subulate-acute; calyx segments thinly scarious, pale, lanceolate to linear-lanceolate, 4–5 mm long, the interior ones a little shorter than the others and noticeably narrower; corolla bright rosy, the tube narrowly cylindrical, suberect, about 1 cm long, the lobes of

the lower lip broadly rounded, broadly cuneate toward base, the middle one 7 mm long and 5 mm wide, the lateral ones slightly smaller, the posterior pair much smaller (2.5–4 mm long); stamens included, subequal; anthers oblong, obtuse, their tips cohering; filaments epipetalous slightly above the middle of the corolla tube; ovary 1.5 mm long.

TYPE.—*A. Schultze 771* (holotype B, destroyed, F photo 8697), Colombia, Magdalena, in damp humus on wooded slope at San Lorenzo, 2150 m alt, Feb 1927.

DISTRIBUTION.—At elevations above 2000 meters in northern Venezuela and Colombia. VENEZUELA. MERIDA: Quebrada La Mucuy-El Volcan, 2200 m alt, 15 Jan 1953, *Bernardi 278* (NY).

59. *Aphelandra tonduzii* Leonard

Aphelandra tonduzii Leonard, Field Mus. Pub. Bot. Ser., 18: 1198. 1938.

Herbs; stems to 22 cm high, simple, erect or ascending, hirsute or occasionally strigose; leaf blades ovate to elliptic, or broadly lanceolate, 7–11 cm long and 4.5 cm wide, acute to obtuse or rounded, narrowed at the base, entire, both surfaces pilose, the hairs about 1 mm long; petioles to 2 cm long, pilose; flowers borne in slender, lax, peduncled, axillary spikes to 15 cm long, the rachis pilose, peduncles to 16 cm long, pubescent or occasionally strigose; bracts lanceolate, about 7–8 mm long and 1.5 mm wide, tapering to a slender point, veiny, 3-nerved, hirsute (the hairs to 1 mm long) usually with a pair of minute, slender, marginal teeth, these to 1 mm long; bractlets subulate, about 4 mm long and 0.5 mm wide at the base, striate-nerved, subhyaline, pubescent toward the tip, some of the longer hairs gland-tipped; calyx segments 4.5 mm long, the posterior one lanceolate, 1 mm wide, the other 4 subulate, 0.5 mm wide, all striate-nerved, attenuate, subhyaline and pubescent toward the tip with some of the longer hairs glandular; corolla 1.5 cm long, pale pink, pubescent within above the insertion of the stamens, the tube slender, glabrous, 3 mm broad at the base of the mouth, constricted below the middle to 1.5 mm, the limb 12 mm broad, the lobes obovate, rounded, the upper ones 3–4 mm long and 2–3 mm wide, the middle lobe of the lower lip 5–8 mm long and 3.5–5 mm wide, the lateral ones slightly smaller, all

sparingly puberulent without; stamens included; filaments 2 mm long, sparingly pubescent; anthers 1.25 mm long, glabrous; capsule 10 mm long and 3 mm wide, blunt, glabrous; seeds obovate, flat, brown, about 2.5 mm long, sparingly pubescent with small, short, thick hairs.

TYPE.—*A. Tonduz 13162* (holotype US), Costa Rica, Cartago, forest of Las Vueltas, Tucurrique, 900–1000 m alt, Jan 1899.

DISTRIBUTION.—Endemic to Costa Rica, commonly found in moist forests above 1000 meters altitude. COSTA RICA. SAN JOSE: Vicinity of El General, 1070 m alt, Dec 1936, *Skutch 3004* (US); 1100 m alt, Feb 1939, *Skutch 4212* (US). CARTAGO: Cerro de La Carpintera, 1500–1850 m alt, Feb 1924, *Standley 34205, 34495* (US); La Carpintera, vicinity of Tres Rios, 1300–2000 m alt, 1 Dec 1937–1 Jan 1938, *Allen 507* (F); Moravia-La Chanchera, 1300 m alt, 10 Jan 1949, *Leon 1391* (US).

60. *Aphelandra seibertii* Leonard

Aphelandra seibertii Leonard, Ann. Mo. Bot. Gard. 24:205. 1937.

Herb to 20 cm high; the stem simple, ascending, rooting at the lower nodes, pilose, to 1 mm long; leaf blades oblong-elliptic, 2–11 cm long, 1.5–3 cm wide, obtuse, narrowed at base, entire or undulate, both surfaces thinly pilose, the costa and lateral veins (6 or 7 pairs) densely so; petioles 1–2 cm long, densely pilose; flowers borne in 1 or several terminal spikes 4–8 cm long, the peduncle 3–5 cm long, densely pilose, the hairs yellowish, the rachis pilose; bracts obovate or oblanceolate, 13–15 mm long, 5–7 mm wide, purplish at tip, closely imbricate and appressed (spreading at maturity), bearing above the middle on each side 2 or 3 narrow dentate teeth to 1.5 mm long, 7-nerved, pilose without, glabrous to puberulent toward tip within; bractlets lanceolate, 8 mm long, 1.5 mm wide, acuminate, carinate and conduplicate, subhyaline, delicately nerved, the costa hirsute, the margins sparingly ciliolate with minute capitate hairs; calyx segments subhyaline, striate-nerved, the posterior segment lanceolate, 6.5 mm long, 1.5 mm wide, the anterior pair narrowly lanceolate, 6.6 mm long and 1 mm wide, the middle pair subulate, 5.5 mm long and 0.5 mm wide,

all sparingly ciliolate with minute, capitate hairs; corolla yellow, 2 cm long, the lobes tipped with lavender, sparingly pubescent, the tube slender, 1.5 cm long, 1.5 mm in diameter at base, about 3 mm wide at mouth, the limb about 13 mm broad, the upper lip erect or spreading, obovate, 7 mm long, 6 mm wide, 2-lobed, the lobes 2.5 mm long and broad, rounded, the middle lobe of the lower lip obovate, 6 mm long, 5 mm wide, rounded or emarginate, the lateral lobes lance-subulate, 2.5 mm wide, acute; stamens slightly exerted; ovary cylindrical, 2.5 mm long, glabrous below, pilose at tip; style 17 mm long, puberulent toward base; capsule about 1 cm long, cylindrical, glabrous except for the pilose tip, 4-seeded, the valves of the capsule recurved after dehiscence; retinacula 2 mm long, cucullate at tip; seeds obovoid, acute at base, light brown, 3 mm long, 2.5 mm broad, bearing scattered, minute, short, thick, hairlike projections.

TYPE.—*R. J. Seibert 460* (holotype US), Panama, Coclé, vicinity of El Valle de Antón, 500–700 m alt, 24 Jul 1935.

DISTRIBUTION.—Found in wet forests in deep shade, in Costa Rica and Panama. COSTA RICA. LIMÓN: Plaines de La Estrella, Talamanca, Feb 1895, *Tonduz 9384* (US); La Colombiana Farm of the United Fruit Co., 70 m alt, 6–7 Mar 1924, *Standley 36966, 36783* (US). PANAMA. COCLÉ: Vicinity of El Valle, 600–1000 m alt, 8 Dec 1938, *Allen 1215* (MO, US); N rim of El Valle de Antón, near Cerro Turega, 650–700 m alt, 30 Jun 1940, *Woodson & Schery 187* (US); 1000 m alt, 23 Jun 1940, *Allen 2175* (US); 29 Jun 1946, *Allen 3548* (MO, US).

61. *Aphelandra neesiana* Wasshausen, new name

Stenandrium aurantiacum Nees in Martius, Flor. Bras. 9:78. 1847. [non *Aphelandra aurantiaca* (Scheidweiler) Lindley]. *Lagochilium aurantiacum* Nees in de Candolle, Prodr. 11:292. 1847.

Erect, low shrubby plant 12–30 cm high; stem 4–10 cm long, densely yellowish hirsute, especially towards the tip, leaf blades ovate, 8–12 cm long, 4–6.5 cm wide, acute, obtuse at base, thin, repand, the margins ciliate, the upper surface moderately strigose except the costa and lateral veins (7–9

pairs), these yellowish hirsute, the lower surface drying a lighter green than the upper, moderately strigose, except the costa and lateral veins, these hirsute; petioles 1–3.5 cm long, the pubescence similar to that of the stem; flowers borne on a solitary, terminal spike, 5–10 cm long, 2.5 cm wide (without corollas), the peduncle extremely short, almost absent, less than 0.5 cm long, if present, densely yellowish hirsute, the bracts closely imbricate, spreading with age, the spike subtended by a pair of larger leaves; bracts obovate, 17–19 mm long, 14 mm wide just below the apex, purplish, reticulately veined, obtuse, mucronulate, cuneate at base, moderately pilose both within and without, the margins spinulose-serrate toward apex with about 7–9 pairs of spreading teeth, ciliolate; bractlets lanceolate, 12 mm long, 0.5 mm wide, aristate, subhyaline, striate-nerved, carinate, puberulous and sparingly pilose; calyx 1.3–1.4 cm long, the segments lanceolate, subequal, striate-nerved, inconspicuously puberulous, aristate-acuminate, the posterior segment 2 mm wide near base, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla yellow, about 2.2 cm long, minutely and sparingly glandular pilose, the tube cylindrical, 11 mm long, 2 mm wide at base, thence gradually enlarged and infundibular, 4 mm long, 5 mm in diameter at mouth, the upper lip erect, obovate, 7 mm long and 7 mm wide, bifid, the lobes 2 mm long and 3 mm wide, retuse, the lower lip 3-lobed, the lobes subequal, the middle lobe obovate, 6 mm long, 6 mm wide, obtuse, the lateral lobes ovate, 6 mm long, 6 mm wide, slightly retuse; anthers 3 mm long, apiculate, apically and dorsally hirsute; filaments epipetalous, moderately villous; capsule oblong, 12 mm long, brown, apiculate, nitid, glabrous; seeds flattened, brown, 2 mm in diameter, fibrillose-papillose.

TYPE.—*Riedel s.n.* (syntype BR), Brazil, Rio de Janeiro, Petropolis, Serra d'Estrella, Feb and Mar 1840.

DISTRIBUTION.—In the mountains around Río de Janeiro. BRAZIL. RIO DE JANEIRO: 1821, *Langsdorff s.n.* (P); Mandioca, 1813–29, *Langsdorff s.n.* (LE); Dec 1822–Jan 1823, *Riedel 55* (syntype LE); Macahé, Jun 1832, *Riedel & Luschnath 793* (syntype LE); *Riedel & Langsdorff 109* (LE); 1816–1821, voyage d'Auguste de *Saint-Hilaire s.n.* (P); *Raddi s.n.* (FI).

62. *Aphelandra bahiensis* (Nees) Wasshausen, new combination

FIGURE 12

Lagochilium bahiense Nees in de Candolle, Prodr. 11:291. 1847.

Lagochilium bahiense var. *angustifolium* Nees in de Candolle, Prodr. 11:291. 1847.

Aphelandra atrovirens N. E. Brown, L'Illustr. Hort. 31:107. pl. 527. 1884.

Erect, simple, herbaceous plant 30 cm high; stem about 15 cm long, densely strigose, especially toward the tip; leaf blades oblong-elliptic to oblong-lanceolate, 8–9 cm long, 2.5–3.5 cm wide, acute to obtuse, narrowed at base, attenuate and decurrent on the petiole, thin, the margins entire or undulate, the upper surface glabrous except the costa sparingly appressed strigose, shining, the lower surface drying a lighter green than the upper, glabrous or minutely and sparingly puberulous, the costa and lateral veins (6–8 pairs) strigose, arcuate; petioles (unwinged portion), 1–2 cm long, the pubescence similar to that of the stem; flowers borne on a solitary, sessile, terminal spike, 2.5–7 cm long, 1–1.5 cm wide (without corollas), the bracts closely imbricate, somewhat spreading with age, the spike supported by a pair of small leaves; bracts elliptic-oblong, 13–15 mm long, 5–6 mm wide at the middle, purplish, 5-nerved, reticulately veined, obtuse, apiculate, cuneate at base, puberulous without, especially the nerves, glabrous within, the margins spinulose-serrate toward apex with 4–6 pairs of spreading teeth, ciliolate; bractlets lanceolate, 5 mm long, 0.4 mm wide, aristate, subhyaline, striate-nerved, glabrous, the margins ciliolate; calyx 7 mm long, the segments lance-subulate, subequal, striate-nerved, glabrous, aristate-acuminate, the margins ciliolate, the posterior segment 1.5 mm wide near base, the anterior pair 1.25 mm wide, the lateral pair 1 mm wide; corolla yellow, about 2 cm long, glabrous or the lips minutely and sparingly pilose without, the tube cylindrical, densely villous within, 1.5 cm long, 2 mm wide at base, thence gradually enlarged to 4 mm in diameter at mouth, the upper lip obovate, 4 mm long and 4 mm wide, bifid, the lobes 1 mm long and 1.5 mm wide, obtuse, the lower lip 3-lobed, the lobes equal, 4 mm long, 2.5 mm wide, slightly retuse; anthers 2 mm long, apiculate, apically and dorsally hirsute; filaments epipetalous

about midway in the corolla tube, moderately hirsute; mature capsule not seen.

TYPE.—*Blanchet 2106* (syntype G, isosyntypes B, destroyed, F photo 8700, P, W), Brazil, Bahia, Ilhéus, 1835.

DISTRIBUTION.—Known only from around the type-locality. BRAZIL. BAHIA: Hort. Compagnie Continentale d'Horticulture Gand, Belgium (K, holotype of *A. atrovirens* N. E. Brown); Aug 1906, Cult. in Hort. Bot. Reg. Kew (K).

Nees did not designate a type for *A. bahiense* var. *angustifolium*. The description simply states: "foliis oblongo-lanceolatis."

63. *Aphelandra obtusa* (Nees) Wasshausen, new combination

Lagochilium obtusum Nees in Martius, Fl. Bras. 9:86. 1947; in de Candolle, Prodr. 11:292. 1847.

Simple, erect herb 30 cm high; stem about 15 cm long, densely setulose, especially toward the tip, gray; leaf blades oval-oblong, 9.5–11.5 cm long, 3.5–4.5 cm wide, obtuse, narrowed at base, thin, repand, the upper surface glabrous, shining, the costa and lateral veins (9–10 pairs) conspicuous, arcuate, the lower surface drying a paler green than the upper, glabrous except the costa and lateral veins, these strigose; petioles 0.5–1.5 cm long, the pubescence similar to that of the stem; flowers borne on a solitary, sessile, terminal spike, 7–9 cm long, 2 cm wide (without corollas), the bracts closely imbricate, spreading with age, the spike subtended by a pair of large leaves; bracts elliptic, 18–19 mm long, 8–9 mm wide just above the middle, purplish, brown to dark brown when dry, striate-nerved, acuminate, cuneate at base, glabrous both within and without, the margins spinulose-serrate from about the middle to the apex with about 21–25 pairs of spreading teeth; bractlets lanceolate, 3 mm long, 0.5 mm wide, acuminate, subhyaline, striate-nerved, glabrous, the margins ciliate; calyx 6 mm long, the segments subulate, subequal, striate-nerved, glabrous, aristate-acuminate, the margins inconspicuously glandular-pilose, the posterior segment 1.5 mm wide near base, the anterior pair 1 mm wide, the lateral pair 0.75 mm wide; corolla yellow, about 2.5 cm long, glabrous, the tube narrow, short, the upper lip 5 mm long, bifid, the lobes equal, the lower lip 3-parted,

the lobes subequal, the middle lobe longer and broader than the lateral lobes, these equal, 5 mm long; anthers slightly apiculate, glabrous; filaments epipetalous, connate to middle of the tube; capsule oblong, 10 mm long, brown, apiculate, nitid, glabrous; seeds not seen.

TYPE.—*Pohl 6031* (holotype W), Brazil, Goiás, "Porto d'Acunha."

DISTRIBUTION.—Known only from the type-locality.

Aphelandra obtusa is related to *A. obtusifolia* but distinguishable by its narrower, elliptic, striate-nerved bracts and relatively narrower leaves. The bracts of *A. obtusifolia* are 14 mm wide, reticulate-veined and ciliate, those of this species only 8–9 mm wide at the most, striate-nerved and glabrous.

64. *Aphelandra goodspeedii* Standley & Barkley

Aphelandra goodspeedii Standley & Barkley, Madroño 9:154. 1948.

Eranthemum igneum Linden, Cat. 1867:5. 1867.—van Houtte, Fl. Serres 17, pl. 1722. 1867.—Morren, Rev. Hort. 1:491. 1867.

Chamaeranthemum igneum (Linden) Regel, Gartenflora 17: 353, pl. 598. 1868.

Stenandrium igneum (Linden) André, Ill. Hort. 24:10, pl. 266. 1877. [non *Stenandrium igneum* Nees, 1847].

Stenandrium pictum N. E. Brown, Ill. Hort. 38:91. 1891 [nom. nov.].

Xantheranthemum igneum (Linden) Lindau, Engl. Jahrb. 18:54. 1894.

Prostrate perennial herb to 15 cm high; stems simple, subsending, rooting at the lower nodes, setose; leaf blades spatulate to lanceolate, 3–8 cm long, 0.9–2.4 cm wide, obtusely rounded, cuneate and decurrent at base, subcoriaceous, entire or subundulate, when dry bluish above, grayish below, except whitish along costa and lateral veins, setose on both surfaces but more abundantly so below; petioles 2–4 mm long, densely pilose; flowers borne in one or more terminal spikes about 4.5 cm long, the peduncle about 0.8 cm long, pilose like the rachis, stem, and petioles; bracts green, lanceolate, acuminate, repand-serrate toward tip with about 5 pairs of teeth, 3.5–4 mm wide, and 12 mm long, in fruit ovate-lanceolate, about 4 mm wide, 12 mm long, hirsute on the outer surface; bractlets lanceolate, acuminate, entire, puberulent, membranaceous-subhyaline, about 4.5 mm long; calyx segments lanceolate, acuminate, entire, minutely ciliate on

the margins, subhyaline, delicately striate-nerved, about 4.5 mm long, 1 mm wide, the lateral pair 4.5 mm long and 0.75 mm wide; corolla yellow, glabrous to sparingly puberulent, the tube 2 cm long, 2 mm wide at base, 4.5 mm wide at mouth, the upper lip 4 mm long, the tip divided into obtuse lobes 1.5 mm long and 2 mm wide, the lower lip 3-lobed, the middle lobe suborbicular, 5 mm long and 6 mm wide, the lateral lobes obovate, 3.5 mm wide; stamens barely reaching the mouth of the corolla tube; anthers 2 mm long, obtuse, bearing tufts of long weak hairs; filaments pilose; ovary and style glabrous; capsule about 7.5 mm long, glabrous; valves recurved after dehiscence; seeds four.

TYPE.—*H. E. Stork & O. B. Horton 9597* (holotype UC), Peru, Huánuco, 10 km downstream from Tingo María, 630 m alt, 2 Nov 1938.

DISTRIBUTION.—Deep humus shade, Andean Peru, at elevations between 300–1100 meters, in the departments of San Martín, Huánuco, Cusco, and Madre de Dios. PERU. SAN MARTÍN: Tingo María, near Cueva de las Lechugas, 625–1100 m alt, 30 Oct 1949–19 Feb 1950, *Allard 21400* (US); Tingo María, 12 Aug 1940, *Asplund 12991* (S). HUÁNUCO: Posuso, Jul 186?, *Pearce 277, 588* (K); Pachitea: Honoria, road to Agamiria, 300 m alt, 17 Nov 1966, *Schunke 1238* (F, US); road to Shahuinto to 3 km from Iparía camp, 5 Apr 1967, *Schunke 1818* (F, US); Puerto Inca, trail to the Shiringal Agua Dolce camp, 6 Dec 1968, *Schunke 2819* (F, US). CUSCO: Paucartambo: Between Pilcopata and Keros, 680 m alt, 28 Jul 1965, *Vargas 16354* (US); between Keros and Kosnipata, 750 m alt, 7 Feb 1966, *Vargas 17866* (US). MADRE DE DIOS: Río Acre, Nov 1911, *Ule 9828* (K). CULTIVATED MATERIAL. Kew, 5 Sep 1891, (holotype of *Stenandrium pictum* N. E. Brown).

65. *Aphelandra maculata* (Tafalla ex Nees) Voss

FIGURE 14

Aphelandra maculata (Tafalla ex Nees) Voss, *Vilmorin's Blumeng.* ed. 3, 1:819. 1894.

Lagochilium maculatum Tafalla ex Nees, in de Candolle, *Prodr.* 11:290. 1847.

Stenandrium lindeni N. E. Brown, *Ill. Hort.* 38:91, pl. 136. 1891.

Stenandrium X beeckmanianum L. Linden, *Ill. Hort.* 39:121, pl. 166. 1892 [hybrid of cross between *Stenandrium pictum* ♂ and *S. lindeni* ♀].

Herb 15–16 cm high; stems prostrate, rooting at the base, sparingly branched, about 3 mm in diameter, puberulous; leaf blades oblong, 9–15 cm long, 3–5 cm wide, obtusely rounded, gradually narrowed from slightly above the middle to base and decurrent on the petiole, thin, entire or subundulate, the upper surface grayish olive except along the costa and lateral veins here distinctly marked with deep greenish yellow spots, the lower surface light purple, glabrous or sparingly and inconspicuously strigillose both above and below; petioles 10–15 mm long, densely sericeous; flowers borne in one or more lax, terminal, cylindrical spikes, these 4–6 cm long, the peduncle slender, purplish, 2–3 cm long, densely sericeous, the rachis flat, puberulous; bracts greenish yellow, imbricate, spreading with age, oblong-oval, 12 mm long, 5 mm wide, acuminate, slightly narrowed at base, the outer surface sparingly puberulous, the margins repand-serrate just above the middle of the bract bearing 4 pairs of ascending teeth (0.5–1 mm long); bractlets lanceolate, carinate, membranaceous-subhyaline, 3 mm long and 0.5 mm wide, sparingly ciliate; calyx segments lanceolate, the posterior segment 6 mm long and 1.2 mm wide near base, the anterior pair 6 mm long and 0.8 mm wide at base, the lateral pair 6 mm long and 0.5 mm wide, all membranaceous, narrowed upwardly to a slender tip, the margins sparingly ciliate; corolla yellow, pale green when dry, 2.2–2.3 cm long, sparingly and inconspicuously glandular pilose, the tube 1.5 mm broad from base to 1 cm above base, thence enlarged (abruptly) to 4.5 mm at throat, the upper lip obovate, 4.5 mm long and 6 mm wide, bilobed, the lobes 1.5 mm long and 2.5 mm wide, obtuse, the lower lip 3-lobed, subequal, the middle lobe obovate, 3.5 mm long, 5 mm wide, retuse, the lateral lobes obovate, 4 mm long, 3 mm wide, obtuse; anthers 2 mm long, obtuse, bearing tufts of long weak hairs; filaments epipetalous, glabrous; ovary and style glabrous; capsule greenish yellow, clavate, 9 mm long, 2 mm broad, glabrous, minutely punctate; seeds muricate, dark brown, 2 mm long and 1.5 mm broad.

LECTOTYPE.—*Hall 34* (holotype K), Ecuador, Guayaquil, Caniguo.

DISTRIBUTION.—Deep shade of dense woods, Ecuador, Peru, and Bolivia. ECUADOR. CHIMBORAZO: El Limón, Jul 1860, *Spruce s.n.* (K). PERU. SAN MARTÍN: Mariscal Caceres: Tocache Nuevo, La

Campinna, 400 m alt, 9 Sep 1969, *Schunke 3407* (F, US); Tocache Nuevo, Puerto Pizana, 15 Jan 1971, *Schunke 4658* (F, US); forest near Cerro de Cumbasso, Mar 1903, *Ule 6818* (HBG). AYACUCHO: Estrella, between Huanta and Río Apurimac, 500 m alt, 8, 14 May 1929, *Killip & Smith 23088* (US); La Mar: Hacienda Luisiana, 585 m alt, 8 Jun 1968, *Dudley 10020* (NA). BOLIVIA. LA PAZ: Ixiamas-Tumupasa trail, 450 m alt, 1901-1902, *Williams 298* (NY); Tumupasa, 450 m alt, 4 Dec 1921, *Cardenas 1954* (NY). CULTIVATED MATERIAL: Cult. in Hort. Bot. Kew, Dec 1893, (holotype of *Stenandrium lindeni* N. E. Brown).

66. *Aphelandra silvicola* Leonard

Aphelandra silvicola Leonard, Contrib. U.S. Nat. Herb. 31: 157. 1953.

Herbs; stems ascending, sparingly branched, about 25 cm high, rooting at the lower nodes, strigose; leaf blades oblong-lanceolate, 9-12 cm long and 4 cm wide, obtuse to obtusish, narrowed at base, thin, entire, both surfaces thinly strigose except the costa, this densely so, the hairs about 0.5 mm long, the costa and veins (7 or 8 pairs) banded by a narrow area of white or yellow; petioles to 4 cm long, winged, strigose; flowers borne in terminal, peduncled spikes, these 2 cm long and 1.5 cm broad, the peduncle 3 cm long, both peduncle and rachis appressed-pubescent; bracts green, imbricate, somewhat spreading, ovate, 1 cm long, 4.5 mm wide, acute or obtusish, bearing toward the tip 2 or 3 small triangular-ascending teeth, 7-nerved, softly puberulent; bractlets broadly lanceolate, 6.5 mm long, 2.25 mm wide, acuminate, hyaline and finely parallel-nerved, glabrous except the opaque, pubescent costa; calyx segments lanceolate, acuminate, glabrous, subhyaline, finely parallel-nerved, minutely ciliolate with gland-tipped hairs, the posterior segment 6 mm long and 1.5 mm wide, the anterior pair slightly shorter, 1 mm wide, the lateral pair 5 mm long and 0.5 mm wide; corolla yellow, 2.5 cm long, sparingly pubescent, the tube narrow, 2 mm in diameter at base, 4 mm at throat, the lobes suborbicular, subequal, about 3 or 4 mm long; stamens included; capsule not seen.

TYPE.—*Sneidern 923* (holotype S, US photo 3647), Colombia, Cauca, primitive forest of El

Tambo, La Costa, 800 m alt, 31 Jul 1936.

DISTRIBUTION.—Known only from the type-locality.

67. *Aphelandra maximiliana* (Nees) Benth

FIGURE 5

Aphelandra maximiliana (Nees) Benth in Benth & Hooker, Genera Plantarum 2, pt. 2. 1103. 1876.—Lindau in Engler & Prantl, Natürl. Pflanzenfam. 4, Abt. 3b:322. 1895.

Lagochilium maximilianum Nees in Martius, Fl. Bras. 9:85. 1847; in de Candolle, Prodr. 11:293. 1847.

Shrubby plant; stems straight, trichotomously branched, terete and glabrous below, subquadrangular and strigillose above; leaf blades elliptic-oblong, 18-25 cm long, 4 cm wide, acuminate, narrowed at base and decurrent on the petiole, rather firm, entire or subrepand, shining above, tomentulose beneath, the costa and lateral veins (10-15 pairs) conspicuous but not protruding on either surface, the veins transversely connected; petioles (unwinged portion) 1.5-2 cm long, canaliculate, glabrous; flowers borne in 1-5, dense, terminal spikes, these 6-10 cm long, about 2 cm broad, the bracts closely imbricate; bracts rigid, scarious, thick-nerved, obovate, 8-13 mm long, 6-8 mm wide below the tip, cuspidate, cuneate at base, setaceous-serrate with 6-8 teeth on each side, dorsally pubescent; bractlets lanceolate, 5-7 mm long, 2 mm wide, long-acuminate, striate-nerved, carinate, dorsally pubescent; calyx 6-7 mm long, the posterior segment lance-subulate, 2 mm wide, acuminate, the anterior pair lanceolate, 1.5 mm wide, slenderly acuminate, the lateral pair carinate, 1 mm wide, long-acuminate, all segments striate-nerved, dorsally sparingly pilosulous; corolla tubular, 2.5 cm long, red, glandular-pilose without, the tube cylindrical, 3 mm broad at base, the upper narrowly ampliate, about 4 mm broad at mouth, the limb slightly oblique, the corolla lips short, ovate, the upper slightly shorter than the lower, the upper lip erect, 2 mm long and 2 mm wide, entire, obtusely and retrorsely rounded, the lower lip 3-lobed, the lobes erect, the middle lobe broadest, 2 mm long, 3 mm wide, obtuse at apex, the two lateral lobes 2 mm long, 1.5 mm wide, obtuse; stamens included, not reaching the mouth of the corolla tube; anthers 4 mm long, hirsute, apicu-

late, filaments 12 mm long, glabrous to sparingly hirsute; capsule not seen.

TYPE.—*Maximilian Prinz zu Wied-Neuwied s.n.* (syntype BR), Brazil, Espirito Santo: Arassatibae near Barra de Jacu, 1816. *Sellow s.n.* (K), 233 (syntype B, destroyed, F photo 8710), Brazil, without locality.

DISTRIBUTION.—Known only from the type-locality.

In the original description Nees states that *Aphelandra maximiliana* is related to *A. obtusa* but distinct from it.

68. *Aphelandra ferreyrae* Wasshausen

Aphelandra ferreyrae Wasshausen, Phytologia 25:465. 1973.

Herb about 50 cm high; stem terete, rather sparingly appressed puberulent; leaf blades oblong-elliptic, 21–25 cm long and 6–7 cm wide, acuminate at apex, the tip itself blunt, cuneate at base, green, entire or obscurely crenate, glabrous or sparingly pilosulous, the hairs confined chiefly to the costa and lateral veins (about 12 pairs on each side of the costa); petioles to 6 cm long, minutely pilosulous; flowers borne in several, opposite spikes, these borne in the axils of the upper leaf blades, 15–18 cm long and 10–15 mm wide, the bracts rather loosely imbricate, the rachis and peduncles (3–5 cm long), puberulent, the hairs appressed or spreading toward tip of spike; bracts oblong-obovate, 10–13 mm long, 6 mm wide, acuminate, abruptly apiculate at tip, firm, green, puberulent, 5–7-nerved from middle to within 2 mm of tip, the nerves ending in about 6 erect-spreading, spiny teeth, these slender, to 1.5 mm long; bractlets oblong, 7 mm long, 1.5 mm wide, acute, pubescent toward tip, striate-nerved; posterior calyx segment about 8 mm long and 2.5 mm wide, the others 7 mm long and 1.5 mm wide, all oblong, acute, ciliolate toward tip, striate-nerved; corolla yellow, minutely pubescent, 2–2.5 cm long, the tube 2–3 mm wide at base, gradually enlarged to 6 mm at mouth, slightly curved, the lips subequal, the upper one obovate, 4–5 mm long and 6–10 mm wide, 2-lobed, the lobes 2–4 mm long, 3–5.5 mm wide, obtuse at apex, the lower lip 3-lobed, the middle lobe 4–7 mm long and 5–7 mm wide, the lateral lobes similar but smaller, all rounded or emarginate at apex; stamens included; filaments

1 cm long, pubescent; anthers 3 mm long; ovary glabrous below, pubescent at tip; style about as long as the stamens, rather sparingly pilosulous; capsule not seen.

TYPE.—*R. Ferreyra 4333* (holotype US), Peru, Huánuco, Puento Tulumayo, between Tingo María and Divisoria, 700–750 m alt, 24 Jul 1948.

DISTRIBUTION.—Dense forests, Amazonian Peru in the departments of Loreto and Huánuco. PERU. LORETO: Between Yurimaguas and Balsapuerto (lower Río Huallaga basin), 135–150 m alt, 26–31 Aug 1929, *Killip & A. C. Smith 28254* (US). HUÁNUCO: Huánuco, Río Monzón, near Tingo María, 700 m alt, 21 Jun 1953, *Ferreyra 9303* (US); Tingo María, marshy forest, 5 Aug 1940, *Asplund 12745* (S); Leoncio Prado, 5 km S of Tingo María, 672 m alt, 4 Jul 1969, *Schunke 3271* (F, US).

Aphelandra ferreyrae is closely affiliated with *A. parviflora*, a Colombian species. It is easily separated from *A. parviflora* by its green leaf blades and larger floral parts. In *A. parviflora* the leaf blades are purple beneath, the corolla 1.5 cm long or less, the bractlets lance-subulate and 3.5 mm long, and the calyx segments barely 6 mm long. In contrast, the corolla of this new Peruvian species is 2–2.5 cm long, the bractlets oblong and 7 mm long, and the calyx segments 7–8 mm long.

This species is named in honor of Sr. Ramón Ferreyra, of the University of San Marcos, in recognition of his invaluable service to Peruvian botany.

69. *Aphelandra tessmannii* Mildbraed

Aphelandra tessmannii Mildbraed, Notizbl. 9:985. 1926.

Low herb to 17 cm high, the stem simple, sub-ligneous, terete, glabrescent toward base, quadrangular with obtuse angles and densely strigose toward tip; leaf blades oblong-elliptic, about 9 cm long and 3 cm wide, obtuse at both ends, entire, strigose with stiff subappressed hairs which are densest on the costa and lateral nerves (about 8 on each side of the costa); petioles about 1.5 cm long, pilose; spike terminal, about 7 cm long, peduncle very short; bracts elliptic or somewhat obovate-elliptic, 15 mm long, 7 mm wide, acuminate, margin and outer surface silky-hirsute, glabrous within, inconspicuously denticulate; bractlets 11 mm long, 1.5 mm wide just above the base, nar-

rowed to a slender tip, pubescent without with a mixture of long silky hairs and short glandular hairs; calyx segments similar but sparingly glandular pilose, the posterior segment broader than the anterior and lateral segments; corolla white, glandular-puberulent, the tube about 18 mm long, slightly enlarged, the upper lip about 7 mm long, oblong, the tip divided into 2 short obtuse lobes, the lobes of the lower lip divided to base, subequal, 6–7 mm long and about 2 mm wide; filaments about 14 mm long, pilose toward base; anthers 2.5 mm long; ovary glabrous below, pilose above; style about 22 mm long, sparingly pilose.

TYPE.—*G. Tessmann 4778* (holotype B, lost, F photo 8679), Peru, Upper Marañón, Puerto Melendez, below Pongo de Manseriche, 155 m alt, 17 Dec 1924. Bracts green, flowers white, anthers bright ochre.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra tessmannii is characterized by the long appressed straight strigose hairs of the stem and leaf blades and the silky pubescence of the bracts. This description was compiled from the original; no material is available except a photo of the holotype.

70. *Aphelandra mollis* (Nees) Leonard

Aphelandra mollis (Nees) Leonard, Contrib. U.S. Nat. Herb. 31:154. 1953.

Lagochilium molle Nees in de Candolle, Prodr. 11:292. 1847.

Decumbent herb; stems about 2.5 mm in diameter, pubescent, the hairs sordid; leaf blades ovate, to 11 cm long and 6 cm wide, the greatest width at about $\frac{1}{4}$ the length of the blade from base, rather gradually narrowed thence to the obtuse tip, obtuse rounded or shallowly and obliquely cordate at base and narrowly decurrent on the petiole nearly to the stem, thin, entire or undulate, the upper surface glabrous or sparingly pilose, minutely faveolate under lens, the costa and lateral veins (8–10 pairs) inconspicuous, arcuate, the lower surface drying a lighter green than the upper, sparingly pilose; petioles to 6 cm long, the pubescence similar to that of the stems; flowers borne in 1 or 2 simple terminal lax spikes, these 6–11 cm long, the peduncle to 6 cm long, pilose; bracts green, oblong-ovate, to 14 mm long and 5

mm wide, acute, the tip obtuse, narrowed at base, thin, glabrous or sparingly pilosulous, the margins spinulose-serrate above middle, sparingly ciliolate; bractlets subulate, costate, subhyaline, ciliate; calyx 5 mm long, the posterior segment broadly lanceolate, 1.25 mm wide, obtuse and apiculate, the middle and anterior pairs lanceolate, 1 mm wide, slenderly acuminate, all subhyaline, striate-nerved, glabrous, ciliolate; corolla 2.2 cm long, glabrous to sparingly puberulent, a bright, soft yellow, the lower portion cylindrical, 1 mm broad, the upper narrowly ampliate, about 5 mm broad at mouth, the lobes subequal, 6–7 mm long, the lower lobe about 6 mm wide, the others about 3 mm wide, all rounded, the margins undulate; stamens 10–15 mm long; anthers 2 mm long, 0.25 mm wide, contiguous at least at tip by a webby tomentum; capsules 1 cm long, about 2 mm broad, pointed, glabrous, punctulate, potentially 4-seeded; seeds brown, 3 mm long, 2 mm wide, about 1 mm thick, sparingly brown hirtellous.

TYPE.—*Goudot s.n.* (holotype K, isotype P), Colombia, Cundinamarca: May 1844.

DISTRIBUTION.—Andean Colombia in the departments of Santander and Cundinamarca. COLOMBIA. SANTANDER: Camp Mesa, in the vicinity of Barranca, Magdalena Valley, between Río Sogamoso and Río Colorado, 100–500 m alt, 5 Jan 1935, *Haught 1497* (US).

71. *Aphelandra quadrifaria* Leonard

Aphelandra quadrifaria Leonard, Contrib. U.S. Nat. Herb. 31:709. 1958.

Erect herbs to 35 cm high; stems suberect or ascending, subterete, strigose, the internodes to 5 cm long; leaf blades oblong-elliptic, to 10 cm long and 4.5 cm wide, subobtuse, cuneate at base and decurrent on the petiole, moderately firm, entire or undulate, sparingly hirsute, the hairs to 0.5 mm long, confined chiefly to the costa and lateral veins (9–10 pairs), these and the coarsely reticulate veinlets moderately prominent beneath, obscure above; petioles to 1.5 cm long, hirtellous, the hairs resembling those on the stem; spikes terminal, to 3 cm long and 1.5–2 cm broad (excluding spread of corollas), dense, the peduncles about 2 mm long, densely sericeous-strigose; bracts green, subchartaceous, ovate, 11–12 mm long and

7 mm wide at middle, the lower half entire, the upper half serrate, the teeth (about 5) ascending, abruptly acuminate from a broad base, about 1 mm long, the bracts acute and apiculate, the base broadly cuneate, both surfaces glabrous, the costa and 1 or 2 pairs of lateral nerves prominent, veinlets coarsely and prominently reticulate; bractlets lanceolate, subhyaline, subchartaceous, 4.5 mm long, 0.75 mm wide just above base, acuminate, carinate, minutely ciliolate, the costa prominent and bearing a few small hairs; calyx segments lanceolate, 7 mm long, subchartaceous and subhyaline, acute and terminating in weak spines about 1 mm long, glabrous to inconspicuously ciliolate, delicately striate-nerved, the posterior segment about 2 mm wide, the lateral segments 1 mm wide, the anterior ones 1.5 mm wide; corolla yellow, sparingly hirtellous, 2–2.5 cm long, the tube 2 mm wide at base, narrowed to 1.25 mm at 2 mm above base, the throat 4–5 mm broad, the lips ascending, about equal, 6–7 mm long, the upper lip cuneate, about 6 mm wide near tip, bilobed, the lobes 3 mm long, 3.5–4 mm wide, rounded, the lower lip 3-lobed, the lobes obovate, about 5 mm long, the middle lobe 7 mm wide, the lateral ones 3.5–4 mm wide, all rounded; stamens slightly exerted but not exceeding the lips; anthers 2.5–3 mm long, glabrous except the arachnoid cohering tips; filaments sparingly pilose; ovary glabrous; capsules not seen.

TYPE.—*Grant 9811* (holotype US, isotype US), Colombia, Cundinamarca, Cordillera Oriental, in the San Antonio Valley, 15 km SE of Gutiérrez and 60 km S of Bogotá, 1575 m alt, 2 Aug 1944.

DISTRIBUTION.—Andean Colombia in the departments of Antioquia, Caldas, and Cundinamarca. COLOMBIA. ANTIOQUIA: In forest shade on the Río Verde, 1350–1500 m alt, 27 June 1880, *Kalbreyer 1849* (K). CALDAS: Above Villavicencio, 850 m alt, 20 Mar 1939, *Alston 7655* (BM, US).

72. *Aphelandra fosbergii* Leonard

Aphelandra fosbergii Leonard, Contrib. U.S. Nat. Herb. 31: 711. 1958.

Herbs to 30 cm high; stems subterete, ascending, rooting at the lower nodes, hirsute, light brown, to 1.5 mm long; leaf blades oblong-elliptic, to 6.5 cm long and 2 cm wide, short-acuminate, the

tip subacute, narrowed at base and decurrent on the petiole, moderately firm, entire or undulate, both surfaces hirsute, the hairs to 1.25 mm long, light brownish, the costa and lateral veins (about 6 pairs) more or less prominent beneath (hidden somewhat by the pubescence), obscure above; petioles about 0.5 cm long, pilose; spikes terminal, solitary, about 1.5 cm long and broad, the rachis densely brownish pilose; bracts ovate, herbaceous, 20 mm long and 16 mm wide (at least the lowermost pair), acuminate, the margins ciliate (the hairs up to 1 mm long) and bearing about 4 slender ascending teeth up to (the lowermost) 4 mm long, the upper or inner surface glabrous sparingly hirsute at base, the lower or outer surface hirsute, the hairs mostly borne in the costal region but diminishing toward the margins; bractlets narrowly lanceolate, 12.5 mm long, 0.75 mm wide, striate-nerved, the inner surface glabrous, the outer hirsute, the hairs to 1.5 mm long; calyx 12 mm long, the segments narrowly lanceolate, the upper half hirsute and ciliate, the lower half glabrous, in other respects resembling the bractlets; corolla rose, sparingly puberulent, 2.2 cm long, narrowly hypocrateriform, the lower part of the tube about 1 mm broad, the mouth 2.5 mm broad, the lips subequal, about 8 mm long, ascending, the upper obcordate, about 6 mm wide, the lower 3-lobed, the lobes suborbicular, about 3 mm long, the middle one 4 mm wide, the lateral 3 mm wide, all rounded; stamens reaching the mouth of the corolla tube; anthers about 1.5 mm long; ovary tipped by a few straight erect white hairs about 0.38 mm long; capsule not seen.

TYPE.—*Grant & Fosberg 9319* (holotype US), Colombia, Cundinamarca, Cordillera Oriental, at San Isidro, 8 km S of Gachalá, 2450 m alt, 26 May 1944.

DISTRIBUTION.—Known only from the type-locality.

73. *Aphelandra parviflora* Leonard

Aphelandra parviflora Leonard, Journ. Wash. Acad. Sci. 25: 439. 1935; Contrib. U.S. Nat. Herb. 31:153. 1953.

Herbs 25–35 cm high; stems ascending, rooting at the lower nodes, strigose; leaves usually several, the blades oblong, to 25 cm long and 18 cm wide, elliptic, obtuse, cuneate at base, decurrent on the

petioles, entire or undulate, purple beneath, sparingly strigillose, except the costa and lateral veins (15–18 pairs), these strigose; petioles slender, to 6 cm long, strigillose; spikes slender, to 13 cm long, about 1 cm in diameter, the peduncles to 12 cm long, strigose, bearing a pair of bractlike leaves about 2 cm below the base of the spike; bracts green, rather loosely imbricate, erect-spreading, elliptic, 1 cm long, 3.5–4 mm wide, acuminate, ending in an obtuse tip, firm, veiny, sparingly strigose, bearing on each side several erect-spreading teeth to 1.5 mm long; bractlets lance-subulate, 3.5 mm long, 1 mm wide at base, thin, subhyaline, nerved; calyx segments narrowly oblong, acuminate, subequal, 5–6 mm long, the posterior one 2 mm wide, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide, all subhyaline, striate-nerved, glandular-ciliolate; corolla pale yellow, 1–1.5 cm long, obliquely funnel-form, sparingly puberulent, the tube 1 mm broad at base, about 4 mm broad at mouth, the limb about 8 mm broad, the lips equal, the upper one 2-lobed, 5.4 mm wide, the lower 3-lobed, the lobes orbicular, 4.5 mm in diameter; stamens included.

TYPE.—*A. E. Lawrance 201* (holotype K, US photo, isotypes MO, NY, US), Colombia, Boyacá, in region of Mount Chapón, 100 m NW of Bogotá, 1050 m alt, 10 Jun 1932.

DISTRIBUTION.—Known only from the type-locality.

74. *Aphelandra ochrolarynx* Leonard

Aphelandra ochrolarynx Leonard, Contrib. U.S. Nat. Herb. 31:160. 1953.

Herbs; stem ascending, to 7 cm high, moderately hirtellous; the leaves usually about 10, somewhat crowded at the tip of the stem, the blades oblong-ovate or oblong-elliptic, to 12 cm long and 5.5 cm wide, subacute, narrowed at base, submembranaceous, entire or undulate, the upper surface densely pilose, the hairs to 1 mm long, yellowish, the costa and lateral veins (8–10 pairs) obscure, the lower surface appressed pilose, the hairs about 0.75 mm long, more numerous on the costa and lateral nerves; petioles to 2 cm long, densely pilose, the hairs about 1 mm long; spikes several, terminal and subterminal, 8–11 cm long, lax at maturity, the peduncles (to 5 cm long) and rachises rather densely yellowish pilose; bracts erect or ascending,

spreading at maturity, oblong-rhombic, to 15 mm long and 6 mm wide, acuminate, pilose (the hairs about 1 mm long), the margins bearing 3 pairs of slender ascending teeth to 3 mm long and 0.25 mm wide at base; bractlets oblong-lanceolate, to 1 cm long and 2 mm wide, acuminate, subcarinate, moderately pilose dorsally, finely and obscurely parallel-nerved; calyx segments narrowly linear-lanceolate, acuminate, finely striate, obscurely and sparingly ciliolate with glandular hairs, the posterior segment 7 mm long, 1 mm wide, the anterior segments 6.5 mm long and slightly over 0.75 mm wide, the lateral segments 6 mm long and 0.75 mm wide; corolla about 1.5 cm long, white with a yellow patch in front of the throat, finely and sparingly pubescent, the lips about 5 mm long, the lobes ovate, rounded or shallowly emarginate; stamens exerted about 4 mm beyond the mouth of the corolla throat; anthers 1.5 mm long and 0.5 mm wide, webby at tip; filaments glabrous; capsule not seen.

TYPE.—*T. A. Sprague 601* (holotype K, US photo 3628), Colombia, Putumayo, San José, along Río Putumayo, 3 Aug 1899.

DISTRIBUTION.—Known only from the type-locality.

75. *Aphelandra rigida* Glaziov ex Mildbraed

Aphelandra rigida Glaziov ex Mildbraed, Notizbl. Bot. Gard. Berlin 11:65. 1930.

Aphelandra rigida Glaziov, Bull. Soc. Bot. France, 58, Mém. 3f:535. 1911 [nomen tantum].

Sub-shrub, to 1 m high or more; stems terete, rigid, glabrous, shining, palely straw-yellow, barely 3 mm thick; leaf blades narrowly lanceolate, 12–21 cm long and 2–3 cm wide, long acuminate, narrowed at base and decurrent on the petiole, rather firm, entire, both surfaces usually glabrous, the costa and lateral veins (12–14 pairs) conspicuous but not protruding on either surface, the veins transversely connected, the lower surface drying a lighter olive-green; petioles (unwinged portion) 1.5–2 cm long, canaliculate, glabrous; flowers borne in a dense, solitary and terminal or several, then terminal and subterminal spikes, 6–10 cm long, about 2 cm broad, the rachis glabrous; bracts red, rigid, scarious, thick-nerved, ovate, lanceolate, 14–17 mm long, 6–7 mm wide, extremely long subulate-acuminate, cuneate at base, the margin

spinose-dentate, with 5–7 erect, somewhat spreading teeth on both sides, these 2.5 mm long, mucronulate, glabrous both within and without; bractlets lanceolate, 10–11 mm long, 2 mm wide near the base, long-acuminate, striate-nerved, subhyaline, carinate, glabrous or the keel sparingly puberulous; calyx 13–14 mm long, the posterior segment triangular, 4.5 mm wide at base, long-acuminate, mucronulate, the anterior pair lanceolate, 2.5 mm wide, slenderly acuminate, the lateral pair carinate, 2 mm wide, long-acuminate, all segments striate-nerved, glabrous both within and without; corolla tubular, about 1.7 cm long, red, moderately glandular-pilose without, the tube cylindrical, 2.5 mm wide at base, the upper narrowly ampliate, about 2.5 mm broad at mouth, the lips somewhat short, equal, ovate, the upper lip erect, 2 mm long and 2 mm wide, bilobed at middle, the lobes obtusely rounded, the lower lip 3-lobed, the lobes erect, the middle lobe broadest, 2 mm long, 1.5 mm wide, obtuse, the two lateral lobes 2 mm long, 1 mm wide, obtuse; stamens included, not reaching the mouth of the corolla tube; anthers 3 mm long; filaments epipetalous just above the corolla base, 8 mm long; pollen grains narrowly oblong, 85 μ long, 30 μ wide; capsule narrowly ovoid, chestnut-colored, shining, apiculate, 8–9 mm long, 3 mm thick; seeds flattened, 2 mm in diameter, dense, short, fibrillose-papillose.

TYPE.—*Glaziou 18400* (holotype B, destroyed, F photo 8714, isotypes K, LE, P), Brazil, Rio de Janeiro, Alto Macahé de Novo Friburgo, 15 Jun 1891. F photo 8714 bears the name "*Aphelandra stenophylla* Mildbr. nov. spec XI, 1930," which is a herbarium name only.

DISTRIBUTION.—Known only from type-locality. BRAZIL. RIO DE JANEIRO: Frade de Macahé, 17–21 Jun 1937, *Brade 15829* (RB, US).

Aphelandra rigida is closely related to *A. maximiliana*, differing from the latter, however, in the size and shape of the leaf blades and bracts. In *A. maximiliana* the leaf blades are elliptic-oblong and wider (about 4 cm) and the bracts are smaller and much shorter at the apex.

76. *Aphelandra caput-medusae* Lindau

Aphelandra caput-medusae Lindau, Bull. Herb. Boiss. Ser., 2 (4):325. 1904.

Plants unbranched herbs, 10–20 cm high; the

stem pubescent; leaves scattered near the base of the stem, crowded near the apex, the blades elliptic, 5–10 cm long, 2–3 cm wide, apically rounded, basally somewhat narrowed, entire or undulate, sparingly pilose above, pubescent below, especially near the lateral veins, obscurely green and striae somewhat palely marked; petioles 1–3 cm long, pubescent; spike terminal, sessile, about 3 cm long, the rachis pubescent, densely flowering; bracts imbricate, 17–20 mm long, 4–5 mm wide, recurved at apex, pubescent, the lower ovate, acute, entire, the upper somewhat smaller, the margin provided with 3–4 teeth, these ciliate at apex with recurved hairs; bractlets lanceolate, 10 mm long and 2 mm wide, puberulent; calyx segments subequal, 6–8 mm long and 1–1.5 mm wide, puberulent; corolla whitish lilac, glabrous, the tube 8 mm long, basally 1 mm wide, apically 2 mm in diameter, the upper lip 3.5 mm long, 1.5 mm wide, obscurely 2-lobed at apex, the lower lip 3-lobed, the lobes rounded, subequal, about 4 mm long and 2.5 mm wide; filaments epipetalous at middle of the tube, 4–5 mm long, glabrous; anthers 2 mm long, glabrous; pollen grains typical, 50 μ –55 μ long, 35 μ –40 μ in diameter; ovary disc short, 2 mm high; style 8 mm long, pilose; stigma scarcely bifid; mature capsule not seen.

TYPE.—*Ule 5499* (holotype B, destroyed, F photo 8702, isotype HBG), Brazil, Acre, in the vicinity of the Juruá River, near Bocca do Tejo, May 1901.

DISTRIBUTION.—Known only from around the type-locality. BRAZIL. ACRE: Cruzeiro do Sul, Río Juruá & Río Moa, Aldeota, Río Juruá-Mirim, 23 May 1971, *Maas, Kubitzki, Steward, Ramos, Pinheiro & Lima P13275* (NY, US). PERU. HUANUCO: Southwestern slope of the Río LlullaPichis watershed, on the ascent of Cerros del Sira, 250 m alt, 21 Jun 1969, *Wolfe 12128 A* (F, NA).

Aphelandra caput-medusae, according to Lindau, belongs with the group containing *A. ornata* and *A. decorata*, etc., and is sharply distinguished from these species by its bracts. The short spike, because of the long cilium on the bracts, appears as an unkempt, tangled, thrown back head of hairs.

77. *Aphelandra botanodes* Leonard

Aphelandra botanodes Leonard, Contrib. U.S. Nat. Herb. 31: 155. 1953.

Herbs; stems glabrous; leaf blades oblong-elliptic, to 20 cm long and 6 cm wide, acuminate, narrowed at base, membranaceous, entire, glabrous, the costa and lateral veins (about 12 pairs) moderately prominent; petioles to 2 cm long, glabrous; flowers borne in a 3-parted inflorescence, the peduncle to 4 cm long, strigillose, the secondary peduncles 1–2 cm long, slender, strigillose, the spikes 2–4 cm long, dense, the bracts spreading or ascending, the rachis puberulous, the internodes of the spikes to 8 mm long; bracts subtending the secondary peduncles lanceolate, 12–15 mm long, 2–5 mm wide, those subtending the flower cluster (these sessile or borne on puberulous peduncles to 3 mm long) ovate, 7 mm long and 4 mm wide, acute, thin, glabrous, sparingly punctate, ciliate, the margins bearing towards tip a small pair of teeth, the costa prominent; bractlets obliquely lanceolate, carinate, 2 mm long, 0.5 mm wide, acute, subhyaline, ciliate, the costa prominent; calyx 3 mm long, the segments lanceolate, acute, subhyaline, delicately nerved, the margins sparingly ciliate, the posterior segment 1 mm wide, the anterior and lateral segments slightly narrower; corolla puberulous, rose-blue (“roseo-cianeis”) about 0.7 cm long, the tube slender, 1 mm broad at base and throat, slightly wider above middle, the lips 3.5 mm long, the upper lip ovate, about 2 mm broad, obtuse, the lower lip 3-parted, the lobes divided nearly to base, obovate, about 1.5 mm wide, obtuse, ciliate; stamens reaching the mouth of the corolla tube; anthers about 2 mm long and 0.5 mm broad, acute at both ends, pilose and cohering at tip; filaments slender, about 0.5 mm long; ovary glabrous; style slender, 3 mm long; stigma flat, lanceolate, acute, 0.5 mm long and 0.25 mm wide.

TYPE.—*J. Triana s.n.* (holotype COL, isotypes K, P, US photo 3645), Colombia, Chocó, Novita, 170 m alt, Mar 1853.

DISTRIBUTION.—Known only from the type-locality.

78. *Aphelandra decorata* (Nees) Wasshausen, new combination

Stenandrium decoratum Nees in Martius, Fl. Bras. 9:79. 1847.
Lagochilium decoratum Nees in de Candolle, Prodr. 11:291. 1847.

Decumbent herb, the reclining portion rooting,

the erect portion 5–10 cm high, strigose-hirsute; leaf blades oblong-oval, 8–10 cm long, obtuse at apex, narrowed at base, reticulate, entire, the costa and veins bordered with a narrow band of white or yellow, strigose; petioles 6–10 mm long, strigose-hirsute; spike short, up to 2 cm long, terminal, sessile; bracts obovate-cuneate, acute and mucronate, 9 mm long, 4 mm wide, 3–5-nerved, the nerves ending in small ascending teeth, more or less hirsute; corolla red, somewhat glabrous, about 1.3 cm long, the tube shorter than the throat, the lobes subequal, ovate, the upper slightly shorter than the lower; stamens included.

TYPE.—*Sellow 114* and *234* (holotype B, destroyed), Brazil, locality not given. A photograph (F photo 8703) of a *Sellow* specimen at Berlin gives the following data: Southern Brazil, between Campo and Vitoria.

DISTRIBUTION.—Known only from the type-locality.

The photograph of *A. decorata* shows a close affinity with *A. ornata*. As no specimens other than the *Sellow* photograph were available for study, the description was compiled largely from the original.

79. *Aphelandra adscendens* Leonard

Aphelandra adscendens Leonard, Contrib. U.S. Nat. Herb. 31:158. 1953.

Herbs; stem ascending, rooting at the base, sparingly branched, about 4 mm in diameter, rather sparsely strigose, leaf blades oblong to oblanceolate, to 25 cm long and 4.5 cm wide, rounded or abruptly narrowed into a short slightly obtuse tip about 2 mm long, gradually narrowed from slightly above the middle to base and decurrent on the petiole, thin, entire, the upper surface drying brownish, pilose, the lower surface drying greenish, strigose, the hairs confined chiefly to the costa and lateral veins, these more prominent beneath than above; petioles to 3 cm long, the pubescence that of the blade; spikes terminal and lateral, to 5 cm long and 1 cm broad, the peduncle slender, 2–3 cm long, densely strigose, the hairs yellowish, the pubescence of the rachis the same as that of the peduncle; bracts rhombic-ovate, 10.5 mm long, 5 mm wide, short-acuminate (the tip blunt) narrowed at base, the outer surface densely pilose,

the margins just above the middle of the bract bearing 2–3 pairs of small, ascending teeth (0.5 mm long), the inner surface glabrous, the five veins prominent but slender, parallel; bractlets lanceolate, carinate, substrate, 5 mm long and 0.75 mm wide at slightly below the middle, narrowly acute, dorsally pilose, the marginal region thin, subhyaline, sparingly ciliate, the hairs minute, blunt; calyx segments lanceolate, the posterior segment 6.5 mm long and 1.25 mm wide near base, the anterior pair 6.25 mm long and 1 mm wide at base, the lateral pair 5 mm long and 0.75 mm wide, all striate-nerved, narrowed upwardly to a slender tip, the margins very sparingly ciliate, the hairs minute and papillate; corolla about 1.2 cm long, pale pink with yellow throat, puberulous, the hairs gland-tipped, the tube 1.5 mm broad from base to 4 mm above base, thence enlarged (abruptly) to 3.25 mm at throat, the lips equal, about 2 mm long, the upper lip about 4 mm wide, bilobed at tip, the lobes about 1 mm long, rounded, the three lobes of the lower lip about 3 mm long, rounded and minutely crenate; stamens 4 mm above the base of the corolla tube, 6 mm long; anthers 2 mm long and slightly over 0.5 mm wide, acute at base and sparingly bearded at tip; filaments slender, glabrous; ovary pilose at tip; style 8 mm long, slender, glabrous; capsule not seen.

TYPE.—*A. E. Lawrence* 680 (holotype GH, US photo 3627), Colombia, Boyaca, at side of brook in high forest of El Umbo, 130 m N of Bogotá, 1000 m alt, 17 Mar 1933.

DISTRIBUTION.—Known only from the type-locality.

80. *Aphelandra fasciculata* Wasshausen

Aphelandra fasciculata Wasshausen, *Phytologia* 25:490. 1973.

An erect, suffrutescent shrub 2–4 m high; stems quadrangular toward tip, densely strigose, the hairs sordid; leaf blades broadly elliptic to oblong, 22–27 cm long, 7–9 cm wide, acuminate (the tip obtuse), narrowed at base and decurrent on the petiole, subcoriaceous, entire, the upper surface dark green, glabrous to sparingly strigose, the costa and lateral veins (10–12 pairs) slightly raised, scarcely conspicuous, the lower surface dull green, glabrous or sparingly strigose, especially the costa and lateral veins; petioles (unwinged portion)

0.5–2 cm long, the pubescence similar to that of the stem; flowers borne on one or several, terminal, sessile spikes, these 8–30 cm long and 1–1.5 cm wide (without corollas), the rachis glabrous; bracts imbricate, entire, red or dull orange with blackish tip, coriaceous, ovate, 11–13 mm long and 9–10 mm wide, exceeding calyx, acuminate, glabrous, the costa rather prominent, the flanking nerves fairly prominent except toward tip, the marginal area bordered by a narrow subhyaline edge, the ocelli usually 6 or 8, well defined, suborbicular, brown, nitid; bractlets lance-ovate, falcate, carinate, 11 mm long, 3 mm wide, slightly acute, glabrous and minutely glandular-punctate except the costa and keel, these sparingly puberulous; calyx segments lanceolate, 9–10.5 mm long, subequal, the posterior segment 5.5 mm wide, the anterior pair 3 mm wide, the lateral segments 2.5 mm wide, all glabrous and minutely glandular-punctate, striate-nerved, acute to acuminate; corolla red or orange-red, densely papillose, 5 cm long from base to tip of upper lip, 5 mm broad at base, narrowed to 3 mm at 5 mm above base, thence enlarged to a slightly curved subcylindric throat, 11 mm broad at mouth, the upper lip erect, ovate, 11–12 mm long and 7 mm wide, bilobed at tip, the lobes triangular-ovate, 3.5 mm long, 2 mm wide, acute, the middle lobe of the lower lip spreading, elliptic, 12 mm long, 6 mm wide, the submucronate tip slightly recurved, the lateral lobes about 7 mm long, partly adnate to the lower part of the upper lip, their free portion 6 mm long and 1.5 mm wide, rounded; stamens exerted about 1 cm beyond the mouth of the corolla tube; anthers 4–5 mm long, 1 mm broad, acute at both ends; capsule not seen.

TYPE.—*L. Aristeguieta* 3180 (holotype US, isotype VEN), Venezuela, Miranda: Guatopo, 600 m alt, Jun 1958.

DISTRIBUTION.—Endemic to Venezuela, at elevations between 10 and 1400 meters. VENEZUELA. MIRANDA: Parque Nacional de Guatopo: Between Santa Teresa and Altigracia de Orituco, 520 m alt, 23 Nov 1961, *Steyermark* 89935 (US, VEN); 27 Oct 1966, *Steyermark* 97548 (US, VEN); Camino de la Guzbanera, Sep 1966, *Aristeguieta & Agostini* 6350 (US, VEN); 4–5 km N of Carenero, 10–50 m alt, 22 Nov 1969, *Steyermark & Bunting* 102317 (US, VEN); El Guapo, 200 m alt, Oct 1959, *Aristeguieta* 4004 (VEN). DISTRITO FEDERAL: Upper Carrasquel

Valley, 7 Nov 1925, *Pittier 11944* (US, VEN); hills of Camurí Grande, 20–800 m alt, 8 Nov 1928, *Pittier 13038* (US, VEN). ARAGUA: Colonia Tovar, *Karsten s.n.* (LE, W); Colonia Tovar, *Engels s.n.* (LE); above Turiamo, 550 m alt, 5 Oct 1938, *Williams 10419* (US, VEN); Parque Nacional, Valle de Ocumare, 4 Oct 1947, *Pittier 15601* (US, VEN). YARACUY: Los Cañizos, plains of the Yaracuy River, 50 m alt, 23 Jan 1920, *Pittier 8755* (US); Yumare, Aroa Basin, 24 Sep 1923, *Pittier 11213* (US, VEN); Forest of Yumare, 100 m alt, 7 Feb 1959, *Bernardi 6930* (K, VEN); new highway San Felipe-Aroa, 27 Nov 1952, *Aristeguieta & Pannier 1154* (VEN); Valle of Yaracuy, forest plain between El Diamante & El Chino, 12 Dec 1952, *Aristeguieta & Foldats 1250* (VEN). YARACUY-FALCÓN: Reserva Forestal "Rio Tocuyo," Pica no. 13, Aug 1970, *Blanco 912* (VEN). FALCÓN: Sierra de San Luis, between Curimagua and San Luis, 1300–1400 m alt, 18 Jul 1967, *Steyermark 99105* (US, VEN). MÉRIDA: Carretera (highway) Jali-Mérida, Sep 1961, *Tamayo 4510* (VEN). BARINAS: Soledad, 20 km N of Barinitas, 1100 m alt, 28 Sep 1953, *Little 15559* (VEN). WITHOUT EXACT LOCALITY: *Funck & Schlim s.n.* (P); Andes de Truxillo et de Merida, 1200–4350 m alt, 1843, *Linden 496* (P); S. Estéban, 1893–94, *Mocquerys s.n.* (COL, P, US, VEN).

Aphelandra fasciculata is distinguished from *A. pharangophila*, its nearest relative, by the larger, glabrous bracts, the shorter corolla, and the smaller limb. In *A. pharangophila*, the bracts are strigose, 7–10 mm long, 5.5–6 mm wide, the corolla 5.5–6.5 cm long, and the limb 17–20 mm long.

81. *Aphelandra aristei* Leonard

Aphelandra aristei Leonard, Contrib. U.S. Nat. Herb. 31:228. 1953.

Shrubby; tips of stems densely hirsute-strigose; leaf blades oblong-elliptic, to 14 cm long and 6 cm wide (the lowermost probably larger), slightly obtuse, narrowed at base and decurrent on the petiole, entire or undulate, the upper surface sparingly pilose, the lower surface densely brownish, pilose-sericeous, the hairs about 1 mm long; petioles to 1 cm long, densely pubescent; spikes solitary, terminal, to 15 cm long and about 2 cm broad, the rachis pilosulous, the peduncles to 3 cm long,

the pubescence that of the stems; bracts ascending, not closely appressed, light brownish red when dry, entire, oblong-lanceolate, 23–24 mm long, 4.5 mm wide near base, 7 mm wide at middle, prominently striate-nerved, acuminate, ciliate, velutinous-sericeous, the inner surface glabrous or nearly so, ocelli numerous, minute, to 40 or more, elliptic, about 0.25 mm long, light brown, glabrous, somewhat nitid; bractlets subulate, 1 cm long, 1.5 mm wide at base, finely and softly pubescent without, finely striate-nerved; calyx segments subequal, about 1 cm long, the posterior segment narrowly ovate, 4 mm wide slightly above base, the anterior segments lanceolate, 2.5 mm wide, the lateral pair narrowly lanceolate, 2 mm wide, all gradually narrowed from just above base to a slender tip, finely pubescent and striate-nerved; corolla orange-red, finely pubescent, 3.5–4.5 cm long, the upper lip erect, ovate, 2-lobed, the lobes triangular, acuminate, outwardly curved at tip, the lower lip more or less spreading, 3-lobed, the middle lobe oblong, 15 mm long, 4.5 mm wide, acute, the lateral lobes narrowly ovate, about 5 mm long, 1.5 mm wide, obtuse; stamens slightly exerted; ovary glabrous; capsule not seen.

TYPE.—*Bro. Ariste-Joseph s.n.* (holotype US), Colombia, Cundinamarca, Pacho, Aug 1923.

DISTRIBUTION.—Known only from the type-locality.

82. *Aphelandra trianae* Leonard

Aphelandra trianae Leonard, Contrib. U.S. Nat. Herb. 31:230. 1953.

Suffrutescent herbs or shrubs; stems subquad-rangular, hirsute-hispid, the hairs brownish, the lower parts terete and glabrate; leaf blades oblong-ovate, to 15 cm long and 6 cm wide, acuminate, narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, the upper surface glabrous to sparingly strigose, the lower surface glabrous to sparingly hirtellous, the costa and lateral veins (9 or 10 pairs) more densely so, the costa and veins moderately prominent; petioles to 1 cm long, densely strigose to hirsute; spikes solitary, subsessile, about 8 cm long and 3 cm broad, the bracts ascending, scarcely imbricate, the rachis densely whitish pilose; bracts oblong, entire, 25 mm long, about 10 mm wide, acute and

aristate, both surfaces softly gray-pubescent, the hairs about 0.5 mm long, the ciliate margins with hairs to 1 mm long, the costa and lateral veins rather prominent but obscured by the pubescence, ocelli numerous (8–12), obscure, about 0.75 mm long, 0.5 mm wide, elliptic, brown, contiguous; bractlets narrowly lanceolate, to 14 mm long, attenuate, carinate, the marginal region thin, striate-nerved, subglabrous, the keel densely silvery-pilose, calyx 16–18 mm long, the segments coriaceous, striate-nerved (the nerves indurate at base), glabrous, ciliate at tip, the posterior segment oblong-lanceolate, attenuate and sharply acute, 4 mm wide near base, anterior segments lanceolate, glabrous, attenuate and slenderly acute, the upper half ciliate, lateral segments linear-lanceolate, 2 mm wide near base, attenuate-acuminate, glabrous, ciliate at tip; corolla red, about 5 cm long, rather densely pubescent, the tube 2.5 mm broad near tip of ovary, 7 mm broad at mouth, slightly curved, the upper lip (immature corolla) ovate, about 10 mm long and 6 mm wide, bidentate, the lobes triangular, 5 mm long, 3 mm wide at base, acute, the middle lobe of the lower lip lanceolate, 8 mm long, 4 mm wide, slenderly acuminate, the tip recurved, the lateral lobes small, rounded, adnate to the upper lip of corolla; stamens slightly exerted; anthers 6 mm long, 1 mm broad, obtuse and cohering at tip, obliquely obtuse at base and minute apiculate; filaments pilose at base, glabrous above; ovary glabrous.

TYPE.—*J. Triana s.n.* (holotype K, US photo 3625, isotype COL), Colombia, Tolima-Caldas border, Quindío Mountains, Feb 1853.

DISTRIBUTION.—Known only from the type-locality.

83. *Aphelandra xanthantha* Leonard

Aphelandra xanthantha Leonard, Contrib. U.S. Nat. Herb. 31:248. 1953.

Shrubs; stems subquadrangular, densely brownish strigose; leaves reflexed, the blades oblong to oblong-ovate, to 18 cm long and 7 cm wide, slenderly acuminate, narrowed at base and decurrent on the petiole, the upper surface sparingly strigillose, the lower surface usually densely strigose, the costa and lateral veins (9 or 10 pairs) fairly prominent; petioles (unwinged portion) to 3 cm long, densely strigillose; spikes terminal, solitary,

subsessile, to 17 cm long and 1.5 cm broad (with-out corollas), the rachis white-tomentose; bracts red (living), entire, ovate-lanceolate, 18 mm long and 8 mm wide at about 5 mm above base, acute, coriaceous, glabrous, minutely scurfy without, sparingly ciliate, the costa fairly prominent, the lateral nerves obscure, the margins thin, ocelli numerous alveolar spots, these narrowly elliptic, about 2 mm long and 0.5 mm wide; bractlets narrowly lanceolate, 15 mm long, 2.5 mm wide near base, slenderly acuminate, carinate, the keel densely white-pilose, the margins thin, glabrous and finely striate-nerved; calyx 18 mm long, the segments thin, coriaceous, striate-nerved, puberulous, the posterior segment oblong, 4 mm wide, acute at apex, the anterior segments lanceolate, 2.5 mm wide, acute and apiculate at tip, the lateral segments narrowly lanceolate, 2 mm wide, acute at apex; corolla yellow, about 5.5 cm long, papillose without, glabrous within except above insertion of filaments, here pilose, the tube rather slender, subcylindric, about 3 mm broad, the mouth about 5 mm broad, the lips about 14 mm long (immature), the upper one ovate, about 5 mm wide, acuminate, bilobed at apex, the lobes minute, triangular, about 1 mm long and 0.25 mm wide, acute, the middle lobe of the lower lip ovate, 5 mm wide, subacute, puberulous within, the lateral lobes attached to the lower part of the upper lip, their free portions about 1 mm long and broad, obtuse; stamens barely exerted; anthers 7 mm long, about 1 mm broad, obtuse at both ends, the lower lobes minutely apiculate, the tips cohering; filaments glabrous except at base, here pilose; ovary glabrous.

TYPE.—*L. Uribe-Urbe 1862* (holotype US), Colombia, Antioquia, in woods of Paramitos, Nariño, 2000–2200 m alt, Jan 1949.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. ANTIOQUIA: Municipality of Nariño, at San Juan, 2100 m alt, 17 Jul 1954, *Uribe-Urbe 2612* (COL, US).

84. *Aphelandra sericantha* Leonard

Aphelandra sericantha Leonard, Contrib. U.S. Nat. Herb. 31:245. 1953.

Shrubs to 1 m high or higher; stems subterete, glabrous except the upper portions, these strigose; leaf blades oblong-elliptic or broadly oblong-

lanceolate, to 20 cm long and 5.5 cm wide, acuminate, narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, the upper surface glabrous to thinly strigose, the venation mostly inconspicuous, the lower surface drying lighter olive than the upper, minutely strigose to hirtellous, the hairs confined chiefly to the costa and veins (10–12 pairs), the venation conspicuous, the veinlets coarsely reticulate; petioles to 5 cm long, sparingly strigillose; spike terminal, solitary, subsessile, subtended by a pair of small leaves about 1.5 cm long and 5 mm wide, the rachis angled, densely hirtellous, the hairs light brown; bracts oval, entire, 20 mm long, 12 mm wide, obtuse to subacute and apiculate, coriaceous, the basal portion minutely silky-pilose, light brown, the inner surface sparingly strigillose, the nerves closely parallel, the veinlets reticulate near the subhyaline margins, ocelli replaced by an irregular, elliptic, alveolar spot; bractlets lanceolate, 8.5 mm long, 2.25 mm wide near base, acuminate (the lower portion carinate), glabrous except the hirtellous tip, striate-nerved, the costa and adjacent nerves swollen and confluent at base; calyx segments subequal, 15 mm long, lanceolate, subcoriaceous, striate-nerved, glabrous or ciliate at tip, the costa and adjacent nerves swollen and confluent at base, the posterior segment 4.5 mm wide, subobtusate and more or less lacerate, the anterior segments 2.5 mm wide, subobtusate and apiculate, the lateral segments 2.25 mm wide, acute; corolla yellow, to 6 cm long, densely hirtellous, except the glabrous basal portion, the hairs yellowish brown, the tube about 6 mm broad at mouth, the upper lip erect, elliptic, 25 mm long, 4 mm wide, bilobed at tip, the lobes rounded, the lower lip spreading, 3-lobed, the middle lobe ovate, about 2.2 cm long, obtuse at apex, the lateral lobes minute and connate with the basal portion of the upper lip, the free portion triangular, 6 mm long and 2 mm wide at base, obtuse at apex; stamens exerted, almost reaching the tip of the middle lobe of the lower lip; capsule not seen.

TYPE.—*J. Triana s.n.* (holotype K, isotypes COL, P), Colombia, Caldas, Pácora, 1800 m alt, Feb 1852.

DISTRIBUTION.—Known only from the type-locality.

85. *Aphelandra fernandezii* Leonard

Aphelandra fernandezii Leonard, Contrib. U.S. Nat. Herb. 31:270. 1953.

Herbs to 1 m high; stems subquadrangular, at least the upper portions densely and minutely gray strigose; leaf blades oblong-elliptic or broadly oblong-lanceolate, to 32 cm long and 10.6 cm wide at, or slightly above, middle, acuminate, the tip often curved, narrowed at base and decurrent on the petiole, membranaceous, entire or shallowly crenate, drying olive green, the lower surface a lighter and deeper greenish shade than the upper, the upper surface glabrous, minutely alveolate under a lens, the lower surface sparingly hirtellous, the hairs confined chiefly to the costa and lateral veins (9–11 pairs), these prominent on both surfaces; petioles stout, 2 cm long, densely gray-hirtellous; spikes terminal, solitary, subsessile, 9 cm long, 3.5 cm broad (measured from tips of bracts), the rachis angled, glabrous; bracts red, rather closely imbricate, entire, rhombic-ovate, 26 mm long and 15 mm wide (the lowermost sterile ones much smaller), subacute, glabrous, ciliate near tip, the costa and adjacent nerves prominent, the veinlets obscurely and rather coarsely reticulate toward margins, the glandular spots about 3.5 mm long and 1.5 mm wide, the ocelli 50 μ in diameter, very numerous; bractlets linear, 13 mm long, 2.25 mm wide, acuminate, striate-nerved, sparingly hirtellous dorsally particularly at the tip; calyx segments subequal, 21–23 mm long, glabrous or ciliate at tip, coriaceous, striate-nerved, the posterior segment narrowly oblong-elliptic, 4 mm wide, truncate, emarginate and apiculate at tip, the anterior segments linear-lanceolate, 2.5 mm wide, acuminate, the lateral segments narrowly lanceolate, 1.5 mm wide, acuminate; corolla about 6 cm long, red, puberulous, the tube 6 mm broad at throat, the upper lip ovate, 23 mm long, about 12 mm wide, bilobate at tip, the lobes triangular, 5 mm long and 3 mm wide at base, acute, the lip spreading or reflexed, the middle lobe narrowly ovate, about 23 mm long and 8 mm wide near base, obtuse, the lateral lobes narrowly oval, 1.5 mm wide, rounded at tip, adnate in part to the upper lip, their free portions 1.5 mm long; stamens reaching notch of the upper lip; anthers 1 cm long, acuminate at base, subobtusate at tip, dorsally pilosulous; filaments triquetrous, glabrous

or the angles toward base minutely roughened; ovary glabrous; mature capsules not seen.

TYPE.—*A. Fernández 254* (holotype US), Colombia, Chocó, in woods at Enseñada de Utría, 5 Jun 1950.

DISTRIBUTION.—Known only from the type-locality.

86. *Aphelandra sinclairiana* Nees

FIGURES 6, 34

Aphelandra sinclairiana Nees in Bentham Bot. Voy. Sulph. 146, pl. 47, 1844; in de Candolle, Prodr. 11:296. 1847.—Hemsley, Biol. Centr. Amer. Bot. 2:513. 1882.—Leonard, Field Mus. Bot. Ser., 18:1196. 1938.

Shrubs or small trees to 5 m high; the branches subquadrangular toward tip, rather densely hirsute, to 1 mm long; leaf blades numerous, oblong-lanceolate, to 35 cm long and 10 cm wide, abruptly acuminate (the tip more or less curved), gradually narrowed at base to a short, naked petiole, firm, entire or shallowly crenate, the upper surface sparingly hirsute, the costa and lateral veins (9–16 pairs) rather densely so, the lower surface, including the rather prominent costa and lateral veins moderately villous-hirsute, petioles 1–2 cm long, moderately hirsute; spikes usually numerous, both terminal and subterminal, solitary or several in a cluster, peduncled, to 20 cm long and 1.5–2 cm broad, the peduncles subquadrangular, 3–5 cm long, moderately hirsute, the rachis hirsutulous; bracts orange-red, entire, oval, about 20 mm long and 10 mm wide, silky-puberulent, bearing several well-defined glands on either side, the upper bracts rounded or obtuse, closely imbricate, the lower acute and spreading; bractlets lance-ovate, 6 mm long, 2 mm wide, acute, carinate, sometimes bearing one or more minute teeth on either side, striate-nerved, puberulent; calyx segments striate-nerved, acute and cuspidate, (tipped by a slender awn 0.5 mm long), ciliate and more or less erose toward tip, glabrous toward base, the posterior segment lanceolate, 8–10 mm long and 3 mm wide, the anterior pair lanceolate, about 2 mm wide near base, the lateral pair more narrowly lanceolate, slightly over 1 mm wide near base; corolla rose-red or purplish red, finely pubescent, about 6 cm long, the tube 3 mm broad at base, 6 or 7 mm broad at mouth, the upper lip erect, ovate,

15–17 mm long and 8–9 mm wide, 2-lobed, the lobes lance-ovate, about 10 mm long and 4.5 mm wide at base, acute, the middle lobe of the lower lip spreading, ovate-lanceolate, about 21 mm long, 7–8 mm wide, acuminate, carinate, the lateral lobes adnate to the lower part of the upper lip, their free portion triangular-ovate, 2.5 mm long and 2 mm wide at base, obtuse; stamens reaching about midway between mouth of the tube and the tip of the upper lip; the anthers 6.5 mm long, apiculate at tip, acute at base; capsule clavate, about 2 cm long, 6 mm broad near the tip, 3 mm broad at the base, obtuse at apex, densely puberulous; seeds flat, about 3.5 mm in diameter, minutely hispidulous.

TYPE.—*Sinclair s.n.* (holotype K), Panama, Isthmus of Darien.

DISTRIBUTION.—Moist forests and along shady river banks in southeastern Costa Rica and Panama. COSTA RICA: LIMÓN: Río Zhorquin, Talamanca, 50 m alt, Mar 1894, *Tonduz 8549* (US); forest of Xirores, Talamanca, 100 m alt, Feb 1895, *Tonduz 9302* (P, US); Jiménez, Llanos de Santa Clara, 195 m alt, Apr 1894, *John Donnell Smith 4917* (US); las Delicias, plains of Santa Clara, 500 m alt, Feb 1897, *Biolley 10669* (US, W); Los Diamantes, 29 Feb 1956, *Schubert 1109* (US). PANAMA. BOCAS DE TORO: Talamanca Valley, 3 Feb 1921, *Carleton 124* (US); Laguna de Chiriqui and vicinity, Nov and Dec 1885, *Hart 130* (K, US); 8 Oct 1940, *von Wedel 1083* (US); Garay Creek, 8 Sep 1941, *von Wedel 2636* (US); Water Valley, 13 Sep 1940, *von Wedel 762* (US); 1 Oct 1940, *von Wedel 973* (US); Changuinola to 5 m S at junction of Ríos Changuinola & Terebé, 30–60 m alt, 17–19 Dec 1966, *Lewis, Dwyer, Elias, & Robertson 803* (MO, US). COCLÉ: El Valle de Antón, along Río Indio trail, 500–700 m alt, 30 Jan 1935, *Hunter & Allen 358* (P, US). CANAL ZONE: Chagres, Feb 1850, *Fendler 209* (K, P, US, W); Paraiso, Dec 1857, *Wagner s.n.* (M); Gatun, Jan 1858, *Wagner s.n.* (M); off road K-15 near Huile on hills around Gatun Lake, 26 Dec 1957, *C. Earle Smith, Jr., H. Morgan Smith & Tule Arrauz 3278* (F, US); Empire Station, Oct. 1861, *Hayes 307* (K); between Gorgona and Gatun, 10–50 m alt, 7 Jan 1911, *Pittier 2264, 2270* (US); Barro Colorado Island, Gatun Lake, 17 Jan 1924, *Standley 31453* (US); S. Molino Trail 1, Dec 1931, *Shattuck 760* (US); road between Gatun and Fort Sherman, 17 Dec 1966, *Burch, Baker & Oliver*

1016 (US); Lion Hill Station, Jan 1860, *Hayes 602* (US); Bismark above Penonomé, 5 Mar 1908, *Williams 370* (US); between Mt. Hope and Santa Rita Trail, 25 Feb 1905, *Cowell 71, 72* (US); valley of Masambí, 20–100 m alt, 6 Feb 1911, *Maxon 4683* (US); hills N of Frijoles, 19 Dec 1923, *Standley 27547* (US); vicinity of Gatuncillo, 26 Feb 1923, *Standley 5601* (US); Las Cascadas Plantation, near Summit, 4 Jan 1924, *Standley 29654* (US); vicinity of Fort Sherman, 15 Jan 1924, *Standley 31091* (US); Darién Station, 19 Jan 1924, *Standley 31594* (US); Obispo, 19 Jan 1924, *Standley 31670* (US); Changuinola Valley, Lincoln Creek, 18 Jan 1924, *Dunlap 368* (US); along road from Fort Sherman to Fort San Lorenzo, 1 Apr 1969, *Porter, Dwyer, Durkee Crosby, & Castillon 4991* (MO, US); Madden Forest Preserve, along Las Cruces Trail and highway, 8 Apr 1969, *Lewis, Porter, Durkee, & Baker 5334* (US); westerly arm of Quebrada Salamanca, 70 m alt, 16 Dec 1934, *Dodge, Steyermark, & Allen 16996* (P, US). COLÓN: Porto Bello, 5–100 m alt, 17–18 Jan 1911, *Pittier 2482* (US); Río Chagres, region above Gamboa, 25 m alt, 3 Feb 1947, *Allen 4138* (MO, US). PANAMÁ: Tributary of Chagres, 5 m SW of Cerro Brewster, 300 m alt, 14 Dec 1967, *Lewis, Blackwell, Hawker, Little, Nowicke, & Oliver 3386* (MO, US). DARIÉN: Boca de Pauarandó, on Sambú River, 20 m alt, Feb 1912, *Pittier 5572* (US); Isthmus of Darien, *Barclay s.n.* (K). WITHOUT EXACT LOCALITY. 1851, *Weddell s.n.* (P); 1851, *Duchassaing s.n.* (P); *Seemann s.n.* (K).

87. *Aphelandra grandis* Leonard

Aphelandra grandis Leonard, Contrib. U.S. Nat. Herb. 31: 226. 1953.

Aphelandra trichota Leonard, Contrib. U.S. Nat. Herb. 31: 226. 1953.

Shrubs to 3 m high; stems subquadrangular, glabrous to densely hirsute; leaf blades oblong or oblong-ovate, 28–36 cm long and 10–18 cm wide, short-acuminate at apex (the tip itself blunt), narrowed at base and decurrent on the petiole, glabrous to sparingly hirsute, the costa and lateral veins (usually 15–20 pairs) prominent on the lower surface, sparingly to moderately hirsute, the margins entire, undulate or shallowly crenate; petioles slender, to 10 cm long, glabrous to hirsute; spikes stout, one or several, in fascicles, terminal, sessile or subsessile, 18–45 cm long and about 2

cm wide; bracts entire, obovate, orange-red, 24–30 mm long and 12–13 mm wide, rounded, pubescent to glabrate, often silky toward base, the ocelli numerous (about 20), elliptic, minute; bractlets lanceolate, 11 mm long, 2 mm wide near base, obliquely carinate, densely sericeous; calyx segments triangular, subequal, 12–13 mm long, the posterior segment 7 mm wide near base, the anterior pair 4 mm wide, the lateral pair 3 mm wide, all acute, striate-nerved, densely sericeous except the margins, these subglabrous and subhyaline; corolla yellow, finely pubescent, 5.5–6 cm long, 6 mm broad at throat, the upper lip oblong, about 15 mm long and 9 mm wide, 2-lobed, the lobes triangular, about 6 mm long and 5 mm wide, acuminate, the lower lip 3-lobed, the middle lobe lanceolate, about as long as the upper lip, acute, the lateral lobes small, about 2.5 mm long and 1 mm wide, obtuse, their upper margins partly connate with the upper lip; stamens barely reaching the upper lip; anthers 6 mm long, dorsally pubescent; capsules oblong, 13 mm long, 7 mm broad, blunt at tip, nitid and glabrous toward tip, dull, densely punctulate toward base; seeds brown, obovate, 4.5 mm long, 4 mm wide, 1.75 mm thick, glabrous or the upper margins puberulous.

TYPE.—*B. Guevara-Amortegui 260* (holotype US), Colombia, Cundinamarca, Albán, 1600 m alt, 1932.

DISTRIBUTION.—In thick forests and on steep slopes in the departments of Santander and Cundinamarca, Colombia. COLOMBIA. SANTANDER: Vicinity of Barranca Bermeja, Magdalena Valley, between Sogamoso and Carare Rivers, 100–500 m alt, 20 Jul 1936, *Haught 1936* (US); 20 km N-NW of Velez, 8 km S-SE of Landazuri, on steep slope at Jordán, on N side of the Cuchillo de Los Micos, 1100 m alt, 17 Apr 1944, *Fosberg & Fassett 21809* (holotype of *A. trichota* Leonard, US). CUNDINAMARCA: Paime. *Ariste-Joseph 1081* (GH, PH, US).

88. *Aphelandra darienensis* Wasshausen

Aphelandra darienensis Wasshausen, Phytologia 25:480. 1973.

Low suffrutescent shrub; stems glabrous below, the upper portion sparingly strigose; leaf blades oblong-elliptic, 30–40 cm long, 9–14 cm wide, short-acuminate, narrowed from middle or slightly above to a narrow, obliquely subobtuse base, moderately

firm, entire, the upper surface glabrous or sparingly and inconspicuously strigose, the lower surface rather densely strigose, especially the costa and lateral veins (17–22 pairs), the venation prominent but more so beneath than above; petioles 3.5–7 cm long, canaliculate, glabrous or sparingly strigose; spikes one or several, terminal, subsessile, 8–10 cm long, 3–4 cm wide (without corollas), moderately dense, the bracts imbricate, spreading with age, the peduncle about 1 cm long, strigose, the rachis glabrous; bracts orange to red, ovate, 30 mm long and 14–15 mm wide, acute to obtuse, coriaceous, often crisped and retrorse, closely veined, glabrous, the margins entire, ciliate, bearing just above the middle, near the margins, numerous minute ocelli, these forming a dull, alveolar spot, 3 mm long and 1 mm wide; bractlets lanceolate, 8 mm long and 2 mm wide, subhyaline, striate-nerved, carinate, especially the upper half, the keel pubescent; calyx segments lanceolate, 13–15 mm long, striate-nerved, subhyaline, glabrous, glandular-punctate, the posterior segment 5 mm wide, the anterior pair 3 mm wide, the lateral pair 2 mm wide, all mucronulate at apex; corolla orange-red, about 6 cm long, densely and minutely glandular-pilose, the tube 3.5 cm long, 3 mm wide at base, erect, gradually enlarged to 7 mm broad at mouth, the upper lip erect, oblong, 15 mm long, 2-lobed, the lobes triangular-ovate, 6 mm long, acute, the lower lip 3-lobed, the middle lobe oblong, 15 mm long, 8 mm wide, the lateral lobes similar but smaller; stamens almost reaching the tip of the upper lip; anthers 9 mm long, apiculate at base; capsule not seen.

TYPE.—*Duke & Elias 13756* (holotype US, isotype MO), Panama, Darién, Cerro Pirre, 750–1350 m alt, 9–10 Aug 1967.

DISTRIBUTION.—Submontane to mossy forests, at elevations above 600 meters, in the province of Darien, Panama. PANAMA. DARIÉN: Ascent of Cerro Pirre from R. Pirro S of El Real, 600–750 m alt, 11 Aug 1962, *Duke 5313* (MO); Oct 1962, *Duke 6101* (MO); Cerro Campamento (S of Cerro Pirre), 20–22 Mar 1968, *Duke 15720* (US); between Tres Bocas and Cerro Campamento on Cuasi-Cana Trail, 1 May 1968, *Kirkbride & Duke 1350* (MO).

Aphelandra darienensis is closely related to *A. fernandezii* Leonard, but the calyx segments as well as the corolla lips of that relative are considerably longer.

89. *Aphelandra garciae* Leonard

Aphelandra garciae Leonard, Contrib. U.S. Nat. Herb. 31: 256. 1953.

Shrub, to 1 m high, slender, straight, the tips of the branches densely strigose, the hairs sordid, the lower portions of the stems terete, glabrate; leaf blades obovate or broadly oblanceolate, to 30 cm long and 11.5 cm wide, short-acuminate (the tip itself obtuse or rounded), narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, the upper surface drying olive green, glabrous, minutely alveolate under the lens, the costa and lateral veins flat or slightly raised, barely conspicuous, the lower surface drying green to light olivaceous, sparingly strigose, the costa and lateral veins densely strigose, raised and more conspicuous than upper surface; petioles (unwinged portion) to 1 cm long, the pubescence similar to that of the stem tip; spikes solitary, terminal, to 22 cm long and 1.5 cm broad, the peduncle barely 0.5 cm long and 3.5 mm in diameter, densely strigose, the rachis minutely pilose; bracts entire, rhombic-ovate, 11 mm long, 8 mm wide, rounded and subapiculate at apex, coriaceous, bright red (living), drying yellowish brown, glabrous within, minutely scurfy without, the costa and nerves prominent, the margins subhyaline, ciliate except toward base, the ocelli replaced by a dull, elliptic, faveolate area about 2.5 mm long and 1 mm wide; bractlets lanceolate, subfalcate, carinate, 12 mm long, 2.5 mm wide, the keel densely whitish pilose, the margins striate-nerved, subhyaline; calyx about 2 cm long, the posterior segment oblong, elliptic, slightly over 5 mm wide, finely pilose-sericeous toward tip, the anterior pair 4 mm wide, the lateral pair somewhat narrower than the anterior pair and like them, glabrous or bearing a few hairs at the tip, all of the segments acute (the tip itself blunt, minutely apiculate) and ciliate; corolla yellow, drying brown, minutely hirsute-strigose, the tube slightly curved, 4 cm long, 4 mm broad at base, narrowed to 3 mm at 5 mm above base, thence gradually enlarged into a subcylindric throat 7 mm broad at mouth, the upper lip erect, elliptic, 15 mm long and 7 mm wide, bilobed, the lobes triangular-ovate, about 8 mm long, slenderly acuminate, the middle lobe of the lower lip spreading, ovate, 15 mm long, about 7 mm wide, acuminate,

strigose within, the lateral lobes triangular, about 4 mm long, partly adnate to the lower part of the upper lip, their free portions about 1.5 mm long and 1 mm wide, obtuse; ovary glabrous; stamens and capsules not seen.

TYPE.—*Killip & García 33532* (holotype US), Colombia, Chocó, dense forest along the Quebrada Jellita, Bahía Solano, 50–100 m alt, 22 Feb 1939.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. CHOCÓ: In dense tidal forest along the banks of Quebrada Togoromá, 13 Jun 1944, *Killip & Cuatrecasas 39123* (US).

90. *Aphelandra straminea* Leonard

Aphelandra straminea Leonard, Contrib. U.S. Nat. Herb. 31: 250. 1953.

Aphelandra hodgei Leonard, Contrib. U.S. Nat. Herb. 31:262. 1953.

Aphelandra longispica Leonard, Contrib. U.S. Nat. Herb. 31: 265. 1953.

Suffrutescent herb to 2 m high; stems terete, strigillose to glabrate; leaf blades elliptic to oblong or broadly oblanceolate, 20–30 cm long, 7–11.5 cm wide, or the lowermost smaller, acuminate at apex (the tip itself blunt), narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, the upper surface drying olive, nitid, glabrous, the costa and lateral veins (10–12 pairs) flat or slightly raised, moderately conspicuous, the lower surface drying a slightly lighter shade than the upper, sparingly strigillose, the costa and lateral veins raised and conspicuous, the veinlets coarsely but inconspicuously reticulate; petioles (unwinged portion) 3–9 cm long, glabrous to sparingly strigillose, the channel shallow; spikes 1 or several, terminal, subsessile, 13–30 cm long and 12–15 mm broad, quadrangular, the rachis white-cottony-tomentose; bracts decussate, closely imbricate, entire, rhombic-ovate, 8–10 mm long, about 7 mm wide, acute to subacuminate (the tip itself rounded), coriaceous, the margins subscarios, ciliolate near base of bract, the costa prominent, inconspicuously excurrent at tip, the lateral nerves conspicuous except on the broad scarios margins, both surfaces glabrous, the ocelli represented by dull alveolate oval areas about 1.5 mm long and 1 mm wide; bractlets lanceolate, 8–12 mm long and 2–3 mm wide, carinate, the keel densely white, silky, the margins subglabrous, ciliolate, sometimes bearing near the base an ascending, subhya-

line tooth about 1 mm long; calyx 0.9–1.15 cm long, the posterior segment oblong-ovate, 4 mm wide, the anterior pair lanceolate, 3 mm wide, the lateral pair more narrowly lanceolate, 2 mm wide, all striate-nerved, the posterior segment sparingly and minutely pubescent, subacute to obtuse at apex, the other segments glabrous and minutely apiculate; corolla straw-color, tinged with pink to red, densely papillose, slightly curved, about 5 cm long, the tube about 5 mm broad near base, narrowed at tip of ovary to 3 mm, thence gradually expanded to about 7 mm at mouth, the upper lip erect, ovate, 13–17 mm long and 7–10 mm wide, acute, the 2 apical lobes narrowly triangular, the middle lobe of the lower lip spreading, ovate, 15–17 mm long, 6–8 mm wide, acute and recurved at apex, the lateral lobes partly adnate to the upper lip, their free portions 1–2 mm long and 1 mm wide, rounded; stamens reaching the tip of the upper lip; anthers 5–6 mm long and 1 mm broad, their basal lobe mucous; capsule oblong, 14–15 mm long and 4 mm in diameter, blunt at tip, glabrous, nitid, punctulate toward base; seeds brown, flat, 4 mm long and 3 mm broad, sparingly papillose.

TYPE.—*O. Haught 1750* (holotype US, isotype NY), Colombia, Santander, in swampy forest at Puerto Araujo on the Rio Carare, vicinity of Puerto Berrio, 100–700 m alt, 6 Jun 1935.

DISTRIBUTION.—Andean Colombia, in the departments of Santander, Cundinamarca, and Tolima at elevations between 100 and 900 meters. COLOMBIA. SANTANDER: Forest along the Rio Carare, E of Puerto Berrio, 300–400 m alt, 28 Sep 1945, *Hodge 6513* (GH, holotype of *A. hodgei* Leonard). CUNDINAMARCA: Along the Quebrada Cabaña, Hacienda El Cucharó, between Tocaima and Pubenza, 380–600 m alt, 8 May 1944, *Killip, Dugand, & Jaramillo 38346* (US, holotype of *A. longispica* Leonard). TOLIMA: Near Mariquita, along the Río Magdalena, 1824, *Rivero s.n.* (P); 4 km W of Mariquita, 550 m alt, 23 Sep 1959, *Uribe 3376* (COL); Mariquita, highway to Fresno, 800–900 m alt, 30 Jul 1957, *Uribe 2998* (COL). WITHOUT EXACT LOCALITY. *Mutis 1502* (US); *Mutis 1501* (K, US).

91. *Aphelandra micans* Moritz ex Vatke

Aphelandra micans Moritz ex Vatke, Ind. Sem. Hort. Berol. App. 1. 1876.—Leonard, Field Mus. Bot. Ser., 18:1195. 1938.

Shrubs, to 2 m high; the stems strigose; leaf blades oblong-ovate to oblong-elliptic, to 35 cm long and 15 cm wide, acuminate to obtuse, narrowed at the base, thin, entire, sparingly appressed-pilosulous; petioles slender, to 4 cm long; spikes terminal, solitary or several in a cluster, rigid, to 25 cm long, 1–2 cm in diameter, the rachis white-cottony-tomentose; bracts closely imbricate, entire, about 12 mm long and 10 mm wide, firm, ovate, obtuse, glabrous, or minutely ciliolate toward the tip, rather strongly nerved, bearing dorsally a pair of oval, glandular-alveolate spots about 3 mm long and 1.5 mm wide, the costa and the 2 lateral nerves predominant; bractlets linear, 12 mm long and 2 mm wide, carinate, striate, the keel tomentose; calyx segments oblong, 17–18 mm long, 3–5 mm wide, coriaceous, glabrous, striate; corolla red to orange-red, 6.5–7 cm long, the upper lip erect, about 15 mm long, arching and acuminate at the tip, the lower lip 3-lobed, spreading, the middle lobe ovate, 2 cm long and about 9 mm wide, acuminate, the lateral lobes about 5 mm long, rounded at tip, their upper edge adnate to the upper lip; capsule about 2 cm long, glabrous, punctulate; seeds flat, brown, about 5 mm long and 4 mm wide, glabrous.

TYPE.—*Moritz 1723* (holotype B, destroyed, F photo 8711, isotypes FI, K, P, W), Venezuela, Aragua, Colonia Tovar, Jan 1852.

DISTRIBUTION.—Northern Venezuela at elevations between 240–1600 meters. VENEZUELA. FEDERAL DISTRICT: Hacienda Puerto La Cruz, Coastal Range, 0–2300 m alt, 28 Aug–4 Sep 1918, *Pittier 8072* (US). ARAGUA: Tovar, *Vogel 1476* (W); Colonia Tovar, *Karsten s.n.* (W); Parque Nacional “H. Pittier,” on Pico Periquito, 1250–1600 m alt, 4 Sep 1960, *Steyermark & Agostini 3* (VEN, US); Parque Nacional “H. Pittier,” along trail of Cerro Guacamayo, 4 Sep 1960, *Steyermark & Agostini 23* (VEN, US); forest of Rancho Grande, 1000 m alt. N side, 29 Jul 1937, *Pittier 14090* (F, US, VEN); Parque Nacional, between Rancho Grande and Maracay, 240–455 m alt, 9 Dec 1943, *Steyermark 54962* (US); Parque Nacional, El Paraíso (Cerro Periquito), 1300 m alt, Aug 1947, *Pittier 15535* (US, VEN); El Portachuelo, road from Maracay to Ocumare, 1100 m alt, 8 May 1925, *Pittier 11825* (US, VEN); El Portachuelo, 1100 m alt, *Williams 10516* (US, VEN); Forest of Rancho Grande, Parque Nacional, 1000 m alt, Nov 1938, *Alston 120*

(VEN); Rancho Grande, 1060 m alt, 16 Apr 1951, *Garcia 13* (VEN); Colonia Tovar, 2000 m alt, *Engels s.n.* (LE). CARABOBO: Hacienda de Cura, near San Joaquín, 480–1200 m alt, 15 Aug 1918, *Pittier 8027* (US).

92. *Aphelandra taborensis* Leonard

Aphelandra taborensis Leonard, Contrib. U.S. Nat. Herb. 31: 181. 1953.

Small branching tree; tips of the stems densely strigose, the lower portions glabrate; leaf blades oblanceolate, 12–13.5 cm long, 3–4.5 cm wide or those subtending the spikes smaller, acuminate, the tip itself blunt, gradually narrowed from above middle to the base, gray-green, the upper surface drying olive, glabrate or the younger leaves rather densely strigose, the lower surface drying grayish olive, densely pubescent, the hairs on the costa and veins appressed, light brown, the costa and lateral veins (11 or 12 pairs) prominent, especially on the lower surface; petioles about 1 cm long, appressed-pubescent; spikes usually 3, terminal and subterminal, the peduncles 1–2 cm long, the spikes 4–7 cm long and 1.5 cm broad, both peduncles and rachis densely brown-pubescent; bracts ovate, 9–10 mm long, 7.5 mm wide, obtuse and minutely apiculate, rose-violet, coriaceous, entire, densely pubescent dorsally, the glandular area on either side poorly defined, the individual ocelli joined to form a small pitted area; bractlets lanceolate, 11 mm long, 2.5 mm wide, acuminate, obliquely carinate, densely pubescent dorsally, striate-nerved; calyx 14 mm long, the segments lanceolate, the posterior segment 5 mm wide, the anterior pair 3 mm wide, the lateral pair 2.5 mm wide, all acute, puberulous dorsally, striate-nerved; corollas about 5.8 cm long, bright red, puberulous, except the basal portion, the tube 2 mm broad at base, enlarged to 3 mm, thence narrowed to 2 mm at 7 mm above base, then gradually enlarged to 5 mm at throat, the upper lip erect, elliptic, 17 mm long, about 8 mm wide at middle, 2-lobed at apex, the lobes triangular, 2.5 mm long, 1.5 mm wide, acute, the lower lip 3-lobed, the middle lobe spreading, lanceolate, 24 mm long, about 8 mm wide below middle, obtuse and minutely apiculate at tip, the lateral lobes 9 mm long, 1.5 mm wide, subacute, their upper margins partly attached to

the upper lip, their free portion triangular; stamens reaching the sinus of the upper lip; anthers 6 mm long, their lobes minutely apiculate at base; filaments glabrous; the pistil slightly exceeding the stamens; ovary glabrous; mature capsule not seen.

TYPE.—*J. Cuatrecasas 22284* (holotype US), Colombia, Valle, on Monte El Tabor, on the ridge of the Cordillera Occidental, above Las Brisas, 1970–2100 m alt, 19 Oct 1946.

DISTRIBUTION.—Known only from the type-locality.

93. *Aphelandra attenuata* Wasshausen

Aphelandra attenuata Wasshausen, *Phytologia* 25:487. 1973.

An erect, soft-wooded shrub 2.4–3 m high; stems quadrangular toward tip, puberulous; leaf blades elliptic to oblong, 24–27 cm long and 6–7.5 cm wide, short-acuminate (the tip itself rounded), narrowed at base and decurrent on the petiole, submembranaceous, entire or shallowly undulate, the upper surface drying olivaceous, glabrous, the costa and lateral veins (11–15 pairs) slightly raised, scarcely conspicuous, the lower surface drying to grayish olivaceous, glabrous or the costa and lateral veins sparingly puberulous; petioles (unwinged portion) 1–2.5 cm long, the pubescence similar to that of the stem; flowers borne on one or several, terminal, subsessile spikes, these 10–11 cm long and 1.5–2 cm wide, the peduncle 7–8 mm long, densely puberulous, the rachis glabrous; bracts imbricate, entire, red, coriaceous, ovate, 11–12 mm long and 10–11 mm wide, obtuse, glabrous, the costa rather prominent, the flanking nerves fairly prominent except toward tip, ocelli replaced by elliptical, dull blackish brown faveolate areas 2 mm long and 1 mm wide; bractlets lance-ovate, falcate, carinate, 10 mm long, 4 mm wide, acutish, the costa and keel densely hirsute, the marginal area glabrous, bordered by a narrow subhyaline edging, the tip more or less ciliate; calyx segments oblong, 12–13 mm long, subequal, the posterior segment 7 mm wide, the anterior pair slightly over 4.5 mm wide, the lateral segments 3.5 mm wide, all glabrous and striate-nerved, ciliate, rounded and minutely mucronate at tip, indurate at base; corolla red or orange, glabrous and densely papillose, 6 cm long from base to tip of upper lip,

3 mm broad at bases, 6 mm broad at mouth, the upper lip erect, ovate, 22 mm long and 9 mm wide, bilobed at tip, the lobes triangular, 9 mm long, 4 mm wide, acute, the lower lip spreading, 3-lobed, the middle lobe of the lower lip oblong, 2.5 cm long, 7 mm wide, the submucronate tip slightly recurved, the lateral lobes 6.5 mm long, partly adnate to the lower part of the upper lip, their free portions 1 mm long and 1 mm wide, acute; stamens exerted about 2 cm beyond the mouth of the corolla tube; anthers 9 mm long, 1 mm broad, acute; capsule not seen.

TYPE.—*Dodson & Thien 1647* (holotype US), Ecuador, Guayas, Manglaralto, 0–50 m alt, 20 Dec 1961.

DISTRIBUTION.—In Ecuador at elevations below 600 meters. ECUADOR. EL ORO: Between Santa Rosa and La Chorita, 0–100 m alt, 27 Aug 1923, *Hitchcock 21117* (US). PICHINCHA: 40 km SW of Santo Domingo on east bank of Rio Peripa, 250 m alt, 3 Nov 1961, *Dodson & Thien 1250* (MO, US). LOS RIOS: Montalvo, Bosque de Oro near Hac. Las Balsas, 300–400 m alt, 28 Jun 1964, *Jativa & Epling 639* (US). NAPO-PASTAZA: Tena, 27 Sep 1939, *Asplund 8879* (S); between Tena and Archidona, 9 Oct 1939, *Asplund 9185* (S); Cerro Antisana, secondary forest N of Tena, 600 m alt, *Grubb, Lloyd, Pennington & Whitmore 14* (K, NY, Q); Rio Aguarrico, Santo Cecilia, 220 m alt, 24 Nov 1966, *Sparre 13119, 13122* (S); 60 km along Rio Payamino, W of Coca, 350 m alt, 18 Jun 1968, *Holm-Nielsen & Jeppesen 743* (AAU, US). WITHOUT EXACT LOCALITY. Ecuador, *Warszewicz s.n.* (B, destroyed, F photo 8698); junction of the provinces of Guayas, Cañar, Chimborazo & Bolivar, foothills of the western cordillera near Bucay, 300–375 m alt, 8–15 Jun 1945, *Camp E-3667* (NY, US); Bolivia (probably Ecuador), Jul 1884, *Veitch s.n.* (K).

This species is very similar in general aspect to *Aphelandra crenata* Leonard, but its narrower, entire or shallowly undulate leaf blades, shorter calyx segments, and shorter corollas, set it well apart.

94. *Aphelandra crenata* Leonard

Aphelandra crenata Leonard, *Contrib. U.S. Nat. Herb.* 31: 259. 1953.

An erect soft-wooded shrub; stems quadrangular

toward tip, glabrous; leaf blades oblong-elliptic, to 40 cm long and 13.5 cm wide, short-acuminate, narrowed at base and decurrent on the petiole, submembranaceous, prominently and irregularly crenate except the narrowed basal portion, the upper surface drying olivaceous, glabrous, the costa and lateral veins (16–18 pairs) slightly raised, scarcely conspicuous, the lower surface drying grayish green, glabrous or the costa and lateral veins sparingly puberulous; spikes several, to 16 cm long and 3 cm broad, the terminal ones sessile, the lateral borne on peduncles to 3.5 cm long, these glabrous or sparingly strigillose, the rachis glabrous; bracts coriaceous, scarlet in live plants, drying light brown proximally, shading to blackish brown toward tip, entire, glabrous, ovate, 10–13 mm long and 8–10 mm wide, obtuse, the costa rather prominent, ending in a minute mucro, the flanking nerves fairly prominent except toward tip, ocelli replaced by elliptical, dull blackish brown, faveolate areas to 4 mm long and 2 mm wide; bractlets lanceolate, falcate, carinate, 10 mm long, slightly over 3 mm wide, slightly acute, the costa and keel densely hirsute, the hairs yellowish, about 0.5 mm long, the marginal areas glabrous, bordered by a narrow subhyaline edging, the tip more or less ciliate; calyx 16–17 mm long, the posterior segment oblong, slightly over 7 mm wide, the anterior segments narrowly oblong, 5 mm wide, the lateral pair linear-oblong, 3 mm wide, all minutely scurfy within, glabrous and striate-nerved without, ciliate, rounded and minutely mucronate at tip, indurate at base; corolla rose to red, densely papillose, 6.5–7 cm long from base to tip of upper lip, 4 mm broad at base, narrowed to 2 mm at 5 mm above base, thence enlarged to a slightly curved subcylindric throat 7 mm broad at mouth, the upper lip erect, elliptic, about 23 mm long and 9 mm wide, bilobed, the lobes triangular, 9 mm long, 4 mm wide, acute, the middle lobe of the lower lip spreading, narrowly elliptic, 2.5–3 cm long, 9 cm wide, the submucronate tip slightly recurved, the lateral lobes about 1 cm long, partly adnate to the lower part of the upper lip, their free portion 2 mm long and 1.5 mm wide, rounded; stamens exerted about 1 cm beyond mouth of the corolla tube; anthers 8 mm long, acute at base, blunt at tip; capsule not seen.

TYPE.—*Haught 1464* (holotype US), Colombia, Santander, Camp Zarzal, in the vicinity of Barran-

ca Bermeja, in the Magdalena Valley, between the Sogamoso and Colorado rivers, 100–500 m alt, 15 Dec 1934.

DISTRIBUTION.—Along streams and wooded mountain slopes at lower elevations, found in the departments of Santander, Meta, Caquetá, and Antioquia of Colombia. **COLOMBIA.** SANTANDER: 40 km SE of Barrancabermeja, at the junction of the Colorado and Llana rivers, 400–500 m alt, Dec 1957, *Uribe 3099* (COL). META: Cordillera La Macarena, at Guapayita, 500–600 m alt, 20–28 Dec 1950, *Idrobo & Schultes 885* (COL, US). CAQUETA: Morelia, 150–300 m alt, 7 Oct 1941, *Sneidern 1102* (COL). ANTIOQUIA: Urabá. Mutatá, 100 m alt, 17 Jan 1947, *Uribe 1502* (COL). NARIÑO: Mocoa. 1898–99, *Sprague s.n.* (K).

95. *Aphelandra lingua-bovis* Leonard

Aphelandra lingua-bovis Leonard, Contrib. U.S. Nat. Herb. 31:268, 1953.

Small shrubs; stems simple or sparingly branched, terete or subquadrangular toward tip, densely strigillose; leaf blades elliptic, oblong or broadly oblanceolate, to 36 cm long and 14.5 cm wide, acuminate, gradually narrowed to base and decurrent on the petiole, subchartaceous, entire or undulate, the upper surface drying green or olive, glabrous or the younger leaves sparingly strigose, the costa and lateral veins (14–20 pairs) flat or slightly raised, fairly conspicuous, the lower surface drying a somewhat lighter shade than the upper, finely strigillose, densely so on the costa and veins, these raised and fairly conspicuous; petioles (unwinged portion) to 3 cm long, the pubescence that of the stems; spikes solitary or several, terminal, to 25 cm long and 1.5 cm broad, the peduncles about 5 mm long, strigose, the rachis glabrous; bracts bright red (living), drying brownish red, entire, rhombic-ovate, 15 mm long, 11 mm wide, slightly obtuse, glabrous or bearing a few minute hairs toward tip, minutely and sparingly scurfy without, the costa prominent and excurrent, ending in a minute mucro, the lateral nerves rather prominent, reticulately anastomosing toward tip, the margins ciliolate, the ocelli replaced by dull brown, alveolar, elliptic areas to 3 mm long and 1 mm wide; bractlets lanceolate, 16 mm long, 3 mm wide, acuminate, the keel hirsute; calyx 18 mm long, the

posterior segment oblong-lanceolate, 6 mm wide, hirsute-strigose dorsally, acute, the anterior pair narrowly oblong, about 3 mm wide, the lateral pair slightly narrower than the anterior, both pairs glabrous, acute to acuminate, ciliate at tip, all 5 segments delicately striate-nerved; corolla 5.5–6 cm long, bright red or reddish yellow, puberulous, the tube subcylindric, slightly curved, 3.5 mm broad at base, 6 mm broad at mouth, the upper lip erect, elliptic, 16 mm long, 7 mm wide, the lobes triangular, 4 mm long, partly adnate to the lower part of the upper lip, the free portions triangular, about 1.5 mm long and 1 mm wide, acute; stamens slightly exserted; anthers 6 mm long and 1 mm broad at base, apiculate at both ends, the tip arachnoid-pilose; capsule not seen.

TYPE.—*W. A. Archer 2012* (holotype US), Colombia, Chocó, La Concepcion, 15 km E of Quibdó, 75 m alt, 30 Apr 1931.

DISTRIBUTION.—At low elevations, less than 100 meters, in Costa Rica, Panama, and Colombia. COSTA RICA. PUNTARENAS: Between Golfo Dulce and Río Térraba, 30 m alt, Dec 1947, *Skutch 5284* (US); Canton de Osa, vicinity Tinoco Station, area between Río Esquinas and Palmar Sur de Osa, 30 m alt, 16 Mar 1950, *Allen 5477* (US); Palmar, 5 Mar 1956, *Schubert 1156* (US); 10 km SE of Palmar Norte along Interamerican Hwy, 20 m alt, 26 Jan 1967, *Burger & Matta 4650* (F, US). PANAMA. BOCAS DEL TORO: Pumpkin River, vicinity of Chiriqui Lagoon, 31 Jul 1941, *von Wedel 2589* (US). DARIEN: Vicinity of Pinogana, 20 m alt, 6 Oct 1938, *Allen 924* (MO, US). COLOMBIA. ANTIOQUIA: Villa Arteaga, 150 m alt, 4–8 Aug 1947, *Hodge 7012* (US). CALDAS: Santa Cecilia, 800 m alt, 30 Nov 1945, *von Sneider 5080* (US). CHOCÓ: Between La Oveja and Quibdó, 1–2 Apr 1931, *Archer 1731* (US); Río Atrato, Tanando, 60 m alt, 1 Apr 1958, *Cuatrecasas & Llano 24118* (US); Río Taparal, off Río San Juan, 30 m alt, 17 Aug 1962, *Robinson 229* (COL, US).

96. *Aphelandra chaponensis* Leonard

Aphelandra chaponensis Leonard, Contrib. U.S. Nat. Herb. 31:273. 1953.

Aphelandra atecmarta Leonard, Contrib. U.S. Nat. Herb. 31:726. 1958.

Shrubs to 3 m high or more; stems subquadrangular, strigillose; leaf blades oblong-elliptic or

broadly oblanceolate, 25–20 cm long, 9–12.5 cm wide, acute or short-acuminate (the tip itself blunt), narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, the upper surface drying olivaceous, glabrous to sparingly strigillose, the hairs confined chiefly to the costa and lateral veins (14–16 pairs), both costa and veins flat or slightly raised, inconspicuous, the lower surface drying dull brownish green, the pubescence that of the upper surface but denser and more evenly distributed, the costa and veins slightly raised, more conspicuous than above; petioles (unwinged portion) to 4 cm long, the pubescence that of the stem; spikes 1 to several, terminal and subterminal, to 23 cm long and 10–15 mm broad, the peduncles 1–2 cm long and 4 mm thick, the pubescence that of the stem, the rachis glabrous to glabrate; bracts rhombic-ovate, entire, 12–13 mm long, 9–10 mm wide, subobtuse to subacute, nitid within, dull, glabrous and minutely roughened without, the margins subhyaline and ciliolate, the costa prominent to tip of bract but scarcely excurrent, the lateral nerves prominent except toward tip, the ocelli replaced by dull pitted areas to 1.5 mm long and 1 mm wide; bractlets falcate-lanceolate, 10–14 mm long and 2.5–3 mm wide, acute, striate-nerved, carinate, the keel densely and softly hirsute, the marginal region (about 1 mm wide) glabrous and subhyaline, sparingly papillose; calyx 13–15 mm long, the posterior segment ovate, 6 mm wide, the anterior pair oblong-lanceolate, 3.5 mm wide, the lateral pair more narrowly lanceolate, about 3 mm wide, all obtuse, more or less apiculate, finely striate-nerved, hirtellous and ciliolate toward tip, glabrous toward base; corolla orange to red, to 6 cm long, papillose-puberulous except the glabrous basal portion, the tube subcylindrical or rather narrowly infundibuliform, 3–4 mm wide at or near base, 7 mm wide at mouth, the upper lip erect, ovate, 10–14 mm long, 7.5–10 mm wide, bilobed at tip, the lobes narrowly triangular, 2.5–3 mm long, 1.5–2 mm wide at base, acuminate, the middle lobe of the lower lip ovate, 11–17 mm long and 6–8 mm wide, acuminate, carinate toward tip, the lateral lobes elliptic, 4–5 mm long and 2 mm wide, adnate in part to the upper lip of the corolla, the free portion about 1.5 mm long and broad, rounded; stamens reaching the tip of the upper lip; anthers 6–7 mm long and 1–1.5 mm broad, glabrous except

the arachnoid tip, acute at both ends; style glabrous or sparingly pilose at base; ovary glabrous; capsule not seen.

TYPE.—*A. E. Lawrance 18* (holotype US, isotype K), Colombia, Boyacá, in the region of Mount Chapón, 1050 m alt, 8 May 1932.

DISTRIBUTION.—Andean Colombia, in the departments of Boyacá and Cundinamarca at elevations above 1000 meters. COLOMBIA. CUNDINAMARCA: On the Caracha Range, E of Ibama, 13 km E of Yacopí, near Boyacá border, 2250 m alt, 8 May 1944, *Grant 9167* (US, holotype of *A. atecmarta* Leonard).

97. *Aphelandra hartwegiana* Nees ex Benth

Aphelandra hartwegiana Nees ex Benth, Pl. Hartw. 236. 1846; in de Candolle, Prodr. 11:296. 1847.—Leonard, Contrib. U.S. Nat. Herb. 31:246, 1953.

Slender shrubs or small trees to 4 m high; stems quadrangular toward tip, minutely strigose; leaf blades oblong-ovate to elliptic, to 30 cm long and 15 cm wide, acuminate (the tip itself obtuse and submucronulate), narrowed at base and decurrent on the petiole, subcoriaceous, entire or undulate, the upper surface glabrous, dark yellowish green, drying olive or brownish, the costa shallowly channeled, the lateral veins (12–14 pairs) slightly raised, these and the costa scarcely conspicuous, the lower surface light green, drying light olive, inconspicuously strigose, the hairs sordid, more numerous on costa and veins than elsewhere, those bordering costa sometimes strigose-hirsute; petioles (unwinged portion) 1.5–2 cm long, strigillose; spikes terminal, solitary or often several, to 45 cm long and 3 cm broad, the peduncles of the terminal spike to 2 cm long, those of the lateral spikes to 14 cm long, both peduncles and rachis stout, about 6 mm in diameter, glabrous or sparingly strigose; bracts red or orange (living), drying to brown (the border usually blackish brown), entire, broadly rhombic-ovate, 16 mm long, 12 mm wide, obtuse or rounded, more or less apiculate, coriaceous, glabrous, the costa and lateral nerves prominent except toward tip, the ocelli replaced by irregular, elliptic, brown, faveolate areas to about 4 mm long and 1.5 mm wide; bractlets oblong, falcate, oblique, 10 mm long, about 4 mm broad, subcarinate, obtuse, glabrous except the minutely, sparingly hirsute keel, the hairs about

0.25 mm long; calyx 21 mm long, the posterior segment oblong-elliptic, 8.5 mm wide, the anterior pair oblong, 4.5 mm wide, the lateral pair linear-oblong, 3.5 mm wide, all coriaceous, glabrous, slightly obtuse to acute, submucronulate at tip; corolla 6–7 cm long, glabrous, yellow, the upper lip erect, lanceolate, 2 cm long, about 6 mm wide, bilobed; the lobes triangular, about 5 mm long and 3 mm wide, acuminate and apiculate, the middle lobe of the lower lip spreading, lance-ovate, about 2 cm long and 12 mm wide, acuminate, the lateral segments about 7 mm long, partly adnate to the upper lip of the corolla, their free portions triangular, about 1.5 mm long and 1 mm wide, obtuse; capsules (immature) obovoid, about 13 mm long and 4 mm in diameter, glabrous, nitid, sparingly punctulate.

TYPE.—*Hartweg 1270* (holotype K), Colombia, Cundinamarca, in shady woods on the Hacienda de Palmar, near Guaduas.

DISTRIBUTION.—Forests, along streams and wooded mountain slopes at elevations usually below 100 m. In southern Panama, in the provinces of Colón, Panamá, San Blas, and Darien. In Colombia the species is found in the departments of Antioquia, Chocó, and Valle. PANAMA. COLÓN: Around Dos Bocas, Río Fató valley, 40–80 m alt, 16 Aug 1911, *Pittier 4195* (US). PANAMÁ: Piria, 150 m alt, 24 Sep 1967, *Duke 14434* (US). SAN BLAS: Mainland opposite Ailigandi, from mouth of Ailigandi River to 2.5 m inland, 7–8 Dec 1966, *Lewis, Dwyer, Elias, & Solís 191* (GH, K, MO, UC, US). DARIEN: Vicinity of Pinogana, 20 m alt, 6 Oct 1938, *Allen 921* (MO, US); vicinity of Paya, Río Paya; trail between Paya and Payita, 9 Jun 1959, *Stern, Chambers, Dwyer, & Ebinger 177* (US); Camp Tiotuma, 50 m alt, 15 Mar 1968, *Duke 15515* (US); along the Sambu River, Feb 1912, *Pittier 5557* (US). COLOMBIA. ANTIOQUIA: Villa Arteaga, 4–8 Aug 1947, *Hodge 7053* (US); near Chigorodó, 40 m S of Turbo, 50 m alt, 22 May 1945, *Haught 4699* (US); Río Curepa, 12 km NE of Chigorodó, 35 km S of Turbo, 100 m alt, 1 Jun 1945, *Haught 4739* (COL); Chigorodó, highway to Turbo, 20, 23 Dec 1962, *García-Barriga 17656* (COL); between Villa Arteaga and Chigorodó, at Lomitas, 1 Oct 1961, *Cuatrecasas & Willard 26108* (US); Zona Cauchera de Villa Arteaga, 21 Dec 1952, *Cabrera 43* (COL); Mutatá, 100 m alt, 17 Jan 1947, *Uribe 1505* (US); around Río Ampurrumiadó, 11 Oct 1947, *Gutiérrez*

& *Barkley 17C141* (COL), *17C153* (COL). **CHOCÓ:** Tilupo, municipio de Ríosucio, 16 Jun 1957, *Romero 6268* (COL); municipio de Ríosucio, at edge of the Río Truandó, between the junction of the Río Chintadó and Saladó, 24 Oct 1956, *Romero 6126, 6127* (COL); municipio de Ríosucio, banks of the Río Chintadó, 3 km from the mouth of the Río Truandó, 12 Nov 1956, *Romero 6184* (COL); around the falls of the Río Truandó, 2 Jul 1954, *Romero 4669* (COL); Río Juradó, 100 m alt, 9 Nov 1940, *Sneidern 201* (COL); Cupica, 14 Jun 1950, *Fernandez 354* (COL, US) Bahía Solano: dense forest along Quebrada Jellita; 50–100 m alt, 22 Feb 1939, *Killip & Garcia 35639* (US). **VALLE:** La Trojita, Río Calima, 5–50 m alt, 19 Feb–10 Mar 1944, *Cuatrecasas 16355* (COL). **DEPARTMENT (?)**: Playa, *Lehmann 9047* (K).

98. *Aphelandra scolnikae* Leonard

Aphelandra scolnikae Leonard, Contrib. U.S. Nat. Herb. 31: 252. 1953.

Shrubs to 3 m high; stems woody, terete, strigose; leaf blades oblong-ovate to elliptic, to 14 cm long and 5 cm wide, short-acuminate (the tip blunt), narrowed at base and decurrent on the petiole, subcoriaceous, undulate to crenate, the upper surface glabrous or nearly so, the lower surface brownish strigose, the costa and lateral veins (8–10 pairs) rather prominent; petioles (unwinged portion to 1 cm long, densely strigose; spikes several, terminal and subterminal, pedunculate, to 10 cm long, about 1 cm broad, the peduncles to 1 cm long and 1.5 mm in diameter, minutely strigose, the rachis white-tomentose; bracts entire, rhombic-ovate, drying brownish orange, 9–10 mm long, 5.5–6 mm wide slightly below middle, acute, subtomentose at base, the medial region moderately strigose, the marginal region glabrous and subhyaline, ciliolate, the inner surface glabrous, the costa and lateral nerves inconspicuous, the alveolar spot elliptic, about 1 mm long and 0.5 mm wide, brown; bractlets lanceolate, 8 mm long, 2 mm wide, acuminate, carinate, the keel densely whitish pubescent; calyx 11 mm long, the posterior segment oblong, 3.5 mm wide, the medial region finely pubescent, the anterior and lateral segments narrowly oblong, 2–2.5 mm wide, glabrous toward base, puberulous toward tip, all segments coriaceous, striate-nerved and subacute at tip; corollas

not seen; ovary glabrous; capsule subclavate, 12 mm long, about 4 mm broad and 3 mm thick, rounded at tip, glabrous.

TYPE.—*Barkley, Scolnik & Orozco 523* (holotype US), Colombia, Antioquia, below the divide, Santa Elena, along road between Medellín and Rionegro, 2500 m alt, 2 Apr 1949.

DISTRIBUTION.—At elevations above 1700 meters in the department of Antioquia, Colombia. **COLOMBIA. ANTIOQUIA:** Dense wooded region near La Palmitas, 1700 m alt, 5 Mar 1949, *Barkley, Rios, & Betancourt 618* (US); in the Boquerón de San Cristóbal, 2500 m alt, 5 Mar 1949, *Scolnik, Barkley, & Peña 554* (US).

99. *Aphelandra pharangophila* Leonard

Aphelandra pharangophila Leonard, Contrib. U.S. Nat. Herb. 31:275. 1953.

Aphelandra arborescens Leonard, Contrib. U.S. Nat. Herb. 31:277. 1953.

Shrubs or small trees to 5 m high, with brownish pubescence; stems subquadrangular, glabrous below, the tips densely strigose, the hairs 0.5 mm long; leaf blades oblanceolate to broadly oblanceolate or obovate, to 25 cm long and 10 cm wide, acute to acuminate at apex (the tip itself blunt), narrowed from about middle to base and decurrent on the petiole, drying olive brown, subchartaceous, the margins entire or undulate, the upper surface glabrous or nearly so, the costa and lateral veins (13–15 pairs) sometimes bearing a few small appressed hairs, the lower surface drying yellowish, finely pubescent, the costa and veins prominent; petioles (unwinged portion) 1–4 cm long, the hairs resembling those of the stem tips; spikes 1 to several, short-pedunculate, 3.5–10 cm long, about 1 cm broad, the peduncles 5–20 mm long, densely strigose, the rachis glabrous to densely pubescent at and near insertion of the bracts; bracts carmine, rhombic-ovate, entire, 7–10 mm long, 5.5–6 mm wide, rounded at tip, glabrous within, strigose without, the hairs borne medially for the most part, the margins ciliate, the ocelli consisting of elliptic, dark brown alevolate areas, to 1.25 mm long and 0.75–1 mm wide; bractlets narrowly and obliquely lanceolate, 6.5–7 mm long, 1–1.75 mm wide near base, gradually narrowed to a slender tip, carinate, densely hirsute dorsally, the hairs about 0.5 mm long, the margins thin, glabrous and

delicately striate; calyx 7–8 mm long, the posterior segment oblong, 4 mm wide, acute, the anterior segments lanceolate, 2 mm wide, acute, the lateral pair narrowly lanceolate, 1.5 mm wide at base, slenderly acute, all of the segments finely striate, glabrous except at tips, here puberulous; corolla carmine, minutely papillose, 5.5–6.5 cm long, the tube 4.5 cm long, 3–3.5 mm broad at base, narrowed at 4 mm above base to 2 mm, thence enlarged to about 7.5 mm at throat, the upper lip erect, oblong, 1.7–2 cm long and 1 cm wide, bilobed, the lobes triangular and slenderly acuminate, 5 mm long, 2 mm wide at base, the tips outwardly curved, the middle lobe of the lower lip oblong to narrowly ovate, about 2 cm long, 5 mm wide near middle, slenderly acuminate at tip, the lateral lobes adhering to the lower part of the upper lip, their free portions triangular, 1.5 mm long, 1 mm wide at base, rounded at tip; stamens reaching the notch of the upper lip; anthers 4.5 mm long, 0.75 mm wide, rounded and minutely apiculate at base; filaments glabrous toward tip, somewhat pilose toward base; ovary glabrous; style about as long as the stamens; capsule not seen.

TYPE.—*E. Killip 5676* (holotype GH), Colombia, Valle, in wooded ravine at La Cumbre, 1600–1800 m alt, 14–19 May 1922.

DISTRIBUTION.—At elevations above 1000 meters in the departments of Tolima, Valle, and Cauca, Colombia. COLOMBIA. TOLIMA: Quindío, 1854, *Triana s.n.* (COL, K, P). VALLE: At La Laguna, on the left bank of the Río Sanguinini, 1400 m alt, 10–20 Dec 1943, *Cuatrecasas 15400* (US, holotype of *A. arborescens* Leonard); Río Cauca, 1200 m alt, 10 Aug 1930, *Dryander 681* (US); junction of the Pichindécito and Pichindé rivers, 1580–1650 m alt, 7 Nov 1944, *Cuatrecasas 18751* (COL); Río Bravo, NW of Darien, 1410 m alt, 26 Jun 1962, *Hugh-Jones 121* (K, US); near Las Ollas, NW of Restrepo, 1200 m alt, 9 Aug. 1962, *Robinson 176* (K, US); Prov. Cauca, Timba, 1100 m alt, 3 Mar 1937, *von Sneidern 1113* (S, US). CAUCA: Aganche, *Lehmann B.T. 1165* (K, NY).

100. *Aphelandra barkleyi* Leonard

Aphelandra barkleyi Leonard, Contrib. U.S. Nat. Herb. 31: 221. 1953.

Suffrutescent shrub to 1 m high; stems glabrous; leaf blades oblong-elliptic, to 35 cm long and 12.5

cm wide, short-acuminate (the tip itself blunt), more or less abruptly narrowed at base and decurrent on the petiole, membranaceous, entire, undulate or subcrenate, glabrous or the lower surface sparingly strigillose, the costa and lateral veins (15 or 16 pairs) slender but prominent; petioles (unwinged portion) to 5 cm long, glabrous to sparingly strigillose; spikes 1 to several, to 15 cm or occasionally as much as 30 cm long, 1 cm broad, the terminal spike sessile, the others short-peduncled, the peduncles to 1 cm long, glabrous, the rachis white-flocculose-tomentose; bracts rhombic-ovate, light brown, entire, 7.5 mm long, 6 mm wide at 3.5 mm above base, subacute, drying light brown, glabrous or the medial region puberulous, the margins densely ciliolate, the costa and lateral nerves (several pairs) prominent, ocelli usually 6 or 7, suborbicular, 0.5–0.75 mm in diameter, light brown, nitid, contiguous; bractlets lanceolate, oblique, carinate, 8 mm long, 2 mm wide near base, finely striate-nerved, subhyaline on margin, glabrous within, pubescent without; calyx segments 8 mm long, acute coriaceous, striate-nerved, pilose at tip, otherwise puberulous, the posterior segment narrowly ovate, 4 mm wide, the anterior pair oblong-lanceolate, 3 mm wide, the lateral pair linear-lanceolate, 1.5 mm wide; corolla scarlet, papillose, 5–5.5 cm long, the tube 4 mm broad at base, narrowed to 1.5 mm at 6 mm above base, thence enlarged to a subcylindric throat, 6.5 mm broad at mouth, the upper lip erect, oblong-ovate, 18 mm long, 7 mm wide, bilobed at apex, the lobes triangular, 7 mm long, 3.5 mm wide at base, acuminate, the lower lip trilobed, the middle lobe more or less spreading, lanceolate, about 18 mm long, 6 mm wide, acuminate and recurved at tip, the lateral lobes oblong, about 4 mm long and 1 mm wide, slightly obtuse, their upper margins connate with the lower part of the upper lip; stamens reaching notch of the upper lip; anthers 6.5 mm long, 1.5 mm broad, obtuse and apiculate at both ends; filaments glabrous or puberulous near base; ovary glabrous.

TYPE.—*Araque-Molina & Barkley 18M.033* (holotype US), Colombia, Meta, on the banks of the Río Guatiquía between the foothills and plains in the vicinity of Villavicencio, 350 m alt, 20 Nov 1948.

DISTRIBUTION.—Endemic in the vicinity of Villa-

vicencio, Colombia, at elevations below 500 meters. COLOMBIA. CUNDINAMARCA-META: Quetamá to Villavicencio, 500 m alt, Jan 1930, *Pérez-Arbeláez 35* (COL). META: Along Río Guatiquía, near Villavicencio, 500 m alt, 18–19 Mar 1939, *Killip 34489* (US); Río Guejar, forest S of El Mico Airstrip, 400 m alt, 7 Nov 1949, *Philipson, Idrobo, & Fernandez 1351* (US); Villavicencio, 500 m alt, 9 Nov 1938, *Cuatrecasas 4538* (US); 6 Jan 1939, *Haught 2528* (US); 19 Mar 1939, *Alston 7645* (US); Ocoa forest near Villavicencio, 21 Jul 1945, *Schiefer 851* (US); Villavicencio to Upín and return, Salitre, 408 m alt, 4 Jan 1876, *André 1071* (K); Apiai, Llano de San Martín, *Triana s.n.* (COL); between Acacias and San Martín, near Río Guamal, 430 m alt, 28 Jul 1946, *Uribe 1319* (COL). TOLIMA: "Andes de Mariquita," Quindío, 1000 m alt, Mar 1852, *Triana s.n.* (K).

101. *Aphelandra pulcherrima* (Jacquin)
Humboldt, Bonpland, & Kunth

FIGURE 17

- Aphelandra pulcherrima* (Jacquin) Humboldt, Bonpland, & Kunth, Nov. Gen. & Sp. 2:236. 1817.
Justicia pulcherrima Jacquin, Enum. Pl. Carib. 11. 1760; Stirp. Amer. 6, pl. 2, fig. 4. 1763.
Justicia arborea Miller, Gard. Dict. ed. 8. 1768.
Aphelandra cristata (Jacquin) R. Brown, sensu Bot. Mag. 38, pl. 1578. 1813 [not as to basionym].
Aphelandra pulcherrima (Jacquin) Humboldt, Bonpland, & Kunth var. *deltoidea* Nees in de Candolle, Prodr. 11:296. 1847.
Aphelandra glabrata Willdenow ex Nees in de Candolle, Prodr. 11:296. 1847.
Aphelandra daemonia Leonard, Contrib. U.S. Nat. Herb. 31: 223. 1953.
Aphelandra sericophylla Leonard, Contrib. U.S. Nat. Herb. 31:254. 1953.
Aphelandra incerta Leonard, Fl. Trinidad and Tobago 2:362. 1954.

Shrubs or suffrutescent herbs to 4 m high; stems erect, sparingly branched, obscurely quadrangular toward tip, pubescent to tomentose, the lower portions of the stems terete, light grayish green, sparingly pubescent to glabrate; leaf blades ovate to oblong-elliptic, 8–27 cm long, 3.5–11 cm wide, short-acuminate (the tip itself blunt or apiculate to slightly acute), narrowed at base and decurrent on the petiole, entire, undulate or shallowly crenate, the upper surface drying olive, finely pubes-

cent to glabrate, the hairs curved, subappressed, the costa flat or shallowly impressed, the lateral veins (16–20 pairs) 3–4 mm apart, slightly raised, the lower surface drying to light green or gray, usually densely pubescent, mostly denser on costa and veins, these prominent, the veinlets finely reticulate; petioles about 5 mm long, the pubescence similar to that of the costa; spikes solitary or several in a fascicle, quadrangular, terminal, subsessile, to 20 cm long and 8 mm broad, the rachis white-cottony-tomentose; bracts rhombic-ovate, entire, 5–7 mm long, 4.5–6 mm wide at middle, 2–3 mm wide at base, acute at apex, dorsally densely puberulous becoming white-pilose toward base, ventrally glabrous except toward margins, here finely pubescent, obscurely striate-nerved, the costa and a pair of lateral nerves prominent, reticulately veined toward margin, ocelli solitary, in twos, or sometimes several, distinct or more or less fused, conspicuous, orbicular to elliptic, 0.5–1 mm long, about 0.75 mm wide, dark brown or blackish, nitid; bractlets lanceolate, 6–7 mm long, about 2 mm wide near base, acute at apex, falcate, obliquely subcarinate, puberulous without, glabrous within, finely striate-nerved; calyx 7–8 mm long, the posterior segment oblong, 3 mm wide, the lateral segments lanceolate, about 2 mm wide, the middle pair narrowly lanceolate, 1.5 mm wide, all acute and striate-nerved; corolla bright red or scarlet, puberulous, 5–6 cm long, about 3 mm broad at base, narrowed to 1.5 mm at tip of ovary, thence gradually enlarged and slightly ventricose, about 6 mm broad at mouth, the upper lip erect, ovate, 15–20 mm long, 9 mm wide, 2-lobed, the lobes narrowly triangular, 3.5–9 mm long and 1–4 mm wide, slenderly acuminate, the lower lip 3-lobed, erect or spreading with age, the middle lobe linear-oblong, 22–24 mm long and 6–7 mm wide, abruptly acuminate, the lateral lobes about 3 mm long and 1 mm wide, slightly obtuse, adnate in part to the upper lip; stamens exerted about 7 mm beyond the mouth of the corolla tube; ovary and style glabrous; capsules clavate, about 17 mm long, 6 mm broad toward tip, narrowed to 3 mm at base, glabrous, minutely gland-dotted; seeds flat, reddish brown, about 5 mm long and 4 mm broad, flattened, glabrous, or sparingly puberulous.

TYPE.—*Jacquin s.n.* (holotype W), Colombia, Bolívar, "Habitat frequens Carthagenae in sylvaticus montis de la Popa." Typification is made in

part on the basis of Jacquin's illustration consisting of a leaf and a corolla.

DISTRIBUTION.—Woods and thickets, often along streams at various elevations ranging from sea level to 2200 meters. Costa Rica to Andean Bolivia and in a few West Indian localities. **COSTA RICA.** GUANACASTE: Boca Culebra, 50 m alt, 18 Jan 1898, *Pittier 11.988* (US). ALAJUELA: Coyolar, May 1930, *Porsch 766* (W). SAN JOSÉ: Along Río Tarroza, between Frailes and San Andres, 1300 m alt, 22 Dec 1966, *Burger 4041* (F). **PANAMA.** CANAL ZONE: Along Río Indio de Gatun, 14 Feb 1911, *Maxon 4807* (US). PANAMÁ: Along Chararé River, above Chepo, 50–200 m alt, 29–30 Oct 1911, *Pittier 4723* (US). SAN BLAS: Headwaters of Río Cuadí, Camp Diablo, 18 Dec 1967, *Duke, Robyns, & Verhoek 3611* (MO, US); mainland opposite Ailigandi, from mouth of Ailigandi River to 2.5 m inland, 7–8 Dec 1966, *Lewis, Dwyer, Elias, & Solís 172* (MO, US); forests around Puerto Obaldia, San Blas coast, 0–50 m alt, Aug 1911, *Pittier 4280* (US); beach E of Puerto Obaldia, 19 Aug 1971, *Croat 16890* (MO, US). **DARIÉN:** Camp Summit, adjacent Darién-San Blas border along Sea Level Canal Route 17, 300–360 m alt, 18 Dec 1967, *Oliver, Blackwell, & Nowicke 3676* (MO, US.) “st. THOMAS”: 1841, *Finlay s.n.* (P). Urban (Symb. Ant. 3:47–48. 1902) noted that the Finlay collections at Paris, purportedly from “St. Thomas,” were probably collected in Trinidad. “MARTINIQUE”: 1860, *Herb. Brongniart s.n.* (P), probably collected in the botanic garden. **TRINIDAD AND TOBAGO.** Trinidad, 27 Nov 1888, *Broadway s.n.* (Herb. Trin. 4500), (US, holotype of *A. incerta* Leonard); Trinidad, *Richard s.n.* (P); Chacachacare, 5 Apr 1921, *Britton, Freeman, & Brown 2761* (NY, US); Carrera Island, Feb 1867, *Herb. Trin. 2898* (US); Maqueripe, coastal hillside, 3 Mar 1920, *Britton, Britton, & Hazen 209* (NY, US); Blue Basin, 17 Apr 1920, *Britton, Britton, & Hazen 1906* (NY, US); Aripo Savannah at Waller Field, 9–23 Feb 1950, *Howard 10446* (US); Blue Basin, Diego Martin, 1 Jan 1926, *Broadway 5875* (K); Montserrat hills, 11 Dec 1952, *Herb. Trin. 14776* (K); Quarry Hill, Marac rd., 6 Nov 1929, *Herb. Trin. 12291* (K); *Lockhart 130* (K); Tobago, 12 Aug 1910, *Broadway s.n.* (P); Tobago, Calder Hall, Nov 1889, *Eggers 5721* (K, P, US); Ridge Forest above Hermitage River, N end of Main Ridge, 150–400 m alt, 12 Apr 1959, *Cowan 1549* (P, US); Forest

Preserve, Northside Road, near 29.5 milepost, 360 m alt, 23 Aug 1959, *Webster, Miller, & Walker 9841* (US); Spreyside, Jul 1961, *Snow s.n.* (K); Lambeau Hill, 7 Oct 1937, *Sandwith 1647* (K); Mt. Dillon, 300 m alt, 7 Dec 1949, *Baker & Dennis 14537* (K). **GUYANA.** Ireng River, Oct–Jan 1884–85, *Jenman 14* (US); *Jenman 6357* (K, US); western extremity of Kanuku Mountains, in drainage of Takutu River, 200 m alt, *A. C. Smith 3239* (LE, P, US, W); 1841, *Schomburgh 109* (K); Coast Region, Sept–Oct 1881, *Jenman 1532* (K); Ireng River, 11 May 1884, *im Thurn 14* (K); Wabuwak, Kanuku Mts., 600 m alt, Oct 1948, *Forest Dept. 5863* (K); Rupununi River, 26 Nov 1957, *Cook 210* (K). **VENEZUELA.** SUCRE: Forest of Aricagua, vicinity of Christobal Colon, 5 Jan–22 Feb 1923, *Broadway 496* (US); the Balcon, vicinity of Christobal Colon, 5 Jan–22 Feb 1923, *Broadway 104* (US); Guacarapo, Feb 1942, *Lasser 197* (US); along Quebrada Juajuá near Cumanacoa, 31 Dec 1940, *Pittier 14676* (US, VEN). **MONAGAS:** In front of Cerro La Cueva, 0.5 km from the entrance of La Cueva del Guácharo, 975–1050 m alt, 29 Nov 1967, *Bunting 2658* (US); Cumanacoa-Caripe highway, between Las Piedras & San Antonio, 30 Nov 1967, *Bunting 2693* (US). **DELTA AMACURO:** Río Cuyubini, Cerro La Paloma, Sierra Imataca, 100–200 m alt, 16 Nov 1960, *Steyermark 87587* (US, VEN). **ANZOÁTEGUI:** Quebrada Bonita, tributary of Río Querecual, NE of Bergantíne, 1200 m alt, 17 Feb 1945, *Steyermark 60978* (VEN); Quebrada Negra, tributary of Río Zumbador, NE of Bergantín, 500 m alt, 24 Feb 1945, *Steyermark 61147* (US, VEN); steep forested slopes between Cerro San José, along headwaters of Quebrada La Tigra, and Cerro Peonía, 1500–1600 m alt, 20 Mar 1945, *Steyermark 61568* (US, VEN). **MIRANDA:** Around Dos Caminos and Los Chorros, 800–1300 m alt, 14 Mar 1913, *Pittier 5928* (P, US); Quebrada de Las Comadres, near Las Mostazas, 1200 m alt, Nov 1924, *Allart 260* (US, VEN); Guarenas, Mar 1846, *Funck & Schlim 459* (P). **DISTRITO FEDERAL:** Caracas, *Bredemeyer s.n.* (W); Caracas, *Moritz 70* (FI); Caracas, 1842, *Linden 114* (P); Avila, 1300 m alt, 19 Jan 1952, *Gines 4435* (US); vicinity of Caracas, Dec 1920–Jan 1921, *Bailey & Bailey 484* (US); Chacaito Gorge around Caracas, 800–1000 m alt, 11 Dec 1921, *Pittier 9942* (US, VEN); Middle Catuche wood, above Caracas, 1200–1400 m alt, 25 Mar 1917, *Pittier 7066* (US, VEN). **ARAGUA:** Maracay,

1928, *Vogl 108* (M); Maracay, 1928–33, *Vogl 960* (M, US); Maracay, near El Simon, Jan 1934, *Vogl 1477* (M); Guamitas, 22 Apr 1938, *Williams 9994* (US, VEN); near Colonia Tovar, 1854–5, *Fendler 809, 2035* (K). YARACUY: Cerro La Chapa, N of Nirgua, 1200–1400 m alt, 9–10 Nov 1967, *Steyermark, Bunting, & Wessels-Boer 100261* (US, VEN); Sierra de Aroa, Cerro Negro, 500–800 m alt, 13 Nov 1967, *Steyermark & Wessels-Boer 100383* (US); Sierra de Aroa, 1200 m alt, 19 Dec 1952, *Aristeguieta & Foldats 1492* (VEN). FALCON: 40.5 km S of Coro, 1000 m alt, 25 Jan 1966, *Steyermark & Braun 94715* (US, VEN). LARA: Between Yaritagua and Duaca, 1929, *Saer 346* (VEN); vicinity of Barquisimeto, 1929, *Saer 386* (VEN). ZULIA: Vicinity of Perija, 1917, *Tejera 49* (US); Perija, Jan 1948, *Lasser 2492* (VEN); along Río Negro, W of Machiques, at base of Sierra Perijá, 240 m alt, Dec 1947, *Ginés 63* (US). BOLÍVAR: Upata, 1864, *Grossourdy 13* (P); 17 km E of Upata, Oct 1965, *Blanco 328* (US); NE of Canaima, Sur de Cerro Venado, 200–500 m alt, 17 Feb 1964, *Agostini 315* (US, VEN); Sierra Imataca, Río Toro, between Río La Reforma and Puerto Rico, N of El Palmar, 200–250 m alt, 11 Dec 1960, *Steyermark 87943* (US, VEN); 12 Dec 1960, *Steyermark 87970* (US, VEN); upper part of west-facing wooded slopes, E of Miamo, Altiplanicie Nuria, 300–500 m alt, 8 Jan 1961, *Steyermark 88190* (US, VEN); El Hacha, 1906, *Brown 102* (K); 15 km W of Kamarata, 450 m alt, 8 Mar 1967, *Koyama & Agostini 7544* (VEN). COLOMBIA. GUAJIRA: Between Cuestecita and Carraipía, forested margins of Río Ranchería, 80 m alt, 30 Nov 1959, *Cuatrecasas & Romero 25517* (COL, US). MAGDALENA: E of Los Venados, near Caño Sagarriga, 120 m alt, 21 Jan 1961, *Dugand 5510* (W); Santa Marta, between Bonda and Río Piedras, 4 Jan 1967, *Romero 10.828* (COL); near Bonda, vicinity of Santa Marta, 31 Oct 1898, *H. H. Smith 1415* (US, holotype of *A. daemonia* Leonard, isotypes GH, K, NY, P, PH, S); Tucurinca, 1843, *Funch 315* (P); Tucurinca, Dec 1947, *Romero 583* (COL); *594* (COL); between Tucurinca and Fundación, 8 Feb 1962, *Romero 9199* (COL); between La Gran Vía and Cerro Mico around Riofrío, 26 Mar 1959, *Romero 7637* (COL); slopes of the Sierra Nevada de Santa Marta, 600 m alt, 10 Jan 1948, *Cardona, Gutierrez, & Barkley 18C077* (US); foothill of the Sierra de Perijá, Manaure, 750–790 m alt, 4 Nov 1959, *Cuatrecasas & Romero 25012*

(COL, US); Cerrejón, 100 m alt, 3 Dec 1949, *Haught 6730* (US); near Codazzi, 250–350 m alt, 20 Oct 1943, *Haught 3759* (US); Río Magdalena, *Weir s.n.* (K); Poponte, 12 Dec 1924, *Allen 845* (K). ATLÁNTICO: Arroya de Megua, 50 m alt, 13 Jan 1941, *Dugand & Jaramillo 2800* (US); Barranquilla, Jan 1928, *Elias 440* (US); Los Pendales, 10–20 m alt, 1 Feb 1940, *Dugand & Garcia 2549* (US); 6 Jan 1941, *Dugand & Jaramillo 2701* (US); Luruaco, *Apolinar 491* (US); Piojó, vicinity of Barranquilla, Jan 1929, *Elias 705* (US); Porto Colombia, Jan 1932, *Elias 860* (US); Tubará, 200–250 m alt, 17 Jan 1946, *Dugand & Jaramillo 4053* (US); Usiacurí, 50 m alt, 2 Jan 1949, *Araque & Barkley 19At.081* (US); Usiacurí, Arroyo del Higuerón, 100 m alt, 5 Jan 1940, *Dugand & Garcia 2237* (US). BOLÍVAR: Vicinity of Cartagena, 1919, *Heriberto 268* (US); Castilla La Popa, vicinity of Cartagena, 25 m alt, 4 Jan 1949, *Araque & Barkley 19Bo.033* (US); Cerro de la Popa, 4 Feb 1962, *Saravia & Johnson 38* (COL); Turbaco, Nov 1920, *Heriberto 415* (US); 200–300 m alt, 6–22 Nov 1926, *Killip & Smith 14310* (US); N of Arjona, 30–50 m alt, 15 Nov 1926, *Killip & Smith 14516* (US); W of El Carmen, 235 m alt, 23 Jan 1962, *Beuther 18-A* (COL); Caño Papayal, vicinity of Estrella, Lands of Loba, Apr–May 1916, *Curran 321* (US); Montería, 50 m alt, 12 Jan 1949, *Bechara, Araque, & Barkley 19Bo.218* (US). NORTE DE SANTANDER: PROV. Ocaña, Aquachica, 240 m alt, Nov 1846–52, *Schlim 1092* (FI, K, P); vicinity of Esmeralda, 750 m alt, 19 Mar 1927, *Killip & Smith 20931* (US); Río Zulia, 700 m alt, 21 Dec 1948, *Araque, Otdlora & Barkley 18NS.066* (US). BOYACA: Pajarito, quebrada Curisí, 1100 m alt, 10 Oct 1963, *Uribe 4555* (US); Pajarito, highway between Sogamoso and Casanare, 900 m alt, 12 Dec 1969, *Uribe 6348* (US). CUNDINAMARCA: Between Fusagasugá and Pandi, *Humboldt s.n.* (B, destroyed, F photo 8708, holotype of *A. glabrata* Willdenow ex Nees); Fusagasugá, 25 Dec 1852, *Holton 595* (K); Guaduas, Jul 1923, *Ariste-Joseph 1019* (US); E of Guaduas, between Guaduas and Alto de Aguaclara, 1040–1320 m alt, 24 Jul 1947, *Garcia 12358* (US); highway between Guaduas and Guaduoero, 700–800 m alt, 29 Jun 1956, *Uribe 2791* (COL); Anolaima “La Florida,” Jan 1933, *Pérez 2120* (COL); hillside E of Apulo, along trail to Anapoima, 460–600 m alt, 4 May 1944, *Killip, Dugand, & Jaramillo 38155* (P, US); N of Apulo, 460–480 m alt, 5 May 1944,

Killip, Dugand, & Jaramillo 38237 (US); La Paila, prov of Cauca, 1000 m alt, Jul 1853, *Triana 4174* (COL, K); between Tocaima and Pubenza, 1000 m alt, 14 Apr 1952, *Uribe 2308* (US); Nariño, 500 m alt, *Pérez 417* (COL, US); Nilo, near the Azufrada, 400 m alt, 19 Jul 1961, *Murillo & Jaramillo 231* (COL); between Nilo and the Quebrada de Agua de Diosito, 530 m alt, 3 Aug 1961, *Murillo, Jaramillo, & Fayad 292* (COL); páramos of Guasca, toward Gachetá, *Ariste-Joseph s.n.* (US); Casas Viejas, Limba, 400 m alt, Feb 1858, *Triana 2366* (COL, holotype of *A. sericophylla* Leonard, isotypes P, W). CUNDINAMARCA-TOLIMA: Puente Natural de Icononzo, 820 m alt, 31 Mar 1948, *Uribe 1691* (US). TOLIMA: Honda, Aug 1919, *Ariste-Joseph A360* (US); Angustura de Honda, 9 Dec 1875, *André 287* (K); Mariquita, junction of the Ríos Guamo & Murillo, 450 m alt, 15 Jul 1958, *Uribe 3182* (COL); Doima, 23 Nov 1938, *Haught 2449* (US); Río Coello, 1844, *Goudot s.n.* (K, P); Ibagué, 700–800 m alt, 2 Aug 1952, *Køie 5110* (US); Guamo, 350 m alt, 3 May 1963, *Uribe 4313* (COL); El Guamo, in Caracolí, 400 m alt, 17 Apr 1954, *Uribe 2576* (US); Guamo, 400 m alt, Jun 1961, *Uribe 3750* (COL); E of Chaparral, ca. 38 km on road to Coyaima, 600 m alt, Jul 1950, *S. Galen Smith 1314* (US). HUILA: Alto de Limba, 1844, *Goudot s.n.* (K, P); E of Neiva, 800–1000 m alt, 31 Jul 1917, *Rusby & Pennell 409* (NY, US). ANTIOQUIA: Dabeiba, 350 m alt, 11 Jan 1947, *Uribe 1436* (COL); vicinity of Dabeiba, 21 Mar 1948, *Johnson & Barkley 18C.409* (US); Urabá, Río Urama, between Dabeiba and Urama, 500 m alt, 20 Jan 1947, *Uribe 1516* (COL); *1517* (COL); San Luis de Cocorná, 3 km from the junction of the Ríos Cocorná and Magdalena, 19 Nov 1963, *Romero 10.104* (COL); La Pintada, 800 m alt, Mar 1963, *Espinal 877* (COL). VALLE: Cisneros, along Río Dagua, 300–500 m alt, 5 May 1939, *Killip 35586* (US); along Río Dagua, 300–1000 m alt, *Lehmann s.n.* (K); between Las Juntas and El Naranjo, on the Río Dagua, 300–1000 m alt, *Lehmann 5506* (K); La Cumbre, 1600–1800 m alt, 14–19 May 1922, *Pennell 5676* (US); Cali, 2200 m alt, Jul 1941, *Herrera 944* (US); around Palmira, Canta Claro, 11 Oct 1962, *Figueiras 8.068* (US). WITHOUT LOCALITY: *Triana s.n.* (NY, US); 1760–1808, *Mutis 720* (US), *1540* (US); 11 May 1921, *Husnot s.n.* (P); *Moritz s.n.* (W); Valle de Caesar, *Dawe 606* (K). ECUADOR. MANABÍ: El Recreo, *Eggers 14841*

(K, LE, P, S, US). GUAYAS: Guayaquil, *Haenke s.n.* (PR); 12 km W of Guayaquil, 4 Apr 1962, *Gilmartin 668* (US); Guayaquil, Cerro Azul, 22 Oct 1958, *Harling 3045* (S); vicinity of Guayaquil, Cerro Azul, 14 Jun 1955, *Asplund 16643* (S); Hacienda Santa Barbarita, Río Duale below Pichincha, 18–26 Apr 1959, *Harling 4818* (S). CHIMBORAZO: Vicinity of Huigra, mostly on the Hacienda de Licay, 8 Sep 1918, *Rose & Rose 22591* (US); Cañon of the Río Chanchan, from Naranjapata to below Huigra, 600–900 m alt, 19 Jun 1945, *Camp E-3891* (NY, US); in Valle Pallatange, Sep 1891, *Sodiolo 122/8* (P). LOJA: Between San Pedro and Santa Ana, 1065–1220 m alt, 5 Aug 1943, *Steyermark 53751* (US). WITHOUT EXACT LOCALITY: Feb 1877, *Vidal-Sénèze s.n.* (P). PERU. TUMBES: Zaramilla: Bosque Nacional de Tumbes, Campo Verde, 600–800 m alt, 13 Dec 1967, *Schunke 2386* (F, US). CAJAMARCA: Jaen, 500–600 m alt, 27 Mar 1950, *Woytkowski 5607* (MO, US). AMAZONAS: Bagua-Ingenio, prov. Bagua, 550 m alt, 27 May 1963, *López, Segástegui, & Collantes 4244* (US); prov. Bagua, Río Utcubamba between Bagua and Campomiento Ingenio, km 275 E of Olmos at Aseraderro, 630 m alt, 19 Mar 1964, *Hutchison & Wright 4451* (UC, US). SAN MARTÍN: Alto Río Huallaga, 360–900 m alt, Dec 1929, *Williams 5756* (US); Juanjuí, Alto Río Huallaga, 400 m alt, Oct 1934, *Klug 3890* (US); around Juanjuí, prov. Mariscal Caceres, 300–400 m alt, 17 Aug 1948, *Ferreyra 4494* (US); San Martín: Juan Guerra, Dec 1902, *Ule 6492* (K). HUANUCO: Cueva Grande station near Poduzo, 1050 m alt, 23 Jun 1923, *Macbride 4795* (NY, US); vicinity of Tingo Maria, 800 m alt, 25 Sep 1962, *Schunke 6178* (US). JUNÍN: Satipo: West bank of the Río Ene near the mouth of the Río Chiquireni, 350 m alt, 21 Aug 1970, *Madison 10448-70* (NA). HUANCVELICA: Tayacaja, SE of Tintay, 750 m alt, 11 Apr 1964, *Tovar 4609* (US). BOLIVIA. LA PAZ: Guana-Tipuani, Apr–Jun 1892, *Bang 1368* (US); Guania, 600 m alt, May 1886, *Rusby 1107* (US); prov. of S. Yungas, basin of Río Bopi, San Bartolome (near Calisaya), 750–900 m alt, 1–22 Jul 1939, *Krukoff 10010* (NY, US). BRAZIL. AMAZONAS: Basin of Río Jurua, near mouth of the Río Embira (tributary of Río Tarauaca), 19 Jun 1933, *Krukoff 4925* (NY, US). ACRE: Río Acre, near Porto Carlos, Feb 1911, *Ule 9809* (K).

Robert Brown (1813) proposed the combination *A. cristata* (Jacquin) R. Brown for a West

Indian shrub, introduced into cultivation by Lord Seaforth, He did not designate any type but illustrated the species. Under his synonymy for this species he listed *Justicia arborea* Miller; the holotype of this species was not seen, but is presumably in the British Museum.

Nees did not designate a type for his *A. pulcherrima* var. *deltoidea*; from his brief description I conclude that the variety is a mere ecological variation from the typical species.

102. *Aphelandra mildbraediana* Leonard

Aphelandra mildbraediana Leonard, Contrib. U.S. Nat. Herb. 31:218. 1953.

Shrubs or small trees to 3 m high; stems erect or ascending, the tips quadrangular, densely whitish-strigose, the older portions of the stems terete, glabrous, gray; leaf blades oblong-elliptic to lanceolate, 8–13 cm long, 2–4 cm wide, acute to acuminate, the tip blunt and often curved, gradually narrowed at base, subcoriaceous, entire or shallowly crenate, the upper surface green, nitid, glabrous to sparingly strigillose, the costa and lateral veins flat or slightly raised, the lower surface drying olivaceous, strigillose, the costa and veins more conspicuous than above; petioles to 2 cm long, strigose; flowers borne in terminal, solitary (occasionally 3), subsessile spikes to 5 cm long and 15 mm broad, the rachis white-cottony; bracts closely imbricate, rhombic-ovate, entire, 9 mm long and 6 mm wide at 2.5 mm above base, acute to obtuse, white-cottony at base, otherwise glabrous to puberulous, ciliate, the costa rather prominent, the 4 or 5 pairs of lateral nerves parallel and becoming obscure beyond middle of bract, ocelli 1–3, elliptic, about 0.5 mm long, brown, nitid, varnished; bractlets obliquely lanceolate, subfalcate, 8 mm long, carinate, 1–1.5 mm wide, the keel densely white-pubescent, the margins glabrous, subhyaline, delicately striate-nerved; calyx 11–12 mm long, the posterior segment 3.5 mm wide, the anterior pair 3 mm wide, the lateral pair 2.5 mm wide, all oblong-ovate, finely pubescent to glabrate, striate-nerved, acute, ciliate toward tip; corolla 6–7 cm long, red, papillose, the tube about 4 mm broad at base, contracted to 3 mm at tip of ovary, thence gradually enlarged to a cylindrical subventricose throat 7 or 8 mm broad, the upper lip

erect, narrowly ovate, 15 mm long and 8 mm wide, bilobed at apex, the lobes triangular-ovate, 7 mm long, 4 mm wide at base, acuminate, the tips outwardly curved, the middle lobe of the lower lip elliptic, spreading, 9.5 mm wide, narrowed at base, subcucullate and apiculate at tip, the lateral lobes about 5 mm long, the posterior edge adnate to lower part of upper lip, the free portions triangular-ovate, 1.5 mm long, slightly over 1 mm wide, obtuse; stamens exerted about 4 mm beyond the mouth of the corolla tube; anthers 7 mm long, 1.5 mm wide, apiculate at each end, dorsally tomentose; ovary glabrous; mature capsules not seen.

TYPE.—*H. H. Smith 1414* (holotype US, isotypes GH, K, MO, NY, P, PH, S), Colombia, Magdalena, ravine above Las Nubes, at Alto de Cielo, 1500 m alt, 18 Dec 1898.

DISTRIBUTION.—In the departments of Magdalena and Norte de Santander, Colombia at elevations above 1500 meters altitude. COLOMBIA. MAGDALENA: San Lorenzo mountains, vicinity of Santa Marta, 15 Dec 1922, *Viereck s.n.* (US); on wooded mountain slope at Casa Blanca, 1200 m alt, 25 Jul 1926, *Schultze 695* (B, destroyed, F photo 8716); above Minca, Las Cumbres, in the foothills of the Sierra Nevada de Santa Marta, 2000 m alt, 26 Feb 1949, *Hawkes 587* (K, US). NORTE DE SANTANDER: Ocaña, May 1846–52, *Schlim 537* (FI, K, P); Ocaña, 1878, *Kalbreyer 611* (K).

103. *Aphelandra pilosa* Leonard

Aphelandra pilosa Leonard, Contrib. U.S. Nat. Herb. 31:209. 1953.

Slender shrubs to 3 or occasionally 5 m high, sparingly branched; the stems erect or ascending (sometimes tortuous), subquadrate and densely pilose-sericeous toward tip, the hairs light brown to whitish, to 2 mm long, the lower portions of the stem terete, gray, glabrate; leaf blades oblong to oblong-elliptic or broadly oblanceolate, the uppermost 15–30 cm long and 5–10 cm wide, the lowermost as much as 45 cm long and 16.5 cm wide, all more or less abruptly acuminate (the apex often more or less curved), gradually narrowed at base and decurrent on the petiole, subcoriaceous, entire or undulate, the upper surface drying olive or brownish, glabrate to sparingly

hirsute-strigose, the costa and lateral veins densely so, the hairs light brown, the costa and lateral veins (14–20 pairs) flat or slightly raised, inconspicuous, the lower surface drying light olive green, more densely pilose-sericeous than above, the venation rather prominent; petioles to 1.5 or occasionally 2 cm long, the pubescence similar to that of the stem; spikes solitary or, if several, fascicled, or often forming a loose panicle (the terminal spike subsessile, the lateral ones pedunculate) 5–17 cm long, 5–7 cm broad, the peduncles to 4 cm long, the pubescence that of the stems, the rachis white-cottony; bracts closely imbricate, entire, rhombic-ovate, 9 mm long, 6–6.5 mm wide at 1.5 mm above base, acute, minutely puberulous to glabrate, pubescent or pilose toward base, coriaceous, ciliate, ocelli 3–6, elliptic, about 1 mm long and 0.75 mm wide, flat, varnished, variously grouped, contiguous or sometimes fused; bractlets lanceolate, 8 mm long and 2 mm wide, carinate, the keel densely white-pilose, striate-nerved, the nerves curved at base, the margins thin; calyx 8–8.5 mm long, the posterior segment narrowly ovate, 3 mm wide near middle, the anterior pair lanceolate, 2 mm wide, the lateral pair linear-lanceolate, 1.5 mm wide, these slightly obtuse and apiculate, the others acute, all puberulous, ciliate toward tip and striate-nerved, the nerves indurate at base; corolla red, puberulous, 6.5 cm long from base to tip of upper lip, the tube 3 mm broad at base, narrowed to 2 mm at 7 mm above base, thence gradually enlarged to a slightly curved cylindrical throat about 6 mm broad, the upper lip erect, 2 cm long, 7 mm wide at base of lobes, middle lobe of the lower lip spreading, narrowly elliptic, 2.5 cm long, slightly more than 6 mm wide, acute, the lateral lobes adnate in part to the upper lip, their free portions 2 mm long and 1.5 mm wide, rounded at tip; stamens exerted about 15 mm beyond the mouth of the corolla tube; anthers 6 mm long, 1 mm broad, the basal lobes apiculate, the cells dorsally pilose; pistils glabrous; capsules not seen.

TYPE.—*J. Cuatrecasas 7223* (holotype US), Colombia, Vaupés, woods and thickets of Zurubi, Caño Cuduyari, 200 m alt, 15 Oct 1939.

DISTRIBUTION.—Southern Venezuela and Amazonian Colombia at low elevations. **VENEZUELA.** BOLIVAR: Río Parguaza, just below Raudal Maraca (about 110 river km from mouth, 115 m alt, 29

Dec 1955, *Wurdack & Monachino 41007* (NY, US, VEN). **COLOMBIA.** BOYACÁ: In warm valleys, *Dawe 900* (K). META: 12 km SE of Villavicencio, 400 m alt, 9 Jan 1939, *Haught 2536* (US); woods of Caño Quenane, 25 Jan 1942, *Dugand & Jaramillo 3117* (US); Reserve Nacional de la Macarena, southernmost slopes of Macarena Mountains, immediate to the río Guayabero, 250–300 m alt, 25 Jan 1968, *Thomas, Hernández, Pinto 1584* (COL, P). VAUPÉS: Between the Río Vaupés and Cerro de Mitu, 320 m alt, 7–8 Nov 1953, *Humbert 27305* (P, US); Río Guaviare, San José del Guaviare, 240 m alt, 6 Nov 1939, *Cuatrecasas 7478* (US); mesa La Lindosa, 15–20 km S of San José del Guaviare, 400–600 m alt, 13–15 Dec 1950, *Idrobo & Schultes 631* (US); mouth of the Ariaré with the Río Guayabero, right bank of the Río Guaviare, 21 Feb 1969, *Pinto & Sastre 934* (COL); Circasia, sandy savanna with quartzite base along the Río Vaupés, 240 m alt, Nov 1951, *Schultes & Cabrera 19633* (US); savanna of Yapobodá, along the Río Kuduyari (tributary to the Río Vaupés), 210–240 m alt, 18 Nov 1952, *Schultes, Baker, & Cabrera 18455* (US); Yapobodá, Río Kuduyari, 4–6 Oct 1951, *Schultes & Cabrera 14268* (COL); in Wacaricuara, path of the Río Paca and Papuri, 7 Dec 1952, *Romero 3902* (COL); Río Vaupés, from Guaracapuri to Tipiacá or Villa Fatima, 12 Nov 1952, *Romero 3420* (COL). CAQUETÁ: Woods at Sucre, 1000–1300 m alt, 4 Apr 1940, *Cuatrecasas 9052* (US). PUTUMAYO: Río Putumayo at Puerto Ospina, 230 m alt, 14 Nov 1940, *Cuatrecasas 10562* (US); Puerto Porvenir, above Puerto Ospina, 230–250 m alt, 19 Nov 1940, *Cuatrecasas 10656* (US).

104. *Aphelandra macrophylla* Leonard

Aphelandra macrophylla Leonard, Contrib. U.S. Nat. Herb. 31:234. 1953.

Aphelandra megaphylla Leonard, Fieldiana, Bot. 28:553. 1953.

Aphelandra coccinantha Leonard, Contrib. U.S. Nat. Herb. 31:721. 1958.

Small trees; the branches subquadrangular toward tip, rather densely hirsute, the lower portions of the stems terete, glabrate; leaf blades oblong-elliptic, 19–35 cm long, 7–17 cm wide, acute to short-acuminate (the tip itself obtuse or acute), gradually narrowed at base and briefly decurrent on the petiole, submembranaceous, entire or un-

dulate, the upper surface glabrous or the uppermost leaves bearing a few appressed or subappressed hairs 0.5 mm long, drying olive, the costa and lateral veins (16–20 pairs) flat or slightly raised, scarcely conspicuous, the lower surface drying a lighter olive than the upper, sparingly hirsute; petioles (unwinged portions) 1.5–7 cm long, the pubescence that of the stems; flowers borne in a large terminal panicle consisting of rather small spikes, the panicle to 30 cm long with a spread of 20 cm, the spikes 3.5–9 cm long and about 6 mm broad, the secondary peduncles, if present, 1–1.5 cm long, the primary ones 4–7 cm long, or the uppermost shorter, both peduncles and axis of the panicle rather densely hirsute; bracts rhombic-ovate, entire, 7 mm long, 5.5 mm wide, acute, coriaceous, yellow or orange, glabrous or the lowermost dorsally strigose, the straight upper margins ciliolate, the hairs up to 0.5 mm long, ocelli as many as 4 but usually 2, minute, elliptical, 0.25–0.5 mm long, opaque or varnished; bractlets lanceolate, 7 mm long, 2 mm wide, carinate, densely brown-woolly dorsally, apiculate; calyx 7.5 mm long, the posterior segment narrowly ovate, 3 mm wide, the anterior pair oblong-lanceolate, 2 mm wide, the lateral pair lanceolate, 1.5 mm wide, all acute, minutely ciliolate toward tip, striate-nerved; corolla red (tube) and orange (lobes), papillose-puberulous, 5.8 cm long from base to tip of upper lip, the tube 3 mm broad near base, narrowed to 1.5 mm at 5 mm above base, thence enlarged gradually to a slightly curved subventricose throat, 6 mm broad at mouth, the upper lip erect, ovate, 15 mm long and 7 mm wide, 2-lobed at tip, the lobes triangular, about 5 mm long and 2 mm wide at base, ending in slenderly acuminate recurved-spreading tips, the middle lobe of the lower lip oblong-elliptic, 17 mm long and 5.5 mm wide, the tip slender and recurved, the lateral lobes triangular, subobtusate, connate with the upper lip, their free portions, if any, about 1 mm long and broad; stamens reaching the tip of the upper lip; anthers 4.5 mm long and 1 mm broad, the basal lobe minutely mucronate; filaments exerted about 1 cm above the mouth of the corolla tube, glabrous; mature capsule not seen.

TYPE.—*J. Cuatrecasas 12873* (holotype US), Colombia, Norte de Santander, vicinity of Sarare, between El Ampero and La Mesa at the source of the Río Negro, 1400–1700 m alt, 7 Nov 1941.

DISTRIBUTION.—Andean Venezuela and north-eastern Colombia in the department of Norte de Santander. VENEZUELA. DISTRITO FEDERAL: Galipan, *Moritz 1271* (K, P, W). ARAGUA: Colonia Tovar, *Karsten s.n.* (LE). LARA: Barquisimeto-Río Claro, 6 Feb 1963, *Aristeguieta 4945* (US, VEN); Río Claro, 1360 m alt, Feb 1931, *Saer 785* (F, VEN); Distrito Jiménez, Parque Nacional Yacambú, El Blanquito, 17–19 km SSE of Sanare, 1500 m alt, 6 Aug 1970, *Steyermark, Delascio, & Dunster-ville 103505* (US, VEN). TRUJILLO: Escuque, 1400 m alt, Aug 1944, *Lasser 1188* (VEN); between Escuque and La Mesa de San Pedro, 1300–1650 m alt, 20–23 Feb 1971, *Steyermark 104764* (US, VEN). MÉRIDA: 1800 m alt, Sep 1846, *Funck & Schlim 943* (LE, P); Timotes, Jul 1948, *Vogl 1500* (M); 12 May 1956, *Bernardi s.n.* (NY); 35 km W of Mérida along road to La Carbonera, 1750 m alt, 12 Mar 1963, *Breteler 3410* (US, VEN); around La Azulita, 300 m alt, Sep 1952, *Humbert 26655* (P, US); between Hacienda Agua Blanca above La Azulita and Río Capaz, 975 m alt, 26 Apr 1944, *Steyermark 56152* (US, isotype of *A. megaphylla* Leonard; *Sto. Domingo*, 10–11 Nov 1952, *Aristeguieta 1051* (VEN). TÁCHIRA: Highway La Fria-La Grita, in Las Pavas, 200–250 m alt, 6 Oct 1967, *Bunting 2495* (US). APURE: Reserva Forestal San Camilo, San Camilo (El Nula), 250 m alt, 28 Mar 1968, *Steyermark, Bunting, & Blanco 101460* (US, VEN). COLOMBIA. NORTE DE SANTANDER: Region of Sarare, valley of the Río Margua between Campohermoso and the Río Negro, 1200–1500 m alt, 8 Nov 1941, *Cuatrecasas 12897* (US); Ocaña, Oct 1846–1852, *Schlim 258* (FI, K, P); E of Río Valegrá and S of Quebrada Valegrá, in the municipio of Chitagá, 2000 m alt, 16 Nov 1942, *Fosberg 19131* (US, holotype of *A. coccinantha* Leonard). WITHOUT LOCALITY: *Triana s.n.* (K).

105. *Aphelandra terryae* Standley

Aphelandra terryae Standley, Field Mus. Bot. Ser., 22:381. 1940.

Aphelandra incarnata Leonard, Contrib. U.S. Nat. Herb. 31: 242. 1953.

Shrubs or suffrutescent herbs to 3 m high; the branches subquadrangular toward tips, terete below, rather densely brown-puberulous; leaves numerous, the blades oblanceolate, to 30 cm long and 7 cm wide, abruptly acuminate (the tip more

or less curved), gradually narrowed from above the middle to a short, naked petiole (the petiole wing ending more or less abruptly), subchartaceous, entire or shallowly crenate, the upper surface glabrate except costa and lateral veins (12–16 pairs), the costa rather densely pilose, the lateral veins puberulous, the lower surface white-punctulate, glabrate except costa and veins, these rather prominent and puberulous; petioles (unwinged portions) to 1 cm long, puberulous, the hairs recurved; spikes more or less numerous, both terminal and subterminal, peduncled, to 6 cm long and 10–12 mm broad, the peduncles rather slender, 2–3 cm long, puberulous, the rachis puberulous; bracts red (living), entire, oval, about 10 mm long and 6 mm wide, 3-nerved, rounded or obtuse, mucronate or the lowermost acute, silky-puberulous, densely ciliolate, ocelli usually about 6 or 8, well defined, suborbicular, 0.5–0.75 mm in diameter, brown, nitid; bractlets lanceolate, 5.5 mm long, 1.5 mm wide, acuminate, carinate, faintly striate-nerved, puberulous, pilose at tip; calyx segments striate-nerved, acute and cuspidate, ciliate and somewhat erose toward tip, glabrous toward base, the posterior segment ovate, 7 mm long and 3 mm wide, the anterior pair lanceolate, about 1.5 mm wide near base, the lateral pair more narrowly lanceolate, slightly over 1 mm wide near base; corolla usually rose pink (sometimes red), puberulous, about 6 cm long, the tube 3 mm broad at base, 6 or 7 mm broad at mouth, the upper lip erect, ovate, about 15 mm long and 8 mm wide, 2-lobed, the lobes lanceolate, about 6 mm long and 2 mm wide at base, acute, the middle lobe of the lower lip spreading, ovate-lanceolate, about 21 mm long, 7 or 8 mm wide, acuminate, carinate, the lateral lobes partly adnate to the lower part of the upper lip, their free portions triangular-ovate, 2.5 mm long, 2 mm wide at base, obtuse; stamens reaching about midway between mouth of the tube and tip of upper lip; the anthers 6.5 mm long, apiculate, acute at base; capsules clavate, about 2 cm long, 6 mm broad near tip, 3 mm broad near base, about 3 mm thick, obtuse at tip, glabrous, nitid, punctulate; seeds (immature) flat, brown, hispidulous.

TYPE.—*M. E. & R. A. Terry 1377* (holotype F), Panama, Darién, Chepigana District, Tucuti, near sea level, 5 Mar 1940.

DISTRIBUTION.—Between sea level and 300 meters

altitude in southern Panama and Colombia. PANAMA. SAN BLAS: Mainland opposite Achituppu, 7 Dec 1966, *Lewis, Dwyer, Elias, & Solís 126* (MO, US). DARIÉN: Trail between Pinogana and Yavisa, 15 m alt, 17 Mar 1937, *Allen 256* (US); near Refugio, 15–21 m N of Santa Fe, 30 m alt, 16 Feb 1967, *Duke 10255* (US); near Helipad at Hydro Camp on Río Morti, 29 m alt, 15 Mar 1968, *Duke 15421* (US); Camp Tiotuma, 50 m alt, 15 Mar 1968, *Duke 15511* (US). COLOMBIA. BOLÍVAR: Quimari, Cordillera Occidental, 500 m alt, 4 May 1949, *von Sneider 5793* (COL). SANTANDER: Vicinity of Barranca Bermeja, Magdalena Valley, between Sogamoso and Colorado Rivers, 100–500 m alt, 19 Jul 1934, *Haught 1315* (US, holotype of *A. incarnata* Leonard); along the Río Colorado, near El Centro, 100 m alt, 8 Dec 1936, *Haught 2098* (US). CUNDINAMARCA: San Antonio, 200 m alt, 14 Jun 1948, *Haught 6243* (US). ANTIOQUIA: Between Río Guapá and León, 100 m alt, 18 Mar 1948, *Yepes, Blair, & Barkley 18C300* (US); *Ruiz, Rivera, & Barkley 18C388* (US); highway from Puerto Bélgica to Río Man, 8 Apr 1951, *Romero 2331* (COL); around Savaletas, 200–500 m alt, *Lehmann 7845* (K). CHOCÓ: Bahía Solano, near Ciudad Mutis, 0–75 m alt, *Killip & García 33576* (US); Hydro Camp 15 on Río Curiche, 300 m alt, 8 Mar 1968, *Duke 15380* (US); Truando Falls, Jan 1858, *Schott 3* (F).

106. *Aphelandra albert-smithii* Leonard

Aphelandra albert-smithii Leonard, Contrib. U.S. Nat. Herb. 31:232. 1953.

Shrub to 3.5 m high; stems terete, glabrous or the uppermost portions hirsutulous, to 1.25 mm long; leaf blades broadly oblanceolate, to 18 cm long and 6 cm wide, short-acuminate (the tip itself obtuse), narrowed from above middle to a short, winged petiole, subcoriaceous, entire or undulate, the upper surface sparingly hirsute, the lower surface rather densely hirsute, the hairs about 1 mm long, light brown, the costa and lateral veins (15–17 pairs) slender but prominent, the veinlets rather conspicuously and coarsely anastomosing; petioles (unwinged portion) to 1 cm long, hirsute; spikes terminal, solitary or several in a fascicle, the terminal spike sessile, the lateral spikes short-pedunculate, to 8 cm long and 1 cm broad, the

peduncles to 1 cm long, densely hirsute, the rachis glabrous to sparingly pilose; bracts drying brown, rhombic-ovate, 11 mm long and 6 mm wide, acute and cuspidate at tip, puberulous or bearing a few longer hairs toward tip, the margins ciliate, entire, the costa excurrent, ending in a small mucro, ocelli usually 6, elliptic, dark brown, nitid, 0.75–1 mm long, 0.5–0.75 mm wide, contiguous or overlapping; bractlets ovate, obscurely striate-nerved, acute, 6–7 mm long and 3.5 mm wide, subauriculate at base, moderately hirsute, the costa rather prominent, indurate at base; calyx 9–11 mm long, the segments puberulous, subcoriaceous, striate-nerved, indurate at base, the posterior segment oblong-ovate, 4.5 mm wide, rounded and apiculate, the anterior pair oblong, 3.5 mm wide, acute and apiculate, the lateral pair similar but slightly narrower; corolla 5.5 cm long, red, puberulous, the hairs conical, the tube 3 mm broad at base, narrowed to 1.5 mm at 5 mm above base, thence enlarged to a subcylindric throat 6 mm broad at mouth, the upper lip erect, narrowly oblong, about 5 mm wide, bilobed, the lobes lanceolate, 18 mm long, 4 mm wide, acuminate, the lower lip 3-lobed, spreading, the middle lobe lanceolate, 27 mm long, 7 mm wide near base, acuminate, the lateral lobes triangular, about 5 mm long, acute, the upper margins adnate to the lower part of the upper lip; stamens barely reaching tip of the upper corolla lip; anthers 5.5 mm long and 1.5 mm broad; filaments slender, hirsute at base, otherwise glabrous; ovary glabrous.

TYPE.—*Killip & A. C. Smith 16283* (holotype US, isotype NY), Colombia, Santander: In thicket in the Upper Río Lebrija Valley, NW of Bucaramanga, 400–700 m alt, 29 Dec 1926.

DISTRIBUTION.—KNOWN only from the type locality.

107. *Aphelandra gracilis* Leonard

FIGURE 16

Aphelandra gracilis Leonard, Proc. Biol. Soc. Wash. 56:54. 1943.

Shrub or small tree to 6 m high; branches strigillose or the lower glabrate, the cystoliths conspicuous; leaf blades lanceolate to oblong-lanceolate, to 16 cm long and 6 cm wide, acuminate

(the tip itself blunt), narrowed at base and decurrent on the petiole, entire, glabrous except on the costa and veins (8–10 pairs), these strigillose; flowers spreading, geminate, lax, borne on 1 to several slender terminal or subterminal spikes to 12 cm long, the rachis sparingly puberulous, the internodes mostly 6–8 mm long; bracts ovate, entire, to 8 mm long, 4.5 mm wide, acutish, pubescent without, glabrous within, ciliate, bearing on either side of the costa several small, sessile, nitid elliptical glands; bractlets lanceolate, 7 mm long, 2 mm wide, acuminate, sparingly puberulous without, sparingly ciliate, subcarinate, striate, the margins hyaline; calyx about 8 mm long, subglabrous, divided nearly to base, the segments lanceolate, 1.5–2 mm wide, acuminate, striate; corolla scarlet, puberulous, more or less curved, 5–5.5 cm long, about 2 mm in diameter at base, about 6 mm at throat, the lips 2 cm long, the upper lip erect, 2-lobed, the lobes triangular, 9 mm long, 4 mm wide at base, acuminate, the lower lip spreading, the middle lobe lanceolate, 18 mm long, about 5 mm wide, acute, the lateral lobes ovate, about 1 mm long; stamens exerted about 1.2 cm beyond mouth of the corolla tube; the filaments about 5 cm long, affixed at the base of the throat, glabrous; the anthers 6 mm long, apiculate, glabrous; capsule clavate, 22 mm long, 6.5 mm broad, 4.5 mm thick, glabrous, punctulate, 4-seeded; mature seed not seen.

TYPE.—*P. H. Allen 2908* (holotype US), Panama, Coclé, N of El Valle de Antón, 1000 m alt, 13 Jan 1942.

DISTRIBUTION.—Endemic to Panama, found in low cloud forests near the summit. PANAMA. COCLÉ: El Valle de Antón, along Río Indio trail, 500–700 m alt, 30 Jan 1935, *Hunter & Allen 311* (US); vicinity La Mesa, 1000 m alt, 21 Jan 1941, *Allen 2301* (US). PANAMÁ: Cerro Campana, 31 Dec 1957, *C. Earle Smith, Jr. & H. Morgan Smith 3356* (PH, US); Cerro Jefe, 870 m alt, 12 Mar 1967, *Dwyer, Gauger, & Baker 7241* (MO, US).

108. *Aphelandra dielsii* Mildbraed

FIGURES 52, 53

Aphelandra dielsii Mildbraed, Biblioth. Bot. 24. Heft 116:147. 1937.

Aphelandra dielsii Mildbraed var. *ericae* Mildbraed, Biblioth. Bot. 24. Heft 116:147. 1937.

Erect, branched shrub to 1.5 m high; stem glabrous, the internodes about 4 cm long, becoming woody basally; leaf blades lanceolate-oblong to obovate, 10–13 cm long, 2.5–3 cm wide, gradually long-acuminate at apex, narrowed and long-attenuate at base, the upper leaf blades (just below the inflorescence) larger and wider, almost obovate-elliptic, to 19 cm long and 7 cm wide, basally cuneate, barely narrowed on petiole, lateral nerves (8–11 pairs) arcuate-ascending, the upper surface dark blue, glabrous, lower surface lighter in color, glabrous except for costa and lateral nerves which are minutely tomentose; petioles almost none, or less than 3 mm long; inflorescence a terminal spike to 16 cm long, 1.5–3 cm in diameter, congested, bracts and calyx barely visible when in full bloom, the flowers opposite or alternate, distant, the rachis glabrous, conspicuous between the bracts, the peduncle short, less than 2 cm long; bracts broadly ovate, 7–9 mm long, 4–5 mm wide, gradually acuminate, the apex narrowly triangular, glabrous, the margins entire, ocelli minute, elliptic, dark brown, rather inconspicuous against the light brown of the bracts; bractlets 5–6 mm long, 2–3 mm wide, gradually extremely long-acuminate, the apex nearly subulate; the posterior calyx segment subulate, 1 cm long, 2.5 mm wide, the two anterior segments subulate, 9.5 mm long, 1.5 mm wide, the two lateral segments 8.5 mm long, 1 mm wide, linear-subulate, acute; corolla pink or rose, 7–7.5 cm long, the tube minutely papillose without, 4.5–5 cm long, 3 mm wide at base, narrowed to 1.5 mm at 1 cm above base then gradually enlarged to 5 mm at throat, the upper lip oblong, 18–24 mm long and 9 mm wide, 2-lobed, these 2 mm long and 2 mm wide at base, obtuse, the lower lip 3-lobed, the middle lobe elliptic, 2–2.5 cm long, 0.5 cm wide, acute at apex, the two lateral lobes subulate, 1.5 cm long and 3 mm wide, acute; stamens about equaling the upper lip, all equal; anthers yellowish, 4 mm long, apically obtuse, attached to each other by a tuft of hair; style somewhat exceeding the anthers; stigma unequally trifid, minutely and alternately toothed; mature capsule not seen.

TYPE.—*Diels 949* (holotype B, destroyed), Ecuador, Napo-Pastaza, Valley of the Río Pastaza near Río Negro, 1250 m alt, 12 Sep 1933.

DISTRIBUTION.—Eastern Ecuador, at elevations above 1100 meters, in the provinces of Tangurahua and Napo-Pastaza. ECUADOR. TANGURAHUA: Be-

tween Río Margaritas and Río Negro, along Canelos trail, 1230 m alt, 22 Mar 1939, *Penland & Summers 218* (F, US). NAPO-PASTAZA: Mera, 15 Apr 1940, *Lugo 199* (S), 21 Apr 1940, *Lugo 219* (S); Mera, towards Mangayacu, 1100 m alt, 7 Mar 1956, *Asplund 19633* (S), 26 Mar 1956, *Asplund 19971* (S); uplands near El Topo, along trail to La Gloria, 1200–1500 m alt, 17 Apr 1945, *Camp E-2404* (NY, US).

Mildbraed states that *A. dielsii* var. *ericae* is a much more robust variety with larger leaf blades and longer flowers. Both holotypes were deposited in the Berlin Herbarium and subsequently destroyed. Since no photographs were taken of these specimens and I have not seen any collections from Tena, Ecuador (type-locality of var. *ericae*), I assume for the time being that both taxa are one variable species.

109. *Aphelandra blandii* Lindau

Aphelandra blandii Lindau, Bull. Herb. Boiss. Ser., 5:656. 1897.—Leonard, Contrib. U.S. Nat. Herb. 31:267. 1953.

Suffrutescent; stems terete, glabrous except the tips, these sparingly strigose, the hairs about 0.5 mm long; leaf blades oblong-ovate, 15–25 cm long, 4–8 cm wide, long-acuminate at apex, more or less abruptly narrowed at base into a broadly winged petiole, entire or shallowly crenate, the upper surface drying dull green, glabrous, the lower surface drying light green, glabrous except the costa and lateral veins (10–12 pairs), these sparingly pubescent; petioles (unwinged portion) 1–2 cm long, strigose; spikes one to several, terminal and axillary, 5–17 cm long, about 1 cm broad, the rachis glabrous; bracts imbricate, lanceolate, to ovate-lanceolate, 9–12 mm long, 4–5 mm wide, acute to acuminate, entire, prominently 3-nerved, glabrous, ciliate, the ocelli replaced by dull, elliptical, alveolate areas to 2 mm long and 1.5 mm wide; bractlets lanceolate, 8–11 mm long, 1.5–2 mm wide, carinate, the keel pubescent, the hairs whitish, about 0.5 mm long; calyx segments oblong-lanceolate, 15–16 mm long, 1.5–3.5 mm wide, acute to acuminate and more or less apiculate, striate-nerved, glabrous, the posterior segment 3.5 mm wide, the anterior pair 3 mm wide, the lateral pair 2 mm wide; corolla 6–7 long, minutely papillose, red, the tube 3.5–5 cm long, 2–3 mm broad at base, 5 mm broad at mouth,

the upper lip oblong, ovate, erect, 23 mm long, 5–6 mm wide at base, 2-lobed at apex, the lobes lanceolate, acuminate, 8 mm long, 3 mm wide at base, the lower lip more or less spreading, 3-lobed, the middle lobe oblong, about 25 mm long and 5 mm wide, obtuse and apiculate, the lateral lobes oblong, 5–6 mm long, and 1.5–2 mm wide, subacute, adnate in part to the base of the upper lip; stamens barely reaching tip of the upper lip; anthers slender, 7–8 mm long and 1 mm broad, acute at both ends, dorsally pubescent; filaments 35 mm long, glabrous; style about 5.5 cm long; capsule subclavate, 15 mm long, 6 mm broad, 3 mm thick, obtuse at tip and apiculate, glabrous, punctulate; seeds brown, flat, 4 mm long, 3.5 mm wide, 1 mm thick, glabrous, the margins thin.

TYPE.—*Bland s.n.* (holotype B, destroyed, F photo 8701, isotype C, F photo 22154), Colombia, Cundinamarca, Santa Fé de Bogotá.

DISTRIBUTION.—Andean Colombia in the departments of Antioquia and Cundinamarca. COLOMBIA. ANTIOQUIA: 13 km E of Bolivar, 21 Jan 1949, 2700 m alt, *Araque & Barkley 19 An032* (US); Jerico, Dec 1940, *Daniel & Tomas 2589* (GH, US).

Lindau, comparing *Aphelandra blandii* with *A. hartwegiana*, states that *A. blandii* differs from that species by having acuminate bracts and calyx lobes and pubescent bractlets. He suggests also a relationship with *A. glabrata* (= *A. pulcherrima*) a species with a shorter calyx and a densely pubescent rachis.

110. *Aphelandra haughtii* Leonard

Aphelandra haughtii Leonard, Contrib. U.S. Nat. Herb. 31: 239. 1953.

Slender shrubs to 4 m high; stems terete, subquadrangular toward tip, densely hirsute, the hairs to 1.5 mm long, sordid, the lower portions glabrate, gray, minutely roughened by the scars of the fallen hairs; leaf blades elliptic-oblong or broadly oblanceolate, 18–21 cm long, 6–9.5 cm wide, slenderly or shorter acuminate, narrowed at base and decurrent on the petiole, subcoriaceous, entire, the upper surface drying brownish green, sparingly hirsute, the costa and lateral veins (10–14 pairs) flat or slightly raised, inconspicuous, densely hirsute-pilose, the lower surface drying slightly lighter than the upper, the pubescence similar to upper

surface except hairs slightly shorter; petioles (unwinged portion) 3–15 mm long, hirsute-pilose; spikes terminal, solitary or several, sessile or subsessile, to 6 cm long, about 8 mm broad, the rachis glabrous to glabrate; bracts imbricate, rhombic-ovate, 5 mm long and 4.5 mm wide, obtuse or rounded at apex, entire, coriaceous, subappressed, glabrous to sparingly hirsute toward tip, the margins of the upper half sparingly ciliate, ocelli usually 6, elliptic, dark brown, 1 mm long and 0.75 mm wide, closely crowded or even overlapping; bractlets ovate, oblique, 4 mm long, and 2 mm wide, acuminate, glabrous to sparingly puberulous toward tip, subcarinate at base; calyx glabrous, 7 mm long, the posterior segment narrowly ovate, 4 mm wide, acute, the anterior pair lanceolate, 2 mm wide, acuminate, the lateral pair lanceolate, 1.5 mm wide, acuminate, all of the segments striate-nerved and inconspicuously scurfy at tip, the costa more prominent than the lateral nerves; corolla scarlet, papillose-puberulous, 7 cm long, the tube straight or sometimes slightly curved, subcylindric, about 2 mm broad at base, 6 mm broad at mouth, the upper lip elliptic, 20 mm long and 8 mm wide, bilobed, the lobes triangular, 10 mm long and 5 mm wide at base, slenderly acuminate, the tips spreading, the middle lobe of the lower lip spreading, oblong-elliptic, 27 mm long, 7 mm wide, acuminate, the lateral lobes 6 mm long, partly adnate to the upper lip, the free portion triangular, 1.5 mm long and 1 mm wide, rounded; stamens almost reaching the tip of the upper lip; anthers 7 mm long and 1 mm broad, mucronate at base; capsules not seen.

TYPE.—*O. Haught 1948* (holotype US), Colombia, Santander, at foot of the Cerro Armas, 300 m alt, 29 Jul 1936.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. SANTANDER: Along the Aguas Blancas Creek, about 25 km S of El Centro, vicinity of Barranca Bermeja, 100 m alt, 20 Nov 1936, *Haught 2086* (US).

111. *Aphelandra tetragona* (Vahl) Nees

FIGURE 7

Aphelandra tetragona (Vahl) Nees in de Candolle, Prodr. 11: 295. 1847.

Justicia tetragona Vahl, Symb. Bot. 3:5. 1794.

Justicia cristata Jacquin, Pl. Hort. Schönbr. 3:38, pl. 320. 1798.

Aphelandra cristata (Jacquin) R. Brown, Bot. Reg. 18, pl. 1477, 1832.

Aphelandra tetragona (Vahl) Nees var. *grandis* Nees in de Candolle, Prodr. 11:295. 1847.

Shrub or suffrutescent herb to 3 m high; stems erect, quadrangular toward tip, somewhat light grayish green, glabrous; leaf blades ovate-lanceolate to widely ovate-elliptic, 23–29 cm long, 6.5–19 cm wide, short-acuminate (the tip itself blunt), abruptly narrowed to a cuneate or sometimes short decurrent base, firmly membranaceous to subcoriaceous, entire, the margins faintly undulate-crenate, the upper surface drying dark green, glabrous, the costa somewhat protruding, the lateral veins (10–14 pairs) slightly raised, the lower surface drying a lighter green, glabrous or the costa and lateral veins puberulous, the veinlets finely reticulate; petioles 5–17 cm long, canaliculate, glabrous; spikes usually 3–5, occasionally solitary, congested, quadrangular, terminal, subsessile, about 10 cm long and 1 cm wide (without corollas), the lateral spikes usually somewhat smaller, the rachis white-cottony; bracts imbricate, lanceolate to narrowly ovate, 10–11 mm long, 3.5–4 mm wide, acute to slightly obtuse at the apex (the tip itself a small mucro), entire, greenish brown, firm, woolly-white at base and villous along the margin, elsewhere glabrous, markedly striate-nerved, ocelli 1–4, conspicuous, orbicular, dark brown; bractlets lanceolate, 9–10 mm long, about 2 mm wide near base, acute at apex, carinate, the keel densely white-villous, glabrous within, finely striate-nerved; calyx 11–12 mm long, the posterior segment oblong, 3 mm wide, the anterior segments lanceolate, about 2 mm wide, the lateral pair narrowly lanceolate, 1.5 mm wide, all acute, scarious, striate-nerved, slightly villous at the tips; corolla brilliant pink to deep red, puberulous, 6.5–7 cm long, about 2 mm at tip of ovary, thence gradually enlarged and slightly ventricose, about 8 mm broad at mouth, the upper lip erect, ovate, 19 mm long, 8 mm wide, bifid, the lobes triangular, 9.5 mm long and 4 mm wide, slenderly acuminate, the lower lip 3-lobed, erect or spreading with age, the middle lobe lance-ovate, about 22 mm long and 8 mm wide, acute, the lateral lobes reduced to about 5 mm long and 1 mm wide, obtusish, adnate for the most part to the upper lip; stamens exerted about 15 mm be-

yond the mouth of the corolla tube; anthers 6 mm long, acute at apex, acute and mucronulate at base; capsule not seen.

TYPE.—*von Rohr* (holotype C), "E. Cajenna."

DISTRIBUTION.—Native to the vicinity of Caracas, Venezuela. Commonly cultivated in the botanical gardens of Europe. VENEZUELA. MIRANDA: Forest of Guatopo, 27 m NNW of Altigracia de Orituco, 26 m SE of Santa Teresa, 500 m alt, 11 Sep 1960, *Steyermark 87086* (US, VEN); Guatopo, 400–600 m alt, 14 Nov 1956, *Bernardi s.n.* (NY); El Guapo, 200 m alt, Oct 1959, *Aristeguieta 4003* (VEN); Parque Nacional de Guatopo, NW of Morro de Aguaramal, between Altigracia de Orituco and Santa Teresa, 610–710 m alt, 29 Nov 1961, *Steyermark 90161* (US, VEN); Parque Nacional de Guatopo, 14.5 km from Los Alpes, 12 km from Ranchería Mi Querencia, 520 m alt, 27 Oct 1966, *Steyermark 97548-A* (US). DISTRITO FEDERAL: Las Queseras, near Caracas, Oct 1924, *Allard 143* (P, US, VEN); Peonias, Caracas, 1843, *Funck 491* (P); Cerro Naiguatá, 900–1100 m alt, 2 Nov 1963, *Steyermark 91857* (US); Cerro Naiguatá, 1500–1635 m alt, 8 Oct 1966, *Steyermark 97472* (US, VEN). ARAGUA: La Begonia Station, 2 Nov 1917, *Pittier 7568* (US, VEN); Colonia Tovar, *Engels s.n.* (LE). MÉRIDA: Quebrada de la Guina, Nov *Moritz 1272* (K, P, isotypes of *A. tetragona* (Vahl) Nees var. *grandis* Nees). CULTIVATED MATERIAL. Palmengarten, Frankfurt am Main, Germany, 30 Sep 1959, *Meyer 7156* (US); Cult. hortus Vindob. (W); Hortus bot. Monacensis, 1836 (M); Sept. die post natum filium Maximilianum 1832, *Herb. Martii* (BR); Kew garden specimen, 23 Sep 1889, (K); at the Guirao, Venezuela, flowered in tropical pits at Kew, 27 Sep 1962 (K).

Aphelandra cristata (Jacquin) R. Brown is based on *Justicia cristata* Jacquin. Brown's plate and the material examined from Vienna are all *A. tetragona* (Vahl) Nees. One specimen labeled: "*Justicia cristata* Jacq. Hort. Schönbr. t. 320," could possibly be the type of Jacquin's *J. cristata*.

112. *Aphelandra schieferae* Leonard

FIGURE 19

Aphelandra schieferae Leonard, Contrib. U.S. Nat. Herb. 31: 213. 1953.

Shrubs about 1.5 m high; stems subquadrangular,

thick (up to 8 mm in diameter at base of inflorescence), the upper portions densely gray-pubescent to subtomentose; leaf blades oblanceolate, to 36 cm long and 10 cm wide (slightly above the middle), acute at apex, gradually narrowed from above middle to base and decurrent on the petiole, the margins crenate, the upper surface drying dark olive-green, the costa and lateral nerves (about 21 pairs) densely hirtellous, the surface between the veins sparingly hirtellous, the lower surface drying a light grayish olive green, pilose, the costa and veins somewhat strigose; petioles 2–3 cm long, subtomentose; spikes terminal and axillary, forming a rather loose, leafy panicle to 27 cm long and 17–20 cm broad, the branches of the panicle ascending, 1–13 cm long, light gray-tomentose, the spikes to 9 cm long and 5–8 mm broad, the rachis silvery tomentose, except the glabrous region adjacent to the posterior calyx segment; bracts imbricate, bright scarlet, drying brown, triangular-ovate, subcarinate, 8 mm long, 4.5 mm wide at 2 mm above base, thence gradually narrowed to a slender tip, entire, coriaceous, coarsely striate, puberulous, the margins ciliolate, ocelli occurring usually in pairs, elliptic, 1 mm long and 1.75 mm wide, brown, nitid, indistinctly alveolate; bractlets lanceolate, carinate, 7 mm long, 2 mm wide at 2.5 mm above base, thence gradually narrowed to a slender tip, the keel densely silvery pilose, the region adjacent to the keel puberulous, the marginal area subhyaline and glabrous, the margins sparingly ciliolate; calyx 7 mm long, the segments lanceolate, finely striate-nerved, puberulous, comose, the posterior segment 2.25 mm wide near base, the anterior pair 1.75 mm wide, the lateral pair 1 mm wide, all narrowed from near base to a sharp, slender tip; corolla bright scarlet, 5 cm long from base to tip of upper lip, puberulous, the hairs conical, the tube 4 mm broad near base, narrowed to 1.5 mm at 7 mm above base, thence enlarged to 7 mm near mouth, the upper lip narrowly ovate, 21 mm long and 6 mm wide at middle, tipped by 2 triangular acuminate lobes about 3 mm long and 1.5 mm wide at base, the middle lobe of the lower lip lanceolate, 22 mm long, 5 mm wide, slenderly acuminate, the lateral lobes adnate to the lower part of the upper lip, their free portions small, about 1 mm long; stamens slightly exerted beyond the mouth of the corolla tube; anthers 6 mm long

and 1 mm broad, pilose dorsally; ovary glabrous; capsule not seen.

TYPE.—*H. Schiefer* 791 (holotype GH, isotype US), Colombia, Meta, hill back of Tres Esquinas Mill, Villavicencio, 12 Jul 1945.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. META: Servitá, vicinity of Villavicencio, 300–900 m alt, Dec 1855, *Triana s.n.* (COL, P); Villavicencio, 480 m alt, 7 Feb 1948, *Sandeman* 5802 (K).

113. *Aphelandra parvispica* Leonard

Aphelandra parvispica Leonard, Contrib. U.S. Nat. Herb. 31: 216. 1953.

Aphelandra pedunculata Leonard, Fieldiana, Bot. 28: 554. 1953.

Aphelandra grantii Leonard, Contrib. U.S. Nat. Herb. 31:718. 1958.

Shrub or small tree to 4.5 m high; stems terete, glabrous or the tips sparingly strigose, the hairs sordid, the older portions of the stems gray, glabrous; leaf blades lance-oblong to elliptic, 13–21 cm long, 3.5–6.5 cm wide, acuminate, the tip more or less curved, cuneate at base, membranaceous to subcoriaceous, entire, the upper surface drying brown or olivaceous, essentially glabrous, a few small subappressed hairs sometimes found on the basal part of the costa, this and the lateral veins (10–14 pairs) flat or slightly raised, inconspicuous, the lower surface drying a somewhat lighter shade than the upper, glabrous or very sparingly strigose, the hairs confined chiefly to the costa and lateral veins; petioles rather slender, 1–3 cm long, glabrous or sparingly strigillose; flowers borne in terminal panicles of small spikes 2–6 cm long and 5–8 mm broad, the panicles to 10 cm long and 8 cm broad, the peduncles to 4 cm long, slender, sparingly strigillose, or the ultimate peduncles densely hirsute, the hairs more or less spreading, all sordid, the rachis white-cottony; bracts salmon-pink to red, drying reddish brown, imbricated, rhombic-ovate, 5–6 mm long, 4–5 mm wide, acute to acutish, entire, white-cottony-tomentose at base, otherwise essentially glabrous except the lowermost, these strigose dorsally, the margins ciliolate toward base, the costa and nerves below middle, ocelli one to several, minute, elliptic, to 0.5 mm long, brown, nitid; bractlets obliquely lanceolate, 4.5–6 mm long, 1–2 mm wide, acute, somewhat falcate, cari-

nate, dorsally white-floccose, except the thin nearly glabrous margins; calyx 5.5–6 mm long, glabrous or sparingly puberulous at tip, the posterior segment narrowly ovate, 2.5–3.5 mm wide, the anterior pair lanceolate, 1.5–2 mm wide, the lateral pair narrowly lanceolate, 1–1.5 mm wide, all acute to slightly obtuse (the lateral pair apiculate), ciliate toward apex, striate-nerved; corolla 4–4.5 cm long, red, papillose, or some papillose-pubescent, the tube slightly curved and subventricose, 3.5 mm broad at base, narrowed to 1.5 mm at 5 mm above base, thence enlarged to about 6 mm at mouth, the upper lip erect, narrowly ovate, 12–14 mm long, 2-lobed at apex, the lobes narrowly triangular, 3.5–4.5 mm long, about 2 mm wide, acuminate, the tip curved, the middle lobe of the lower lip lanceolate, spreading, about 15 mm long and 5 mm wide above base, acuminate, the slender tip recurved, the lateral lobes adnate to the basal part of the upper lip, their free portion triangular, barely 0.5 mm long and broad; stamens reaching the tip of the upper lip; anthers 4 mm long, 0.5 mm wide, acute and minutely arachnoid at tip, minutely apiculate at base, puberulous dorsally; filaments hirtellous toward the base, the upper portions glabrous; ovary glabrous; capsule not seen.

TYPE.—*J. Cuatrecasas 12883* (holotype US), Colombia, Norte de Santander, in basin of the Río Margua, between Campohermoso and Río Negro, vicinity of Sarare, 1200–1500 m alt, 8 Nov 1941.

DISTRIBUTION.—Northern Venezuela and Colombia at elevations above 1200 meters. VENEZUELA. MÉRIDA: Rich forest above Hacienda Agua Blanca, above La Azulita, 1375–1920 m alt, 25 Apr 1944, *Steyermark 56095* (US, holotype of *A. pendunculata* Leonard, isotype VEN). COLOMBIA. NORTE DE SANTANDER: In woods between El Alto del Loro and Alto de Santa Inés, vicinity of Sarare, 1800–2200 m alt, 18–21 Oct 1941, *Cuatrecasas, Schultes, & E. Smith 12516* (COL, US). CUNDINAMARCA: Caño de la Muerta, in the Gazaunta Valley, 15 km NW of Medina, 1950 m alt, 4 Oct 1944, *Grant 10363* (US, holotype of *A. grantii* Leonard).

114. *Aphelandra macrostachya* Nees

Aphelandra macrostachya Nees in Martius, Fl. Bras. 9:88. 1847; in de Candolle, Prodr. 11:296. 1847.

Aphelandra schultesii Leonard, Contrib. U.S. Nat. Herb. 31: 237. 1953.

Aphelandra monophthalma Leonard, Wrightia 2:151. 1961.

A beautiful shrub of low elevations; branches terete below, tetragonous, thick (to 4 mm in diameter at base of inflorescence), the upper portion more or less strigose-scabrous, lenticels scattered, oblong, about 1 mm long; leaf blades oblong-oval, 20–23 cm long, 6–8 cm wide, long acuminate at apex, narrowed at base and decurrent on the petiole, the margins entire or crenate, the upper surface shining, drying dark olivaceous, the costa and lateral nerves (about 12 pairs) sparingly hirtellous, the surface between the veins glabrous to sparingly hirtellous, the lower surface drying a light olive green, sparingly hirtellous, the hairs on the costa and veins hirtellous-strigillose; petioles (unwinged portion) 2–3 cm long, moderately hirtellous; flowers borne in terminal and axillary spikes, these elongate, 10–13 cm long, subsessile, with shorter lateral spikes, the peduncle 3–5 cm long, glabrous or sparingly hirtellous, the rachis silvery tomentose, except the glabrous region adjacent to the posterior calyx segment; bracts imbricate, drying brown, triangular-ovate, subcarinate, 6 mm long, 4 mm wide at 2 mm above base, thence gradually narrowed to a slender, acuminate tip, entire, coriaceous, striate-nerved, puberulous, the margins ciliate, ocelli, occurring usually in pairs, elliptic, 1 mm long and 1.75 mm wide, brown, nitid, indistinctly alveolate; bractlets lanceolate, carinate, 7 mm long, 2 mm wide at 2.5 mm above base, thence gradually narrowed to a slender tip, the keel densely silvery velutinous, the region adjacent to the keel puberulous, the marginal area subhyaline and glabrous, the margins sparingly ciliate; calyx 7 mm long, the segments lanceolate, finely striate-nerved, inconspicuously puberulous, comose, the posterior segment 2.5 mm wide near base, the anterior pair 1.75 mm wide, the lateral pair 1 mm wide, all narrowed from base to a sharp, slender tip; corolla red, 5–7 cm long, puberulous, the hairs conical, the tube 4 mm broad near base, narrowed to 1.5 mm at 7 mm above base, thence enlarged to 7 mm near mouth, the upper lip narrowly ovate, 20–25 mm long and 6 mm wide at middle, tipped by 2 triangular acuminate lobes about 8 mm long and 3 mm wide at base, the middle lobe of the lower lip lanceolate, 20 mm long, 4.5 mm wide, slenderly acuminate, the lateral lobes adnate to the lower part of the upper lip, their free portion small, about 1 mm long; stamens slightly exerted beyond the mouth of the corolla tube; anthers 6 mm long and 1 mm

broad, glabrous; capsule oblong, 2 cm long, chestnut brown, apiculate at apex, glabrous, muricate.

TYPE.—*Martius 3179* (holotype M, F photo 20496), Colombia, Amazonas, Río Negro, in the mountains of Aracuara along the Río Japurá, Dec–Jan 1820.

DISTRIBUTION.—In the northwestern Amazonian lowlands of Colombia and Brazil. COLOMBIA. VAUPES: Banks of Río Inírida, at “Alto Caribe,” 220 m alt, 23 Jan 1953, *Fernández 1927* (US); banks of the Río Papunáua, 5 km above the mouth of the Inírida, 220 m alt, 1 Feb 1953, *Fernández 2040* (US); vicinity of the portage of Yuruparí, 3 Mar 1944, *Gutiérrez & Schultes 936* (MEDEL, holotype of *A. schultesii* Leonard); along the Río Vaupés in the vicinity of Miraflores, 300 m alt, 3 Jan 1944, *Gutiérrez & Schultes 506* (MEDEL). AMAZONAS-VAUPES: Río Apaporis, between the rivers Kananarí and Pacoa, 250 m alt, 1–15 Dec 1951, *García-Berriga 13920* (US, holotype of *A. monophthalma* Leonard); *García-Berriga 13926* (US). BRAZIL. AMAZONAS: Near Panurè at the Río Vaupés, Nov 1852, *Spruce 2591* (K, LE, P, W); Taracuá on the Río Vaupés, forest, 5 May 1924, *Melin 89* (S).

Probably related to *A. pulcherrima*, this species should be easily recognized by its slender spikes and small acuminate bracts.

115. *Aphelandra kingii* Wasshausen

Aphelandra kingii Wasshausen, *Phytologia* 25:481. 1973.

Small, suffrutescent shrub, about 0.5 m high; stem 7 mm in diameter at base, glabrous below, upwardly becoming densely strigose; leaf blades elliptic to oblong, 13–16 cm long, 5–7 cm wide, abruptly acuminate at tip, narrowed at base to a short petiole 5 mm long, entire, sparingly strigose above, the lower surface densely strigose, the hairs about 2 mm long, the costa and lateral veins (about 7–9 pairs) rather prominent, more so than above; flowers borne in a sessile, terminal oblong-ovate spike about 7 cm long and 2.5 cm wide, the rachis glabrous; bracts imbricate, rhombic-ovate, 20–21 mm long, 15 mm wide, acute at apex, the tip itself a small mucro, cuneate at base, green, coriaceous, entire, striate-veined, bordered by a narrow subhyaline margin about 0.5 mm wide; bractlets subulate, 12 mm long, 2.5 mm wide, glabrous, each ending in a minute spine; calyx segments 8–9 mm

long, glabrous, striate-veined, the posterior segment subulate, 2 mm wide, acuminate at apex, occasionally bearing a pair of minute teeth near the tip, the anterior pair subulate, 1.5 mm wide, acuminate at apex, the lateral pair conduplicate; corolla wanting; capsule oblong, 1.5 cm long, 5 mm wide, drying light brown, glabrous, apiculate at tip; seeds dark brown, 4 mm in diameter, muricate.

TYPE.—*King & Guevara 6136* (holotype US), Colombia, Putumayo, 40 km NW of Puerto Asís, 300 m alt, 31 Jul 1965.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra kingii is closely related to *A. boyacensis* Leonard, but the bracts, bractlets, and calyx segments of that relative are considerably longer and wider.

116. *Aphelandra boyacensis* Leonard

Aphelandra boyacensis Leonard, *Contrib. U.S. Nat. Herb.* 31: 198. 1953.

Shrub 1–2 m high; stem to 5 cm in diameter at base, the branches strigose; leaf blades obovate, to 25 cm long and 12 cm wide, abruptly acuminate, narrowed at base to a short petiole 5 mm long, shallowly sinuate-dentate or entire, glabrous above or sparingly strigose, the lower surface densely strigose, the hairs about 1 mm long, the costa and lateral veins (6–12 pairs) rather prominent, more so than above; flowers borne in a subsessile terminal oblong-ovate spike about 7 cm long and 3.5 cm in diameter, the rachis sparingly strigose; bracts imbricate, entire, oblong-elliptic, 35 mm long, 17–18 mm wide (the uppermost smaller), acute to slightly obtuse (tipped by a mucro 0.5 mm long), thin, green, coarsely reticulate (the meshes open), pergamentaceous, glabrous except the costa, this sometimes sparingly pubescent; bractlets lanceolate, 2 cm long, 5 mm wide, glabrous, thin, veiny, each ending in a minute spine; calyx pale green, conical, the segments lanceolate, the posterior one about 15 mm long and 3.5 mm wide, the anterior pair slightly shorter and more narrowed, the lateral pair 13 mm long and 3.5 mm wide, all acute or acuminate and substrate; corolla pubescent without, about 3 cm long, very fragrant, creamish, the throat yellow, the lobes ovate to suborbicular, about 8 mm long; ovary glabrous; capsule not seen.

TYPE.—*A. E. Lawrance 565* (holotype S, US photo 3637, isotypes MO, NY), Colombia, Boyaca, at El Humbo, 900 m alt, 7 Nov 1932.

DISTRIBUTION.—Known only from the type-locality.

117. *Aphelandra colorata* (Vellozo) Wasshausen, new combination

Ruellia colorata Vellozo, Fl. Flum. 267, no. 9. 1825; Icones 6, pl. 99. 1831.

Lagochilium montanum Nees in Martius, Fl. Bras. 9:87. 1847; in de Candolle, Prodr. 11:293. 1847.

Aphelandra montana (Nees) Lindau in Engler & Prantl, Natürl. Pflanzenfam. 4, Abt. 3b:322. 1895.

Plants shrubby; stem subquadrangular, more or less strigillose above, becoming glabrous beneath; leaf blades oval-elliptic to oblong, 18–20 cm long, the lower about 6 cm wide, the upper 4.5 cm, acute, narrowed at base and decurrent on the petiole, moderately strigillose, the margins entire, deep green above, olivaceous beneath, strigillose, especially the costa and lateral veins (9–12 pairs); petioles (unwinged portion) 0.5–1 cm long, the pubescence similar to that of the stem; flowers in solitary, sessile, terminal or sometimes in one or more smaller basal spikes, these 7.5–9 cm long, oblong in outline, 3.5 cm wide (without flowers), closely imbricate, not spreading with age, the spike subtended by a pair of small lanceolate leaves; bracts large, purple, ovate-elliptic, 30–37 mm long and 15 mm wide, obtuse, the tip revolute, sometimes minutely mucronate, slightly narrowed at base, subcoriaceous, 9-nerved, glabrous, the margins entire; bractlets lanceolate, 3.5 mm long, 1 mm wide, acute, the tip a small mucro, striate-nerved, subhyaline, glabrous; calyx 4 mm long, the segments subequal, lanceolate, striate-nerved, subhyaline, glabrous, the tip ending in a small mucro (except posterior), the posterior segment 2 mm wide, retuse, the anterior pair 1 mm wide, the lateral pair 0.5 mm wide; corolla red, 3.8 cm long, barely exceeding the subtending bracts, glabrous, the tube erect, 2.5 cm long, narrow, 4 mm wide at base, then narrowed to 2 mm at 7 mm above base, gradually enlarged to 6 mm wide at mouth, the upper lip erect, oblong-lanceolate, 13–14 mm long and 5 mm wide, bifid, the lobes 4 mm long and 2 mm wide, revolute, obtuse, connivent, the lower lip 3-lobed, the lobes subequal, the middle lobe

ovate, 1.4 cm long and 4.5 mm wide, revolute, the lateral lobes lanceolate, 1.3 cm long, 3 mm wide, obtuse, spreading; stamens equaling the limb; filaments smooth, flattened; anthers 6 mm long, acute at both apex and base; style and stigma equaling stamens; stigma narrow, not infundibular, entire; capsule 12 mm long, tetragonal, obtuse.

TYPE.—*Vellozo s.n.*, lost, if any, specimens were ever made. Typification is on the basis of the description and plate, especially the latter.

DISTRIBUTION.—Southeastern Brazil in the states of Minas Gerais and São Paulo. BRAZIL. MINAS GERAIS: Antonio Pereira, Mar, *Martius 922* (M, syntype of *L. montanum* Nees); *Ackermann s.n.* (BR, syntype of *L. montanum* Nees). SÃO PAULO: Serra de S. Giraldo near Guidowald, in Indorun Coroados district, *Sellow s.n.* (B, destroyed, F photo 8674, syntype of *L. montanum* Nees); Ubatuba, Est. Exp. Ubatuba, 14 Mar 1939, *Viegas s.n.* (US). WITHOUT EXACT LOCALITY. *Sellow s.n.* (K).

118. *Aphelandra clausenii* Wasshausen, new name

FIGURE 11

Lagochilium mucronatum Nees in Martius, Fl. Bras. 9:86. 1847; in de Candolle, Prodr. 11:293. 1847 [non *Aphelandra mucronata* Nees, 1847].

Plants shrubby; stem terete, glabrous; leaf blades oblong to elliptic, 17–25 cm long, the lower about 8 cm wide, the upper 4.5–5 cm wide, acuminate, the tip rounded, narrowed at base and long-decurrent on the petiole, glabrous and deep green above, the margins entire or undulate, the lower surface drying a lighter green, glabrous except the costa and lateral veins (6–8 pairs), these sometimes sparingly puberulous; petioles (unwinged portion) 0.5–1 cm long, canaliculate above, glabrous; flowers borne in solitary, sessile, terminal spikes, these 7–10 cm long, oblong in outline, 2–3 cm wide (without flowers), the bracts imbricate, somewhat spreading with age, the spike subtended by a pair of small lanceolate leaves; bracts large, colored, obovate, 35 mm long, 15 mm wide, cuspidate-mucronulate, slightly narrowed and cuneate at base, subcoriaceous, basally distinctly 5-nerved with reticulate venation near the tip, glabrous, the margins entire; bractlets lanceolate, 9 mm long, 1.5 mm wide, aristate, striate-nerved, subhyaline, minutely

ciolate; calyx 15–17 mm long, the segments subequal, lanceolate, striate-nerved, subhyaline, glabrous, the posterior segment 4 mm wide, ciliolate at apex, the anterior pair 2.5 mm wide, the lateral pair 1.75 mm wide, these and the anterior segments tipped by a small mucro; corolla red, 3.5–3.7 cm long, barely exceeding the subtending bracts, glabrous, the tube erect, 2.5 cm long, narrow, 4 mm wide at base, thence gradually enlarged to 6 mm wide at mouth, the upper lip erect, oblong, 10 mm long and 5 mm wide, bifid, the lobes 5 mm long and 3 mm wide, acute, connivent, the lower lip 3-lobed, the lobes subequal, the middle lobe ovate, 1.2 cm long and 4.5 mm wide, acute, the lateral lobes lanceolate, 1.2 cm long, 3 mm wide, acute, spreading; stamens equaling the limb; filaments flattened, smooth; anthers 8 mm long, acute, mucronate at base; style and stigma slightly exceeding stamens; stigma somewhat infundibular, entire, pubescent; mature capsule not seen.

TYPE.—*M. Claussen 1074* (syntype P), Brazil, Minas Gerais, 1838.

DISTRIBUTION.—Southeastern Brazil, in woods in the states of Minas Gerais and Rio de Janeiro. BRAZIL. MINAS GERAIS: Tombos, Fazenda da Cachoeira, 10 Jul 1935, *Barreto 1519* (F). RIO DE JANEIRO: March 1872, *Glaziou 4894* (K, P).

119. *Aphelandra hintonii* Wasshausen

Aphelandra hintonii Wasshausen, *Phytologia* 25:476. 1973.

Suffrutescent shrub; stems subquadrangular, glabrous to hirtellous; leaf blades ovate, 21–25 cm long, 9.5–12.5 cm wide, acuminate (the tip obtuse), narrowed and conspicuously attenuate at base, submembranaceous, entire or shallowly crenate, the upper surface dark-olivaceous, strigillose, the lower surface brownish green, hirsute, the costa and lateral veins (12–15 pairs) prominent on the lower surface, densely hirsute; petioles (unwinged portion) 1.5 cm long, densely hirsute; flowers borne in a short, sessile, terminal spike 8 cm long and 3.5 cm wide (without corollas), subtended by a number of small, leaf blades near the base, these ovate, 9 cm long, 3.5–4 cm wide, the bracts densely imbricate, viscid, the rachis densely sericeous; bracts ovate, 33 mm long and 15 mm wide, acute, cuneate, colored, densely glandular-pilose, prominently 3-nerved, the margins entire, ciliate; bractlets lanceo-

late, subcarinate, 23 mm long, 4.5 mm wide, striate-nerved near base, the veinlets reticulate above middle, glandular-pilose; calyx segments lanceolate, 19–22 mm long, subequal, striate-nerved, glandular-pilose, the posterior segment 5.5 mm wide, the anterior pair 3.5 mm wide, the lateral pair 3 mm wide; corolla red, 6.5–7 cm long, glandular-pilose, the tube erect, 5 mm wide at base, narrowed to 4 mm at 8 mm above base, thence gradually enlarged to 9 mm at mouth, the upper lip oblong, erect, 2 cm long, 5 mm wide, entire, acute, the lower lip spreading, 3-lobed, the lobes subequal, the middle lobe obovate, 2 cm long, 1.5 cm wide, obtuse or rounded, the lateral lobes broadly elliptic, 1.5 cm long, 7 mm wide, acute; stamens exerted 1.6 cm beyond the mouth of the corolla tube; anthers 4.5 mm long, 1 mm wide, rounded at both ends; ovary 5 mm long, 2 mm wide, glabrous; capsule not seen.

TYPE.—*G. Hinton 16049* (holotype US, isotype NY), Mexico, Michoacán, Coalcoman, Naranjillo, 30 Oct 1941.

DISTRIBUTION.—Known only from the type-locality.

This species, known only from one collection, is distinguished by its large and broad leaf blades, short terminal spike, large, glandular-pilose bracts, and the large size of the corolla. The shape of the leaves and flowers somewhat recalls *A. madrensis* Lindau, but *A. hintonii* does not seem to be closely allied to any other species.

120. *Aphelandra blanchetiana* (Nees) Hooker

Aphelandra blanchetiana (Nees) Hooker, *Bot. Mag.* 117, pl. 7179. 1891.

Strobilorachis blanchetiana Nees in Martius, *Fl. Bras.* 9:85. 1847; in de Candolle, *Prodr.* 11:294. 1847.

Aphelandra clava Wawra, *Oester. Bot. Zeitschr.* 12:174. 1862.
Aphelandra portiana Morel var. *clava* (Wawra) Wawra, *Bot. Ergeb. Reise Bras.* 80, pl. 14. 1866.

Aphelandra amoena Bull, *Cat.* 7, 1888, fide *Index Kew Bull.* 1889:77. 1889.

Herbaceous, glabrous shrub; stem stout, 60 cm high, glabrous; leaf blades oblong-ovate, 21–32 cm long, 7–10 cm wide, acute to shortly acuminate, narrowed at base and decurrent on the petiole, entire, thin, the upper surface dark green, glabrous to sparingly puberulous, the costa and lateral veins (about 20 pairs) usually variegated silvery-gray, the

lower surface paler green, glabrous to puberulous except the costa and lateral veins moderately puberulous; petioles (unwinged portion) 1.5 cm long, puberulous; flowers terminal in 1–3 sessile spikes, these to 30 cm long, 4.5 cm wide (without flowers), the lateral spikes somewhat shorter, the bracts imbricate; bracts oblong-elliptic, 37.5–45 mm long, 15–17 mm wide, rose colored to deep red, erect to spreading, acute, cuneate at base, puberulous without, conspicuously parallel veined, the 7–8 veins converging at apex; bractlets small, lanceolate, 1.2 cm long, 1.5 mm wide, the tip mucronulate, striate-nerved, glabrous or bearing a few hairs near the tip; calyx 2.5 cm long, the segments subulate, striate-nerved, scarious, acute, the tip a stiff bristle-like awn, glabrous, the posterior segment 4.5 mm wide just below the middle, the anterior pair 3 mm wide, the lateral pair 1.5 mm wide; corolla golden yellow, about 5 cm long, well exerted beyond the subtending bracts, densely glandular pilose, the tube narrow, 2.5 cm long, gradually curving over the short extending bracts, the throat shortly inflated, about 5 mm long, 7 mm wide at mouth, the upper lip erect, subrecurved, oblong, 2.2 cm long and 7 mm wide, bifid, the lobes 1 mm long and 1.5 mm wide, obtuse, the lower lip 3-lobed, the lobes equal, oblong, 2 cm long, 3.5 mm wide, all obtuse, the lateral lobes somewhat narrowly reflexed; stamens included in the upper lip; anthers 7 mm long, acute, mucronulate at base, downy to woolly; style exceeding anthers; stigma somewhat infundibular, entire, ciliolate; capsule not seen.

TYPE.—*Blanchet 2086* (syntype B, destroyed, F photo 8659, G, P), Brazil, Bahia, Ilheos.

DISTRIBUTION.—Known only from around the type-locality. BRAZIL. BAHIA: *Blanchet s.n.* (P); *Blanchet 2087* (K, P); Ilheos, 1859–60, *Wawra & Maly 226* (W); *Wawra & Maly 296* (W, holotype of *A. clava* Wawra). CULTIVATED MATERIAL. Cult. at Kew, 3 Aug 1890, (K, labeled *A. amoena* Bull).

121. *Aphelandra variegata* Morel

FIGURES 50, 51

Aphelandra variegata Morel, Fl. des Serres, ser. 1, 10:33, pl. 981. 1854–1855; Bot. Mag. 82, pl. 8999. 1856.

Aphelandra porteana Morel, Fl. des Serres, ser. 1, 10:41, pl. 984. 1854–1855.

Herbaceous, glabrous, moderately branched

plant, about 2 m high; stem stout, 30–60 cm high, undivided, erect, terete; leaf blades lanceolate-oblong to ovate, 15–20 cm long, 4.5–9 cm wide, moderately acuminate, narrowed at base and decurrent on the petiole, entire, firm, the upper surface deeply greenish, fasciarius and somewhat paler green between the lateral veins, often white-variegated along the costa and lateral veins, especially near the base, glabrous, the lower surface paler green (not glaucescent), glabrous to sparingly puberulous, especially the costa and lateral veins (8–11 pairs), the margins sparingly undulate-crested; petioles (unwinged portion) short, 1 cm long, puberulous; flowers terminal in 1–3 sessile spikes, these 6–11 cm long, 3.5 cm wide (without flowers); the lateral spikes somewhat shorter, the bracts imbricate, somewhat spreading with age; bracts elliptic to broadly obovate, 30–40 mm long, 15–17 mm wide, orange-red to yellowish orange, erect to spreading, subacute to obtuse, conduplicate, entire, cuneate at base, puberulous, the uppermost one the narrowest, lowermost pair the broadest, green within, conspicuously net-veined; bractlets small, lanceolate, 8.5 mm long, 2 mm wide, the tip mucronulate, striate-nerved, glabrous or bearing a few hairs on the margin near the tip; calyx 2.5 cm long, the segments lanceolate, striate-nerved, scarious, the tip of the anterior and lateral segments a stiff bristlelike awn, glabrous, the posterior segment 7 mm wide just below the middle, the anterior pair 3 mm wide, the lateral pair 2 mm wide; corolla yellow, about 5 cm long, well exerted beyond the subtending bracts, moderately glandular-pilose without, the tube narrow, 2.5 cm long, 2.5 mm wide at base, the throat gradually enlarged, about 8 mm long, 5 mm wide at mouth, the upper lip erect, oblong, 1.7 cm long and 6 mm wide, bifid, the lobes extremely variable, 1–6 mm long and 2–3.5 mm wide, obtuse, the lower lip 3-lobed, the lobes nearly equal, somewhat revolute, conspicuously parallel-veined, the middle lobe lanceolate, 1.5 cm long, 4 mm wide, the lateral lobes oblong, 1.5 cm long, 3 mm wide; stamens included in the upper lip; anthers 6–7 mm long, acute, mucronulate at base, dorsally pubescent; style exceeding anthers; stigma infundibular, entire, puberulous; capsule not seen.

TYPE.—Typification is on the basis of the description and plate, especially the latter. Introduced from Bahia, Brazil by M. Porte into the

home of M. Morel of St. Mandé, between 1846–1847.

DISTRIBUTION.—Collected in the state of Espirito Santo, Brazil and known from cultivation at the botanic garden in Vienna. BRAZIL. ESPIRITO SANTO: Agricultural zone, Jan 1916, *Lützelburg 12728* (M). CULTIVATED MATERIAL. Cult. hort. Vindob. 1865, *Fenzl s.n.* (W); de seminibus horti bot. Leodii (Sütlich.) Hort. bot. Monacensis 1864, *Kummer s.n.* (M); ex horto bot. Petropolitano 76.11 (LE).

Aphelandra porteana was described by Morel as a variety of *A. variegata*. It was distinguished from *A. variegata* by the very short spike and the very lax bracts. After examining the two plates, I conclude that *A. porteana* is merely a more mature state of *A. variegata*.

122. *Aphelandra speciosa* T. S. Brandegee

Aphelandra speciosa T. S. Brandegee, Univ. Calif. Publ. Bot. 6:196. 1915.—Standley, Contrib. U.S. Nat. Herb. 23:1337. 1926.

Shrub or suffrutescent herb to 2 m high; stems simple, erect, quadrangular, slender, glabrous to sparingly pubescent; leaf blades glabrous, elliptic-oblong, 10–32 cm long, 3–13 cm wide, long-acuminate, attenuate at base, entire or undulate, thin, membranaceous, the upper surface drying dark green, the costa and lateral veins (usually 10–12 pairs) white, plane or slightly elevated, less prominent than the lower surface, this drying a much lighter green, almost silvery; petioles (unwinged portion) 7–12 cm long, glabrous; spikes terminal, solitary, 12–16 cm long, 3–4 cm wide (excluding corollas), the peduncle 1 cm long, glabrous to sparingly puberulous, the rachis angled, puberulous; bracts deep vermilion-red, becoming bronze-green upon maturity, 30–40 mm long, 18–25 mm wide, obscurely striate-nerved, obtuse or rounded, carinate, glabrous both within and without, the margins entire, ciliolate; bractlets similar to the calyx segments, lanceolate, 7–12 mm long, 2–3 mm wide, striate-nerved, glabrous, the margins ciliolate; calyx segments subequal, lanceolate, subhyaline, thin, striate-nerved, the posterior segment 15 mm long, 5 mm wide, the anterior and lateral pairs 16–17 mm long, 3–4 mm wide, aristate, all glabrous; corolla deep vermilion red, glabrous or the lobes glandular-puberulous, 5.5–6.5 cm long,

the tube 2–3.8 cm long, 4 mm wide at base, thence gradually enlarged to 8 mm at mouth, the upper lip erect, 17 mm long, 10 mm wide, entire, acuminate, the lower lip 3-lobed, the lobes all obtuse or rounded, the middle lobe obovate, 16 mm long, 9 mm wide, the lateral lobes elliptic, 10 mm long, 3.5 mm wide; stamens included; filaments about 4 cm long, epipetalous at base of throat, sparingly puberulous; anthers 7 mm long, apiculate, glabrous; capsule oblong, 20 mm long, about 8 mm broad, 5 mm wide, brown, glabrous, shining; seeds dark brown, flat, about 7 mm long, 4.5 mm wide, sparsely granulose, puberulous.

TYPE.—*C. A. Purpus 6995* (holotype UC, isotypes NY, US), Mexico, Chiapas, Finca Mexiquito, June 1914.

DISTRIBUTION.—Southern Mexico and Guatemala, at elevations above 1000 meters. GUATEMALA. SAN MARCOS: Canjutz ?, 1140 m alt, 31 Jul 1922, *Salas 16* (US). QUETZALTENANGO: 3 km S of Santa Maria, 1500 m alt, 31 Jul 1965, *Roe, Roe, & Mori 720* (US). SUCHITEPEQUEZ: Finca Moca, 1050 m alt, 22 Oct 1934, *Skutch 1496* (US); 25 Oct 1934, *Skutch 1538* (US); south-facing slopes and barrancos of Volcán Santa Clara, 1.5–2 m W of Finca El Naranjo, 1250 m alt, 1 Jul 1942, *Steyermark 46800* (F, US).

123. *Aphelandra flava* Nees

FIGURE 9

Aphelandra flava Nees in de Candolle, Prodr. 11:297. 1847.—Leonard, Contrib. U.S. Nat. Herb. 31:279. 1953.
Aphelandra anomala Leonard, Contrib. U.S. Nat. Herb. 31:185. 1953.
Aphelandra fusco-punctata Markgraf, Gartenbauwissenschaft 20:328. 1955

Shrubby, to 1 m high; stem terete, minutely pubescent or pilosulous at the nodes; leaves drooping; leaf blades oblong, to 23 cm long and 5.5–7.5 cm wide, acuminate, cuneate and decurrent on the petiole at base, entire, both surfaces puberulous except the costa and veins of the upper surface, these pilose; petioles (unwinged portion) 1–2 cm long; spike terminal, solitary, to 16 cm long, 3–4 cm broad, the bracts closely imbricate, erect-spreading or the lowermost drooping, the rachis glandular-pilosulous; bracts reddish orange, drying to light reddish, tip green, entire, oblong-ovate,

about 30 mm long, 20 mm wide or the lowermost somewhat smaller, acute, thin, glandular-pubescent; bractlets linear-lanceolate, 18 mm long, 2 mm wide at base, striate-nerved, glandular-pubescent; calyx segments subequal, lanceolate, the posterior one 4.5 mm wide, the two anterior each 3.5 mm wide, the lateral ones each 2.5 mm wide, striate, glandular-pubescent; corolla about 5 cm long, dull yellow, the limbs marked by small reddish brown spots, glandular-pubescent, the hairs minute except on the lips, here intermixed with longer hairs reaching 2 mm in length, the tube 4 mm in diameter at base, 5 mm wide at throat, the upper lip erect, oblong, 15–20 mm long and 6 mm wide, 2-toothed at apex, the teeth 2 mm long, acute, the lower lip 3-lobed, spreading, the middle lobe oval, about 25 mm long and 11 mm wide, slightly obtuse, the lateral lobes narrowly elliptic, about 7 mm long and 2 mm wide, obtuse or rounded; ovary and capsule not seen.

TYPE.—*Goudot s.n.* (holotype K, isotype P), Colombia, Huila: Alto de Limba, Jul 1844.

DISTRIBUTION.—Outside of cultivation, known only from the department of Huila, Colombia. COLOMBIA. HUILA: Cordillera Oriental, E of Neiva, 700–1500 m alt, 31 Jul 1917, *Rusby & Pennell 470* (holotype of *A. anomala* Leonard, NY, US); along Río Magdalena, Suaza Valley, S of Garzón, 1943, *Epple s.n.* (Z, holotype of *A. fusco-punctata* Markgraf). VALLE: Jicaramata, near the río Tuluá, 15 Sep 1853, *Holton s.n.* (K). WITHOUT EXACT LOCALITY. Prov. of Bogotá, La Parada, 500 m alt, May 1857, *Triana 4074* (K, P); 1847, *Goudot s.n.* (K). CULTIVATED MATERIAL. Longwood Gardens Greenhouse Acc 601400, PI 265919, 16 May 1961, *Peele 528* (US); Bot. Gard. München, 1955, 1957, (M, these specimens bear the name *Aphelandra fusco-punctata* in Markgraf's handwriting).

Aphelandra flava is a unique species easily recognized by its rather large, thin, glandular-pubescent bracts, yellowish corollas, and reddish brown dotted limbs.

124. *Aphelandra hirta* (Klotzsch) Wasshausen, new combination

Strobilorrhachis hirta Klotzsch in Otto & Dietrich, Allg. Gartenz. 7:308. 1839.

Lagochilium luteum Nees in Martius, Fl. Bras. 9:87. 1847.

Aphelandra lutea Nees in de Candolle, Prodr. 11:300. 1847.

Plants shrubby; stem subquadrangular, more or less strigillose above, glabrate beneath; leaf blades oblong-oval, 13–20 cm long, the lower about 7 cm wide, the upper 5 cm, obtusely acuminate, narrowed at base and decurrent on the petiole, glabrous and deep green above, the margins entire, the lower surface drying a lighter green, glabrous to moderately puberulous, especially the costa and lateral veins (8–10 pairs); petioles (unwinged portion) 0.5 cm long, the pubescence similar to that of the stem; flowers in solitary, subsessile, terminal spikes, these 5–9 cm long, oblong in outline, 3–3.5 cm wide (without flowers), closely imbricate, not spreading with age, the spike subtended by a pair of small lanceolate leaves; bracts large, shining, colored, obovate, 30–34 mm long and 18–20 mm wide, obtuse, the tip itself revolute, slightly narrowed at base, subcoriaceous, basally distinctly 5-nerved, the venation reticulate near tip, glabrous, the margins entire; bractlets lance-subulate, 4 mm long, 1.5 mm wide, acute, striate-nerved, subhyaline, glabrous; calyx 5 mm long, the segments subequal, lanceolate (except posterior), striate-nerved, subhyaline, glabrous, the posterior segment lance-ovate, 2 mm wide, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla yellow, 4.5–5 cm long, amply exceeding the subtending bracts, glabrous, the tube erect, 2.5 cm long, narrow, 3 mm wide at base, then gradually enlarged to 5 mm wide at mouth, the limbs ringent, subequal, the upper lip erect, lance-ovate, 1.8 cm long and 9 mm wide, bifid, the lobes 6 mm long and 3 mm wide, obtuse, the lower lip 3-lobed, the lobes erect, subequal, the middle lobe ovate, 2 cm long and 7 mm wide, obtuse, the lateral lobes oblong, 2 cm long, 5 mm wide, obtuse; stamens reaching the base of the lobes of the upper lip; filaments smooth, flattened; anthers 8 mm long, acute at both apex and base; style and stigma exceeding the stamens; stigma somewhat infundibular, entire, pubescent; mature capsule not seen.

TYPE.—*Beyrich s.n.* (B, destroyed), Brazil, Rio de Janeiro, Serra d'Estrella, near José Dios, Feb 1823.

DISTRIBUTION.—Southeastern Brazil, in woods in the state of Rio de Janeiro. BRAZIL. RIO DE JANEIRO: Near Mandiocca, Jan, Feb, *Herb. Martius s.n.* (BR, syntype of *A. lutea* Nees); Serra d'Estrella, Feb–Mar 1823, *Riedel 0.56* (LE); Petrópolis, 1879, *Binot 38* pro parte (LE); Rio de Janeiro,

Riedel & Luschnath 0.48 (LE); around Rio de Janeiro and Ouro Preto, 1883–84, *Glaziou 15293* (K). WITHOUT EXACT LOCALITY. *Ferreira 649* (K); *Sellow 1173* (K, syntype of *A. lutea* Nees).

Nees cites under his *A. lutea*, both the Martius and the Beyrich specimens, as well as other collections, as syntypes.

125. *Aphelandra martiusii* Wasshausen, new name

Lagochilium repandum Nees in Martius, Fl. Bras. 9:86. 1847; de Candolle, Prodr. 11:293. 1847 [non *Aphelandra repanda* Nees, 1847].

Large, glabrate shrub, 0.6–1 m high; stems subquadrangular, glabrous to sparingly strigillose; leaf blades oblong-lanceolate, 25–30 cm long, 4–7.5 cm wide, acuminate to attenuate at apex, attenuate at base and decurrent on the petiole, glabrous, the margins entire or repand, deep green above, the lower surface paler, glabrous to puberulous, the costa and lateral veins (about 11 pairs) prominent, puberulous; petioles (unwinged portion) 0.5–1 cm long, flat, puberulous beneath; flowers in solitary, terminal, sessile spikes, these imbricate, suboval in outline, 7–8 cm long, 4–6 cm wide, (without flowers), not spreading with age, the spike supported by a pair of small leaflike bracts; bracts large, showy, red, obovate-cuneate, 35 mm long and 25 mm wide just below the apex, obtuse, the tip minutely mucronulate, recurved-spreading, slightly narrowed at base, reticulate-nerved, glabrous, the margins entire; bractlets pink, lanceolate, narrowed and acuminate, 18 mm long, 4 mm wide, carinate, striate-nerved, subhyaline, glabrous; calyx 11–12 mm long, the segments subequal, lanceolate, striate-nerved, subhyaline, glabrous, narrowly acuminate (except lateral), the posterior segment 3 mm wide, the anterior pair slightly narrower, the lateral pair smaller, 1 mm wide, aristate; corolla reddish-purple, the limb reddish, 4 cm long, barely exceeding the subtending bracts, glabrous, the tube erect, narrow, 2 mm wide at base, gradually enlarged to 6 mm wide at mouth, the upper lip erect, ovate, 8 mm long and 8 mm wide, revolute, bifid, the lobes 1 mm long and wide, acute, the lower lip 3-lobed, the lobes subequal, the middle lobe ovate, 4 mm long and 4 mm wide, revolute, the lateral lobes lanceolate, 4 mm long, 2 mm wide, spreading; stamens white, exceeding the mouth of

the corolla tube but not reaching the upper lip; filaments smooth, flattened; style much shorter than the stamens, 1.5 cm long; stigma somewhat infundibular, entire; capsule not seen.

TYPE.—*Martius s.n.* (syntype M, F photo 20492), Brazil, Pará, on the banks of the Xingu River, Sep.

DISTRIBUTION.—Known only from the two Martius collections, Pará, Brazil and Vaupés, Colombia. COLOMBIA. VAUPÉS: Woods of Porto dos Miranhas, prov. Río Negro, district of Japurá, Dec. *Martius s.n.* (M, syntype).

126. *Aphelandra squarrosa* Nees

FIGURE 40

- Aphelandra squarrosa* Nees in Martius, Fl. Bras. 9:89. 1847; in de Candolle, Prodr. 11:300. 1847.—Lindau in Engler & Prantl, Natürl. Pflanzenfam. 4, Abt. 3b:322. 1895.
- Aphelandra squarrosa* Nees var. *laxior* Nees in Martius, Fl. Bras. 9:89. 1847; in de Candolle, Prodr. 11:300. 1847.
- Aphelandra squarrosa* Nees var. *angustifolia* Nees in Martius, Fl. Bras. 9:89. 1847; in de Candolle, Prodr. 11:300. 1847.
- Aphelandra squarrosa* Nees var. *citrina* Planchon Fl. des Serres 8: 161, pl. 809. 1852–1853.
- Aphelandra squarrosa* Nees var. *leopoldi* Van Houtte Fl. des Serres 9:85, pl. 889. 1853–1854.—L. H. Bailey, Stand. Cycl. Hort. 308. 1914.—Anonymous, Gard. Chron. ser. 3. 82:283. 1927.
- Aphelandra leopoldii* (Van Houtte) Lowe, Beautiful-leaved Plants, 55, pl. 27. 1861.—O. Krauss, Gartenwelt, 35:689. 1931.
- Aphelandra oostachya* Wawra, Oester. Bot. Zeitschr. 12:172. 1862; Bot. Ergeb. Reise Bras. 79, pl. 13. 1866.
- Aphelandra chrysops* Bull, Cat. 7, 9. 1887.—Anonymous, Gard. Chron. ser. 3; 1:736, fig. 140. 1887.
- Aphelandra coccinna* Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:324. 1948.

Plants subherbaceous, showy, scarcely branched, 30–60 cm high, glabrous; stems terete, thick, succulent, collapsed and brownish when dry, the internodes 2.5–6.5 cm long; leaves crowded; leaf blades elliptic, glabrous, 25–30 cm long, 7–10 cm wide, shortly acuminate, the tip obtuse, cuneately narrowed and decurrent on the petiole at base, entire or slightly undulate, membranaceous to firm, the upper surface drying dark green, the lower surface paler, drying almost yellowish green, the costa and lateral veins (8–13 pairs) rather prominent, arcuate; petioles (unwinged portion) 2.4–3.2 cm long, flattened when dry, glabrous, very similar to the stem; flowers terminal, on 1–3 peduncled spikes,

the central spike about 11 cm long and 4 cm wide (without flowers); the peduncle thick, 5 cm long, glabrous, the lateral spikes somewhat shorter, about 4 cm long, the peduncle 2.5 cm wide, the bracts closely imbricate, spreading somewhat with age; bracts yellow to orange, oval to ovate, 25–38 mm long, 18–25 wide, conduplicate, shortly acute and reflexed at apex, the tip mucronulate, slightly narrowed and truncate at base, papery, entire, shining and glabrous; bractlets lanceolate, 4.5–8 mm long, 1–1.5 mm wide, subhyaline, striate-nerved, glabrous and sparingly glandular-punctulate; calyx 8–10 mm long, the segments lanceolate (the posterior segment lance-subulate), subhyaline, striate-nerved (the anterior and lateral pair ending in a stiff bristlelike awn), glabrous and sparingly glandular-punctulate, the posterior segment 1.5–2 mm wide just below the middle, the anterior pair 1.25–1.5 mm wide, the lateral pair 0.75–1 mm wide; corolla showy, yellow, 3.75–5 cm long, well exerted beyond the subtending bracts, glabrous without, pubescent within at the lips, the tube erect, 3–3.5 cm long, 3–5 mm wide at base, narrowed to 1–2 mm at 5 mm above base, thence gradually enlarged to 7 mm wide at mouth, the upper lip erect, oblong, 8 mm long and 5 mm wide, bifid, the lobes 3 mm long and 3 mm wide, obtuse and somewhat hooded at apex, the lower lip 3-lobed, the lobes spreading, subequal, the middle lobe ovate, 7 mm long, 5 mm wide, acute and slightly hooded, the lateral lobes obliquely curved, oval-oblong, 6.5–7 mm long, 3–3.5 mm wide, slightly acute to obtuse; stamens equal to or slightly exerted beyond the upper lip; anthers 5.5 mm long, dorsally and apically villous, acute, mucronate at base; filaments epipetalous near base of the corolla tube, pubescent at base and near apex, otherwise glabrous; style filiform, somewhat shorter than the anthers, glabrous except for the villous apex; stigma barely thickened, infundibular, bilobed, short; ovary 4 mm long, cylindrical, glabrous; capsule 8 mm long, glabrous.

LECTOTYPE.—*Pohl 6034* (syntype W), Brazil, Rio de Janeiro, Serra de Macacu.

DISTRIBUTION.—Southeastern Brazil, in woods in the states of Pernambuco, Minas Gerais, Rio de Janeiro, and São Paulo. BRAZIL. PERNAMBUCO: Pernambuco, 1842, *Herb. Martius s.n.* (BR, syntype). MINAS GERAIS: 1816–1821, *St. Hilaire 61* (P); Lagoa Santa, *Warming s.n.* (C, W); Juiz de Fora, 1879, *Wawra 199, 200* (W), *200a* (W, F photo

32680); Est. Experimental, Agua Limpa, 21 Feb 1956, *Gomes 2483* (RB, US). RIO DE JANEIRO: *Karwinski s.n.* (syntype BR); Feb 1888, *Bull s.n.* (K); Cantagallo, *Peckolt 262* (W); Alto Macahé de Novo Friburgo, 12 Mar 1870, *Glaziou 4166* (K, P); Município de Novo Friburgo, between Teodoro de Oliveira & Nova Friburgo, 800–1000 m alt, 20 Apr 1952, *L. B. Smith 6684* (R, US); highway along Rio Friburgo, 26 Feb 1939, *Lutz 1285* (K); between Cachoeira de Macacú and Friburgo, 25 Mar 1953, *Pereira 1344* (RB, US); road to Friburgo, km 70, 18 Jan 1957, *Emygdio 1141* (RB, US); Friburgo, 21 Feb 1944, *Constantino s.n.* (RB, holotype of *A. concinna* Rizzini); Teresópolis, Apr 1918, *Frasão 8621* (RB); Serra de Teresópolis, 2 Dec 1966, *Duarte 9595* (K, RB, US); Serra dos Orgãos, near Rio de Janeiro, May 1839, *Guillemin 249* (cat. no. 1007), (P, holotype of *A. squarrosa* var. *laxior* Nees); Serra dos Orgãos, Picada Saudade, July 1915, *Luetzelburg 6497* (M); Parque Nacional da Serra dos Orgãos, 20 May 1944, *Paes s.n.* (RB); Serra dos Orgãos, 3 Jul 1948, *Pereira 594* (RB); descent from Serra dos Orgãos to Freohal, *Burchell 2561* (K); Magé, Apr 1823, *Riedel 0.57* (LE); Petrópolis, 1859–60, *Wawra & Maly 411* (W, holotype of *A. oostachya* Wawra); Petrópolis, 24 Mar 1879, *Glaziou 11345* (K, P); Petrópolis, 1879, *Binot 38* pro parte (RB); Petrópolis, edge of forest, 1879, *Wawra 42* (W); Petrópolis, Morro do Retiro, 6 Jan 1883, *Glaziou 14170a* (K, P); Petrópolis, 1947, *Goes 120* (RB); Itatiaia, Fazenda Henrique, 1000 m alt, Feb 1899, *Gounelle s.n.* (G); Itatiaia, Monte Serrat, 800 m alt, 21 Feb 1936, *Brade 15046* (RB); Parque Nacional de Itatiaia, 17 Feb 1960, *Barth I-198* (US); Serra d'Estrella, 2 Apr 1823, *Riedel s.n.* (LE). SÃO PAULO: Serra do Cubatão, *Sellow 478* (B, destroyed, holotype of *A. squarrosa* var. *angustifolia* Nees); Cubatão, 15 May 1957, *Kuhlmann 4076* (NY). WITHOUT EXACT LOCALITY: *Pohl 6051* (W, F photo 32681); *Schott 6122* (W, syntype); 1816–1821, *St. Hilaire s.n.* (P); *Novara Exped. 179* (W); 1821–36, *Riedel 0.60* (LE); *Riedel & Langsdorff 107, 108* (LE). CULTIVATED MATERIAL. Cult in Hort. Bot. Reg. Kew., Oct 1893, labeled "*A. chrysops* = *A. squarrosa* var. *leopoldii*," (K); cult. in Hort. Bot. Reg. Kew., Aug 1908, *House s.n.* (K, labeled *A. squarrosa* var. *louisiae*); cult. in Hort. Bot. Reg. Kew., 14 Dec 1887, *Bull s.n.* (K, labeled holotype of *A. chrysops* Bull).

Both *Aphelandra squarrosa* var. *citrina* and *A.*

squarrosa var. *leopoldi* are horticultural varieties without any designated types. When comparing the plates with the Pohl syntype I cannot find any distinguishing characters for retaining these varieties.

A. chrysops is a horticultural name without any designated type. Nicholson (1900:60) states that *A. chrysops* represents a synonym of *A. squarrosa* var. *leopoldii*. In comparing the plates with the Pohl syntype, no distinguishing characters for the retention of the epithet can be found.

127. *Aphelandra nephoica* Wasshausen

Aphelandra nephoica Wasshausen, *Phytologia* 25:483. 1973.

Erect or decumbent herb to 50 cm high; stems terete, purplish, rather sparingly strigose; leaf blades oblong-elliptic, 8.5–11 cm long, 2.5–4 cm wide, short-acuminate at apex (the tip itself obtuse), long and narrowly decurrent on the petiole, firm, entire or shallowly undulate, the upper surface yellowish green, strigillose, especially the costa and lateral veins (8–11 pairs), the lower surface light green, glabrous or the costa and lateral veins inconspicuously appressed-puberulous; petioles 1–1.5 cm long, strigillose; flowers borne in 2, lax, axillary, peduncled spikes, these 3–4 cm long, the rachis strigose, the hairs spreading, the peduncles 9–13 cm long, sparingly strigose; bracts erect, scarcely imbricate, triangular, 2.5–3 mm long and 2 mm wide, acute, green, entire, carinate, the margins densely ciliate; bractlets lanceolate, 2.5 mm long and 1 mm wide, acuminate, striate-nerved, green, ciliate; calyx segments subequal, lanceolate, 4.5 mm long, thinly scarious, striate-nerved, acute to acuminate, glabrous and minutely ciliate, the posterior segment 1.5 mm wide, the anterior pair 1 mm wide, the lateral pair 0.5 mm wide; corolla mauve-pink, 1.8 cm long, glabrous, the tube erect, 1.4 cm long, 2 mm wide at base, narrowed to 1 mm at 3 mm above base, thence gradually enlarged to 2.5 mm at mouth, the lobes of the lower lip broadly rounded, broadly cuneate toward base, the middle one 5 mm long and 3 mm wide, the lateral ones slightly smaller, the upper pair much smaller (4 mm long and 2 mm wide); stamens included, subequal; filaments epipetalous above the middle of the corolla tube; anthers oblong, obtuse, their tips cohering; ovary 1.5 mm long; capsule not seen.

TYPE.—*Grubb, Curry, & Fernandez 651* (holotype US), Colombia, Boyaca, Sierra Nevada del Cocuy, between Báchira and Bocotá, 2250 m alt, 21 Aug 1957.

DISTRIBUTION.—In cloud forests, known only from the type-locality.

Aphelandra nephoica is closely related to *A. arnoldii*, but the bracts of that relative bear a few minute teeth and its leaf blades are considerably longer and wider.

128. *Aphelandra andrei* Leonard

Aphelandra andrei Leonard, *Contrib. U.S. Nat. Herb.* 31:707. 1958.

Herbs to 0.3 m high; stems ascending, rooting at the lower nodes, densely hirsute, the hairs 0.5–0.75 mm long; leaf blades oblong, to 8 cm long and 2.5 cm wide, short-acuminate (the tip obtuse), narrowed at base, rather thin, entire, both surfaces moderately pilose; petioles slender, to 4 cm long, more or less pilose; spikes in 3's terminating a slender, pilose peduncle 7 cm long, each spike about 1.5 cm long and 1 cm broad, borne on secondary, densely pilose peduncles to 7 mm long, the three spikes subtended by a pair of small leaves, 18 mm long and 8 mm wide, subobtuse, narrowed at base to a winged petiole, about 3 mm long, the pubescence that of the stem leaves, the rachis densely hirsute; bracts thin, oblong, 7 mm long and 4 mm wide, acute at tip, narrowed at base, thin, entire, both surfaces hirtellous, the hairs to 0.5 mm long, the margins ciliate, the costa and 1 or 2 pairs of lateral nerves slender; bractlets narrowly linear, 5.5 mm long, 0.5 mm wide at base, gradually narrowed to a slender tip, the outer surface pilose, densely so toward the tip, the inner surface glabrous, striate-nerved; calyx segments narrowly lanceolate, 0.75 mm wide, striate-nerved, puberulous toward the tip; corolla 1.8 cm long, rose or red, the lower half glabrate, the upper half pubescent, the hairs more or less curved, the tube 1.5 mm broad at base, enlarged over ovary to 2 mm, then narrowed to 1.25 mm, thence gradually enlarged to 4 mm wide at mouth, the upper lip about 3 mm long and 4 mm wide, bilobed, the lobes 2 mm long and wide, rounded and emarginate, the lower lip 4 mm long, 3-lobed, the lobes obcordate, 2 mm long and wide, emarginate; sta-

mens reaching the mouth of the corolla tube; ovary glabrous except the hirsute tip; capsule not seen.

TYPE.—*E. André 4661* (holotype K, US photo 4658), Colombia, Cundinamarca, in shade of virgin forests at San Ignacio, "Cordillera Orientalis Bogotensis," Jan 1876.

DISTRIBUTION.—Known only from the type locality.

129. *Aphelandra campii* Wasshausen

Aphelandra campii Wasshausen, Phytologia 25:467. 1973.

Suffrutescent, 1.5–2 m high; stems terete, glabrous; leaf blades elliptic to oblong, 13–14 cm long and 4.4–4.8 cm wide, acuminate (the tip blunt), gradually narrowed from above middle and attenuate at base, entire, submembranaceous, the upper surface deep green, glabrous or sparingly and inconspicuously puberulous, the lower surface pale green, glabrous, black-punctate, the costa and lateral veins (11–13 pairs) slightly raised, glabrous, more conspicuous beneath than above; petioles (unwinged portion) 1.5–3 cm long, glabrous or sparingly puberulous; flowers borne in short, few-flowered, pedunculate spikes, these axillary and terminal, 2–3 cm long, 1 cm wide (without corollas) forming a thyse, the peduncles 1.5–4 cm long, glabrous; bracts obovate, pale cream-green, 8 mm long, 6 mm wide, obscurely 3-lobed at apex, cuneate at base, glabrous, glandular-punctate, net-veined, the margins entire, reddish; bractlets lanceolate, 5 mm long, 1.5 mm wide, striate-nerved, subhyaline, glabrous; calyx segments lanceolate, 5–6 mm long, striate-nerved, subhyaline, glabrous, the posterior segment 2 mm wide, acute, the anterior pair 1 mm wide, the lateral pair 0.5 mm wide, both pairs mucronulate at tip; corolla yellow or pale cream, 2.8 cm long, glabrous, the tube suberect, 25 mm long, 2 mm wide at base, 5 mm at mouth, the upper lip 2.5 mm long, the lobes 2 mm long and 1 mm wide, rounded, the lower lip 3-lobed, the middle lobe 2.5 mm in diameter, the lateral lobes 2.5 mm long and 2 mm wide, all obtuse or rounded; stamens reaching the tip of the upper lip; anthers 2 mm long, arachnoid at tip; capsules elliptic, light brown, 10 mm long, 2.5 mm in diameter, nitid, minutely pitted; seeds 2.5 mm long, 3 mm wide at base, muricate.

TYPE.—*W. H. Camp E-1371* (holotype US, isotype

NY), Ecuador, Zamora-Chinchepe, Cordillera Cutucú, east-trending slope from top of ridge down toward the Itzintza, 1440–1740 m alt, 17 Nov–5 Dec 1944.

DISTRIBUTION.—Rare, in underbrush at edge of forest, in Ecuador and Peru. PERU. HUÁNUCO: Río Tulumayu, affluent of Río Huallaga below Tingo María, hacienda LaVega, 1000 m alt, 23 Oct 1947, Fosberg 28846 (US).

Aphelandra campii is perhaps nearest in relationship to *A. jacobinioides* Lindau, but differs markedly in that its leaves and bracts are much smaller and narrower and that its corolla lips are considerably shorter.

130. *Aphelandra acrensis* Lindau

Aphelandra acrensis Lindau, Notizbl. Bot. Gart. Berlin 6:196. 1914.

Decumbent herb, 10–20 cm high, the roots horizontal; stem almost absent or extremely short; leaves numerous from base; leaf blades elliptic, 5–9 cm long and 3.5–5.5 cm wide, slightly acuminate, cordate at base, loosely hirsute, yellowish green towards middle, the margins obscurely green, entire; petioles 3–9 cm long, hirsute-pubescent; flowers in a solitary, terminal, short, dense spike arising at the base of the plant, the peduncle 6–8 cm long, the rachis hirsute; bracts imbricate, ovate, 13 mm long and 5 mm wide, acute, the tip obtuse, narrowed at base, hirsute, 3-nerved, entire; bractlets lanceolate, 6 mm long and 1 mm wide, similar to the bracts; calyx segments puberulent, connate at apex, the lateral segments 4 mm long and 1.3 mm wide, the remaining segments 5 mm long and 1.5 mm wide; corolla white or rose, violet-spotted, 2.8 cm long, puberulent without, the tube 22 mm long, basally 2.5 mm broad, narrowed to 2 mm at middle, about 5 mm broad at mouth, the upper lip sinuate, 6 mm long and 8 mm wide, the lower lip 3-lobed, the lobes subequal, about 7 mm long and 4 mm wide; filaments 6 mm long, glabrous; anthers apically long-mucronate; pollen grains typical, 42 μ –46 μ long, 23 μ –27 μ in diameter; ovary 2 mm high, puberulous; style 20 mm long, sparingly pilose; capsule glabrous, 8 mm long, 2 mm wide; mature seeds not seen.

TYPE.—*Ule 9833* (syntype B, destroyed, F photo 8696, 18415), Brazil, Acre, Rio Acre in forest near

Porto Carlos, with flowers and capsules, Feb 1911; *Ule 9834* (syntype B, destroyed, isotype K), Brazil Acre, S. Francisco near Seringal, with flowers, Sep 1911.

DISTRIBUTION.—Known only from around the type-locality of Amazonian Brazil and Peru. PERU. HUANUCO: Huanuco: Tingo Maria, 31 Jul 1940, *Asplund 12651* (S); Supte, near Tingo Maria, 28 Aug 1940, *Asplund 13372* (S); 10 km down stream from Tingo Maria, 630 m alt, *Stork & Horton 9530* (F, K, NA, UC).

Aphelandra acrensis, according to Lindau, is closely related to *A. phrynioides*, but *A. phrynioides* is much larger and has much longer and extremely narrowed leaves, denser inflorescences and longer bracts.

131. *Aphelandra diachyla* Leonard

Aphelandra diachyla Leonard, Contrib. U.S. Nat. Herb. 31: 714. 1958.

Herbs; stem glabrous, subquadrangular; leaf blades oblanceolate, to 21 cm long and 5.8 cm wide, short-acuminate, gradually narrowed from above middle to base, moderately firm, entire, both sides glabrous, the costa and veins (8–10 pairs) scarcely prominent; petioles to 15 mm long and 1.5 mm thick, glabrous; panicles terminal or subterminal, about 12 cm long and 6 cm broad, the internode between the 2 pairs of branches 3.5 cm long, the peduncle 8 cm long, 1.75 mm thick, the flowers solitary and sessile in the axils of the bracts, the lower internodes of the flower-bearing branches 5–19 mm long, the upper much shorter, the peduncles glabrous, the rachises sparingly puberulent; bracts oblanceolate, entire, 14 mm long and 4 mm wide, narrowed from above the middle to a small obtuse tip, glabrous, the veins obscure; bractlets narrowly triangular, 2.5 mm long, 0.75 mm wide at base, ciliate, the flat surfaces glabrous, the costa and a pair of nerves conspicuous through transmitted light; calyx 5 mm long, the segments lanceolate, 1.25 mm wide near base, striate-nerved, sparingly hirtellous and ciliate at tip, otherwise glabrous, conspicuously striate-nerved through transmitted light; corolla glabrous, 1.5–2 cm long (from base of tube to tip of corolla lobes), the tube 9–10 mm long, 1.5 mm broad at base, slightly enlarged over the ovary, narrowed to 0.75 mm near

tip, the mouth 2.5 mm broad, the corolla lobes obovate, 7 mm long and 3 mm wide, obtuse, delicately nerved; stamens included, 2 mm long; filaments slender, 0.5 mm long; ovary glabrous; capsule not seen.

TYPE.—*J. Triana s.n.* (holotype K, isotype COL, US photo 4655), Colombia, Chocó, San Pablo, Mar 1853.

DISTRIBUTION.—Known only from the type-locality.

132. *Aphelandra marginata* Nees & Martius

FIGURES 41, 42

Aphelandra marginata Nees & Martius, Nov. Act. Nat. Cur., 11:52. 1823.—Nees in Martius, Fl. Bras. 9:91. 1847; in de Candolle, Prodr. 11:300. 1847.

Large, shrubby, glabrate plant to 1 m high; stems erect, terete, branching, canaliculate, glabrous, the bark grayish white, marked with numerous fissures, the internodes 5–10 cm long; leaf blades glabrous, oblong or oblong-lanceolate, 6–8 cm long, 3–4 cm wide, acute to obtuse at apex, narrowed and acute at base, citron green, firm, entire, retusely margined, the margins cartilaginous, finely ciliate, the upper surface shining, reticulately veined, coriaceous and rigid, the lower surface with the midrib conspicuous, protruding, the lateral veins numerous, reticulate; petioles 0.6–1.2 cm long, flattened, canaliculate above, glabrous; flowers borne in terminal, subsessile spikes, these 4–10 cm long and 1 cm wide (excluding corollas), the flowers congested, the peduncle 0.6–1 cm long, glabrous, the rachis glabrous; bracts small, ovate-lanceolate, 6 mm long, 2 mm wide, striate-nerved, acuminate, truncate, at base, puberulous without, the margins entire, ciliate; bractlets ovate-lanceolate, 4.5 mm long, 2 mm wide, striate-nerved, puberulous without; calyx green, 1 cm long, the segments basally united, acute, lance-subulate, 5-nerved, puberulous, the margins ciliate, the posterior segment 2 mm wide near base, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide; corolla showy, 5.5 cm long, red, moderately puberulous intermixed with sparingly and minutely glandular-pilose pubescence, the tube slightly oblique, cylindrical, 3 mm wide at base, then narrowed to 1 mm at 7 mm above base, thence gradually enlarged to 6.5 mm wide at mouth, the upper lip erect, oblong-lanceolate, 2.5

cm long and 1 cm wide, entire, obtuse to retuse, the lower lip 3-lobed, subequal, the middle lobe oblanceolate, 2.5 cm long, 5.5 mm wide, acute, the lateral lobes oblong, 13 mm long, 2.5 mm wide, obtuse; stamens exerted, almost reaching the tip of the upper lip; anthers 3.5–4 mm long, apiculate and recurved at both apex and base, dorsally pubescent; filaments epipetalous to the narrow portion of the corolla tube, glabrous except the extreme upper portion, this sparingly puberulous; ovary 3 mm long, glabrous; style 4 cm long, glabrous; mature capsule not seen.

TYPE.—*Maximilian Prinz zu Wied-Neuwied s.n.* (holotype BR), Brazil, Bahia, Barra da Vareda, 1817.

DISTRIBUTION.—Planalto of eastern Brazil, in the states of Bahia and Minas Gerais. BRAZIL. BAHIA: Rodovia BR-4, 60 km N of state line between Minas Gerais and Bahia, 25 Jun 1965, *Belém 1194* (US); same locality, *Belém 1217* (US). MINAS GERAIS: Ouro Preto, 29 Jan 1965, *Herringer 10291* (NY).

133. *Aphelandra nuda* Nees

Aphelandra nuda Nees in Martius, Fl. Bras. 9:89. 1847; in de Candolle, Prodr. 11:301. 1847.

Large, showy, shrubby plant; stems subsucculent, terete, branching, glabrous, the internodes 5.5–11 cm long; leaf blades glabrous, oblong to narrowly ovate, 13–15 cm long, 4.5–5 cm wide, acute to acuminate, narrowed and acute at base, citron green, firm, shining, the margins undulate, the costa and lateral veins inconspicuous, the midrib conspicuous, protruding, lateral veins numerous, branching, reticulate; petioles 1–2 cm long, canaliculate, glabrous; flowers borne in 1 or 2 terminal, secund peduncled spikes, these 20–30 cm long, 1 cm wide (without corollas), the flowers distant, lax, the peduncle 9–12 cm long, subquadrangular, glabrous to sparingly puberulous, the rachis puberulous; bracts minute, ovate, 3 mm long, 2 mm wide at base, striate-nerved, acuminate, truncate at base, puberulous and muricate without, the margins entire; bractlets ovate, 2.5 mm long, 1.5 mm wide, acute, striate-nerved, puberulous and muricate without; calyx 6 mm long, the segments lanceolate-ovate, striate-nerved, acuminate, puberulous and muricate without, the margins ciliolate, the posterior segment 2 mm wide near base, the anterior

pair 1.5 mm wide, the lateral pair 1.25 mm wide; corolla red, about 6 cm long, puberulous, the tube oblique, cylindrical, 4.5 cm long, 3 mm wide at base, then narrowed to 1.75 mm at 13 mm above base, thence gradually enlarged to 6.5 mm wide at mouth, the upper lip erect, oblong-lanceolate, 14 mm long and 8 mm wide, bifid, the lobes 1 mm long and 2 mm wide, obtuse, the lower lip 3-lobed, subequal, the middle lobe oblong, 15 mm long, 6 mm wide, retuse, the lateral lobes oblong, 12 mm long, 2.5 mm wide, obtuse; anthers 6 mm long, apiculate, dorsally pubescent; filaments epipetalous low in the corolla tube, glabrous; ovary 4 mm long, drying black, glabrous; mature capsule not seen.

TYPE.—*Gardner 1111* (holotype W, isotypes G, K, F photo 26545, P), Brazil, Pernambuco, Recife (Pernambuco), 1837.

DISTRIBUTION.—Verified only from the type-locality. Nees (1847a) states that this species was also collected in Serra do Orgãos, Rio de Janeiro. To date, no specimens of this species have been reported from that second locality.

134. *Aphelandra tomentosa* Lindau

Aphelandra tomentosa Lindau, Bull. Herb. Boiss. Ser., 3:369. 1895.

Small scandent shrub; the branches tomentose above, glabrate below; leaf blades oblong, 4–10 cm long, 1.5–3.5 cm wide, acute at both ends, entire, the upper surface scabrous, the hairs deciduous except on the costa, the lower surface densely pilose, particularly the costa and lateral veins, the hairs about 2 mm long, whitish, occasionally reddish; spikes one to several, terminal and axillary, sessile or short peduncled, 1.5–2.5 cm long, 1–1.5 cm wide, the rachis pilose; bracts entire, ovate-lanceolate, 11–12 mm long, 4–5 mm wide, acute to slightly obtuse, pilose without, rather inconspicuously 4-nerved; bractlets lanceolate, 8 mm long, 2–2.5 mm wide, pilose without, carinate toward tip; the posterior calyx segment 8 mm long and 3 mm wide, the anterior segments 8.5 mm long and 1.5 mm wide, the lateral segments 7.5 mm long and 1 mm wide, all subcoriaceous, acuminate, delicately nerved and pilose at tip; corolla straw colored, pubescent without, about 5 cm long, the tube 17 mm long, 2–3 mm in diameter at base, 5 mm broad at mouth, the upper lip oblong, 17 mm long, 7 mm wide at

base, entire, acute, the lower lip 19 mm long, 5 mm wide at base, the middle lobe 11 mm long, 3 mm wide, the lateral lobes 8 mm long, 1 mm wide, all acute; filaments 30 mm long; anthers 5 mm long; pollen grains typical, 46μ – 57μ long, 34μ – 38μ wide; ovary 1.5 mm long; style 3.5 cm long.

TYPE.—*Moritz 1669* (holotype B, destroyed, isotypes K, P), Venezuela, Aragua, Colonia Tovar, flowering May–June, 1852.

DISTRIBUTION.—Northern Andean Venezuela at elevations between 750 and 2300 meters. VENEZUELA. SUCRE: Peninsula de Paria, 750–800 m alt, 13 Aug 1966, *Steyermark & Rabe 96414* (US, VEN). ARAGUA: Parque Nacional Henry Pittier, 1500–1700 m alt, 20 Oct 1961, *Steyermark 89778* (VEN, US); Colonia Tovar, 1800–2000 m alt, Dec 1924, *Allart 305* (US, VEN); Colonia Tovar, 2200 m alt, 21 Dec 1915, *Jahn 445* (US); near Colonia Tovar, 1854–1855, *Fendler 814* (K, P). YARACUY: Cerro Picacho, N of Nirgua, 1200–1360 m alt, 11 Mar 1967, *Steyermark & Bunting 97635* (US); Cerro La Chapa, to the north of Nirgua, 1200–1400 m alt, 9–10 Nov 1967, *Steyermark, Bunting, & Wessels-Boer 100297* (US). FALCON: Sierra de San Luis, mountain of Paraguariba, between the Hotel Parador and Curimagua, 1300 m alt, 21 Jul 1967, *Steyermark 99366* (VEN, US). MÉRIDA: 2100 m alt, *Funck & Schlim 923* (G, LE, P, F photo 26546); Tabay, forest of the Isla and El Rincón, 2500–2700 m alt, 8 Sep 1930, *Gehriger 424* (US, VEN); near Tovar, Jan 1958, *Aristeguieta 2968* (K, US, VEN); mountain of San Jacinto, on N side of Río Chama, opposite Mérida, 2195–2375 m alt, 19 May 1944, *Steyermark 56685* (US, VEN); lower slopes of El Toro, 2300 m alt, 15 Nov 1952, *Bernardi 71* (NY).

135. *Aphelandra hapala* Wasshausen

Aphelandra hapala Wasshausen, *Phytologia* 25:466. 1973.

Herb, 1.2–1.8 m high; stems subquadrangular, densely strigose above, the hairs yellowish brown; leaf blades elliptic, 19–23 cm long, 8–9 cm wide, acuminate at both ends, the upper surface olivaceous, subnitid, glabrous, the lower surface yellowish green, densely hirsute, the costa and lateral veins (11–13 pairs) conspicuous beneath, densely strigose; petioles (unwinged portion) 3–4 cm long,

sparingly strigose; flowers borne in a terminal, peduncled, lax, spike, 10–12 cm long (without corollas), 2 cm wide, the peduncle 6–6.5 cm long, both rachis and peduncle densely strigillose with yellowish hairs; bracts triangular-ovate, 8 mm long and 5 mm wide at base, slenderly acuminate, terminating in a small spine, entire, glabrous toward base within, otherwise hirsutulous with yellowish hairs, ciliolate; bractlets triangular-ovate, 8 mm long and 4 mm wide, abruptly and slenderly acuminate, spine-tipped, rounded at base, somewhat carinate, striate-nerved, sparingly hirtellous, the margins ciliolate; calyx segments oblong-ovate, spine-tipped, glabrous or minutely and rather sparingly puberulent, striate-nerved, the nerves callose below, the margins ciliolate, the posterior segment 12 mm long, 4.5 mm wide, abruptly acuminate, the anterior and lateral pairs 12 mm long, 2.5–4 mm wide, acute; corolla orange, hirtellous, 4.5–5.2 cm long, the tube 3.5 cm long, 3.5 mm wide at base, 6 mm wide at mouth, the upper lip erect, 17 mm long, 2-lobed, the lobes obovate, 6 mm long and 5 mm wide, short-acuminate, the lower lip 14 mm long, 3-lobed, the middle lobe elliptic, 12 mm long and 6 mm wide, the lateral lobes 14 mm long, 4 mm wide, all obtuse; stamens about equaling the corolla in length; anthers 6 mm long, mucronulate at base; ovary 4 mm long, glabrous; capsule not seen.

TYPE.—*R. Ferreyra 1670* (holotype US, isotype GH), Peru, Loreto, Divisoria, 1600–1800 m alt, 28 Feb 1947.

DISTRIBUTION.—Known only from the type-locality.

A. hapala superficially resembles *A. luyensis*. In *A. luyensis* though, the leaf blades are finely serrate and spine-tipped and the corollas scarlet with yellow tubes. In *A. hapala*, the leaf blades are entire and the corollas orange.

136. *Aphelandra colombiensis* Lindau ex Leonard

Aphelandra colombiensis Lindau ex Leonard, *Contrib. U.S. Nat. Herb.* 31:196. 1953.

Suffrutescent; stems to 1.3 m high, subterete, glabrous to sparingly hirtellous to moderately hirtellous at the nodes, sparingly branched; leaf blades narrowly oblong-elliptic, to 12 cm long and 3 cm

wide, acuminate, the tip often curved, narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, both surfaces glabrate or the costa and lateral veins (9 or 10 pairs) of both surfaces hirtellous; petioles to 2.5 cm long, slender, more or less hirtellous; spikes several, terminal, subsessile, crowded, forming a headlike cluster 8 cm long and 5 cm wide, these subtended by a pair of leaflike bracts about 7 cm long and 8 mm wide, the rachis angled, finely puberulous; bracts ascending, closely imbricate, entire, oblong-lanceolate, 22–25 mm long, 6 mm wide slightly below the middle, acute, narrowed toward base, submembranaceous, puberulous, ciliate, the costa and lateral nerves barely prominent; bractlets narrowly lanceolate, 11 mm long, 1 mm wide at base, carinate, striate-nerved, puberulous toward tip; calyx segments subequal, subcoriaceous, striate-nerved, sparingly puberulous toward tip, the posterior segment lanceolate, rather abruptly acuminate, ciliolate at tip, a few of the hairs sometimes glandular, the anterior and lateral segments narrowly lanceolate, sparingly ciliolate, the anterior ones 1.5 mm wide near base, the lateral ones 1 mm wide; corolla dark scarlet, to 6 cm long, rather densely pubescent, the tube 2 mm broad at base, 5 mm broad at mouth, the upper lip erect, oblong-ovate, 2 cm long, 9 mm wide near base, acute, the lower lip 3-parted to base, spreading or reflexed, subequal, oblanceolate, about 18 mm long and 4 mm wide, obscurely veiny; stamens exerted about 15 mm beyond the mouth of the corolla tube; anthers linear, straight or slightly curved, about 5 mm long and 0.5 mm wide, acute at base, subobtuse and hairy at tip; filaments slender, glabrous; style sparingly and more or less retrorsely strigillose; ovary pilose at tip; capsule not seen.

TYPE.—*F. C. Lehmann 7440* (holotype K, US photo 3636), Colombia, Cauca, in dense brushwood formations on the Altos de Mismis above Supiá, 1700–2000 m alt, Jul 1891. A specimen of Lehmann's no. 7440 was in the Berlin Herbarium (F photo 8662); this sheet bore in Lindau's handwriting his determination "*Aphelandra colombiensis* n. sp."

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. CAUCA: Above Arrayanal on the Rio Rivasalda, 1800–2000 m alt, Oct 1883, *Lehmann 3314* (LE).

137. *Aphelandra steyermarkii* Wasshausen

FIGURES 54, 55

Aphelandra steyermarkii Wasshausen, *Phytologia* 25:488. 1973.

Shrub; stems subquadrangular, strigillose above glabrate below; leaf blades elliptic to oblong, 11–15 cm long, 3.5–5 cm wide, acuminate, gradually narrowed at base, membranaceous, entire, the upper surface inconspicuously strigillose, dark green, the lower surface pale green, strigillose, particularly the costa and lateral veins (about 7 pairs), these rather prominent beneath but obscure above; petioles 1.5–3 cm long, strigillose; spike short, solitary, terminal, sessile or short peduncled, 2–2.5 cm long, 1–1.5 cm wide (excluding corollas), the rachis densely sericeous; bracts lanceolate, 18–20 mm long, 4–6 mm wide, acuminate, cuneate at base, entire, densely sericeous without, glabrous within, obscurely nerved; bractlets lanceolate, 9–10 mm long, 1.5–2 mm wide, densely sericeous without, glabrous within; calyx 5–6 mm long, acute, the posterior segment 3 mm wide, the anterior segments 2 mm wide, the lateral segments 1.5 mm wide, all striate-nerved, inconspicuously sericeous without, finely ciliolate at tip; corolla orange, glabrous except the limb, these finely pubescent, 5.5–6 cm long, the tube narrowly funnellform, 2 mm broad at base, the tube 40 mm long, 7 mm broad at mouth, the upper lip erect, ovate, 20 mm long, 10 mm wide at base, inconspicuously and minutely bilobed at tip, the lower lip erect or spreading, 3-lobed, the middle lobe oblong, 22 mm long, 7 mm wide at base, acute, the lateral lobes linear, 12 mm long, 1.5 mm wide, adnate in part to the upper lip; stamens exerted 16 mm beyond the mouth of the corolla tube; anthers 4.5 mm long, 0.75 mm broad, acute at both ends, glabrous; filaments 45 mm long, glabrous; style 55 mm long, glabrous; capsule not seen.

TYPE.—*Steyermark-Agostini 1* (holotype US, isotypes NY, VEN), Venezuela, Aragua, Parque Nacional Henry Pittier, on Pico Periquito, 1250–1600 m alt, 4 Sep 1960.

DISTRIBUTION.—Known only from the type-locality. VENEZUELA. ARAGUA: Parque Nacional Henry Pittier (Rancho Grande), road to El Portachuelo, 3 Sep 1965, *Castellanos 32* (VEN); Parque Nacional Henry Pittier, 1956, *Herb. Nac. Venezuela 40115*.

Aphelandra steyermarkii is somewhat like *A. tomentosa*, but that species has smaller leaf blades, shorter, acute to slightly obtuse, pilose bracts, shorter corollas (5 cm long), and an entire upper lip.

138. *Aphelandra lasiophylla* Leonard

Aphelandra lasiophylla Leonard, Contrib. U.S. Nat. Herb. 31:192. 1953.

Shrubs; stems terete, densely strigose, the hairs light brown, 0.5 mm long; leaf blades oblong-elliptic, to 28 cm long and 10 cm wide, short-acuminate at apex, narrowed at base and decurrent on the petiole, coriaceous, entire or undulate, the upper surface glabrous to sparingly strigose, the lower surface densely brown pilose to subtomentose, to 1 mm long, the costa and lateral veins (about 15 pairs) prominent below, less so above; petioles to 1.5 cm long and 3 mm in diameter, densely brown-pilose to subtomentose; spikes terminal, solitary, subsessile, about 13 cm long and 1.5 cm broad, loosely imbricate, the rachis silvery-pubescent; bracts narrowly ovate, 15 mm long, 7 mm wide near base, acute, coriaceous, entire, glabrous, sparingly ciliolate, the costa and lateral nerves obscure, glandular area wanting; bractlets lanceolate, 2.5 mm wide near base, acute, carinate, dorsally white-tomentose except a narrow marginal area, this glabrous, subhyaline and striate; calyx 14 mm long, the segments coriaceous, obscurely striate, acute, finely pubescent, the posterior segment oblong-lanceolate, 5 mm wide near base, the anterior pair lanceolate, 3 mm wide near base, the lateral pair narrowly lanceolate, 2.5 mm wide at base; corolla (very immature) finely pubescent at least 3 cm long; ovary glabrous.

TYPE.—*J. Triana s.n.* (holotype COL), Columbia, Antioquia, 1300 m alt, May 1852.

DISTRIBUTION.—Known only from the type-locality.

139. *Aphelandra limbatifolia* Lindau

FIGURE 29

Aphelandra limbatifolia Lindau, Bull. Herb. Boiss. Ser., 2 (4): 323. 1904.

Shrub about 1 m high; branches pubescent when

young, glabrate in age; leaf blades elliptic, 14–20 cm long, 5–7 cm wide, acuminate at apex, narrowed at base, glabrous to sparingly pilose above, the costa of the lower surface pilose, the margin cartilaginous, ciliate, undulate; petiole 1 cm long, pilose; spike short, terminal, few-flowered; bracts ovate, 15 mm long, 6 mm wide, acuminate, entire, puberulent; bractlets sublanceolate, 20 mm long, 4 mm wide, scarios, puberulent; calyx lobes unequal, lanceolate, scarios, ciliolate at apex, the posterior segment 16 mm long and 4 mm wide, the anterior pair 14 mm long and 3 mm wide, the lateral pair 10 mm long and 2 mm wide; corolla pale purple, 6.4 cm long, puberulent, the tube 4.5 cm long, 3 mm wide at base, 5 mm wide at mouth, the upper lip 19 mm long, the tip divided into two acute lobes 6 mm long and 5 mm wide, the lower lip 3-lobed, the middle lobe rotund, 15 mm long and 9 mm wide, the lateral lobes lanceolate, 5 mm long and 1 mm wide; stamens about as long as the corolla; anthers 6 mm long, dorsally pilose; filaments pilose to center; pollen grains typical, 65 μ –70 μ long, 30 μ –35 μ diameter; ovary glabrous, 1.5 mm high; style 57 mm long, glabrous; capsule not seen.

TYPE.—*A. Weberbauer 1200* (holotype B, destroyed, F photo 8669), Peru, Puno, on road between Sandia and Chunchusmayo near Tambo, 1000 m alt, 23 Jun 1902.

DISTRIBUTION.—Known only from around the type-locality. PERU. PUNO: Carabaya, trail Santo Domingo to Machu, 1400 m alt, 30 May–1 Jun 1942, *Metcalf 30654* (UC); Carabaya, hacienda Quillabamba-Sangasi, 1000 m alt, 13 Oct 1957, *Vargas 17577* (US).

Aphelandra limbatifolia is easily distinguished by the peculiar limbate border of the leaf blades and the short spikes. This description was compiled in part from the original and a photo of the type.

140. *Aphelandra pinarotricha* Leonard

Aphelandra pinarotricha Leonard, Contrib. U.S. Nat. Herb. 31:716. 1958.

Shrubs; stems subquadrangular, densely pilose, to 3 m high, the hairs sordid, to 2 mm long; leaf blades oblong, to 7 cm long and 2.2 cm wide, short-acuminate, the tip subobtus, narrowed at base,

firm, entire, pilose, sordid, confined chiefly to the costa and lateral veins (about 10 pairs), these rather prominent beneath but obscure above; petioles to 1 cm long, densely pilose; spikes usually 3, terminal and subterminal, to 4 cm long and 2 cm broad (excluding corollas), the peduncle of the terminal spike about 1 cm long, those of the lateral spikes 3–4 cm long, all densely and sordidly pilose, the rachis moderately pilose, furrowed; bracts lanceolate, 16 mm long, 5 mm wide, the lower half pilose, the hairs to 2 mm long, the upper half glabrate just below the tip, entire, ciliate, obscurely nerved; bractlets lanceolate, 9 mm long, 1.5 mm wide, sparingly pilose dorsally, ciliate, delicately nerved; calyx 8 mm long, acute, glabrous, the posterior segment 3 mm wide, the anterior segments 1.5 mm wide, the lateral segments 1 mm wide, finely ciliate at tip, striate-nerved; corolla orange or yellow, the lower part glabrous, the upper part finely pubescent, 4 cm long from base of tube to tip of upper lip, the tube narrowly funnelform, 2.5 mm broad at base, 4–5 mm broad at mouth, the upper lip erect, ovate, 4 mm wide at base, 6 mm wide at middle, subacute, the lower lip 17 mm long, 5 mm wide at base, erect to spreading, 3-lobed, the middle lobe lanceolate, 12 mm long, 3.5 mm wide just below middle, the lateral lobes linear, 10 mm long, 1.5 mm wide; stamens exerted 12 mm beyond the mouth of the corolla; anthers 4.5 mm long, 0.75 mm broad, acute at both ends, glabrous; filaments glabrous; ovary glabrous; capsule not seen.

TYPE.—*Grant, Killip, & Fosberg 9124* (holotype US, isotype US), Colombia, Cundinamarca, between Sibaté and Fusagasugá, 35 km SW of Bogotá, Cordillera Oriental, 2650 m alt, 30 Apr 1944.

DISTRIBUTION.—Andean Colombia in the department of Cundinamarca. COLOMBIA. CUNDINAMARCA: Highway Villeta to Utica, 800–1450 m alt, 15 Nov 1959, *García-Barriga 17201* (COL, US).

141. *Aphelandra verticillata* Nees ex Hemsley

FIGURE 18

Aphelandra verticillata Nees ex Hemsley, Biol. Centr. Amer. Bot. 2:513. 1882 [nom. nov.].—Nees in de Candolle, Prodr. 11:281. 1847 [as synonym].

Crossandra haenkeana Nees in de Candolle, Prodr. 11:281. 1847 [non *Aphelandra haenkeana* Nees].

Shrub or suffrutescent herb to 1.2 m high; stems

basally quadrangular, later becoming somewhat terete, elongated, glabrous to white-villous; leaf blades quaternate, ovate, the upper narrowly ovate-oblong, 7–9.5 cm long, 2–5 cm wide, acuminate, narrowed at base and decurrent on the petiole, entire, the upper surface drying dark green, moderately puberulous interspersed with a few pilose hairs, the costa and lateral veins (usually 7–11 pairs) plane or slightly elevated, more prominent on the lower surface, this drying light green or olive, moderately puberulous, the hairs evenly distributed or confined chiefly to the costa and lateral veins; petioles (unwinged portion) about 2 mm long, puberulous; spikes terminal, solitary, 4–9 cm long, 2 cm wide (excluding corollas), the rachis angled, puberulous; bracts lance-ovate to oblong, 15–17 mm long and 5–6 mm wide, striate-nerved, acuminate or cuspidate, the cusp about 0.5 mm long, sparingly pubescent both within and without, the margins entire, pilose; bractlets linear-lanceolate, 17–18 mm long, 1.5–2 mm wide, aristate, striate-nerved, glabrous within, minutely puberulous without, the margins pilose; calyx segments similar to the bracts, subequal, linear-lanceolate, 17–18 mm long, 1–1.5 mm wide, aristate, mucronate, the mucro about 0.5 mm long, striate-nerved, the pubescence similar to that of the bractlets; corolla yellow, glabrous to sparingly puberulous, 3.5–4 cm long, the tube 2 cm long, 3.5 mm wide at base, thence gradually enlarged to 6 mm at mouth, the upper lip erect, 12 mm long, 4.5 mm wide, deeply bifid, the lobes elliptic, 4.5 mm long, 2 mm wide, acute, the lower lip 3-lobed, the lobes all obtuse or rounded, the middle lobe obovate, 12 mm long, 5 mm wide, the lateral lobes elliptic, 11 mm long, 3.5 mm wide; stamens exerted about 1 cm beyond mouth of the corolla tube, almost reaching the upper lip; the filaments 25 mm long, glabrous or sparingly puberulent; the anthers 2.5 mm long, recurved at apex, united apically by long weak hairs; mature capsule not seen.

TYPE.—*Haenke s.n.* (holotype PR), Mexico.

DISTRIBUTION.—Endemic to Mexico. MEXICO: Temascaltepec, Ypericones, 1500 m alt, 19 Dec 1832, *Hinton 2971* (K, US). MICHOACÁN: Zitácuaro, Zitácuaro-Enandio, 1850 m alt, 26 Nov 1938, *Hinton 13486* (K, US, W). GUERRERO: 36–38 km from Iguala on road to Teloloapan, near Los Sabinos, 5 Nov 1949, *Moore 5503* (US); Sierra Madre del Sur, N of Río Balsas, Temisco, rocky

cañon of Río Achotla, 250–550 m alt, 26 Nov 1937, *Mexia 8904 pro parte* (US).

142. *Aphelandra latibracteata* Wasshausen

Aphelandra latibracteata Wasshausen, *Phytologia* 25:468. 1973.

Shrub 0.6–1.2 m high; stems minutely puberulent; leaf blades elliptic to oblong, 30–34 cm long, 9–11 cm wide, short-acuminate, narrowed at base and decurrent on the petiole, moderately firm, glabrous or the costa and lateral veins (11–13 pairs) bearing a few appressed hairs, the margins entire; petioles to 1.5 cm long, canaliculate, minutely puberulent; spikes stout, one or several, terminal, subsessile, 12.5–14 cm long, 2.5–3 cm broad, the peduncle about 1 cm long, it and the rachis glabrous or minutely and sparingly puberulent; bracts red, obovate, 16–18 mm long, 12–13 mm wide, rounded at apex, glabrous, subhyaline, striate-nerved, the margins entire; bractlets oblong, 10 mm long, 3.5 mm wide, acute, striate-nerved, minutely puberulous without; calyx segments triangular, subequal, 8–10 mm long, the posterior segment 3.5 mm wide near base, the anterior pair 3 mm wide, the lateral pair 2.5 mm wide, all acute, striate-nerved, glabrous or minutely and inconspicuously puberulous, the margins ciliolate; corolla (immature) whitish, puberulent, 3 cm long, the tube 1.5 cm long, 4 mm wide at base, enlarged to 7 mm at mouth, the upper lip erect, 1–1.5 cm long, 2-lobed, the lower lip 3-lobed, the middle lobe missing, the lateral lobes oblong, about 5 mm long, 2 mm wide, obtuse; stamens almost reaching the upper lip; anthers 5 mm long, pubescent; stigma infundibular, 3 mm wide.

TYPE.—*R. Ferreyra 1908* (holotype US), Peru, Huánuco, Leoncio Prado, Río Supte, near Tingo María, 700–800 m alt, 9 Mar 1947.

DISTRIBUTION.—Known only from around the type-locality. PERU. HUANUCO: Puerto Inca, Bosque Nacional de Iparia, 500–600 m alt, 12 Dec 1968, *Schunke 2863* (F, US); southwestern slope of the Río LlullaPichis watershed, on the ascent of Cerros del Sira, 250 m alt, 21 Jun 1969, *Wolfe 12109* (F, NA).

Aphelandra latibracteata is not nearly allied to the other species. It superficially resembles *A. liboniana* from southern Brazil; however, this species

has shorter leaf blades, much longer bracts, and a larger, yellow (red toward apex) corolla.

143. *Aphelandra montis-scalaris* Lindau ex Pilger

FIGURE 13

Aphelandra montis-scalaris Lindau ex Pilger, *Verh. Bot. Ver. Brand.* 47:188. 1905.

Shrub to 2 m high; branches woody, smooth; leaf blades 12–18 cm long, 5–7 cm wide, obtusely acuminate, cuneate at base, subcoriaceous, glabrous, entire; petioles 2–3 cm long; spikes short, 1–2 cm long, few-flowered, in the axils of the upper leaves forming a thyrse, the peduncles to 3 cm long, sparingly pilose; bracts obcordate, 10 mm long, 4 mm wide at base, 8 mm wide at tip, minutely pilose, entire, parallel-nerved; bractlets ovate, 5 mm long, 2 mm wide, obtuse, minutely pilose; calyx segments ovate, glabrous, the posterior segment 6 mm long, 3 mm wide, the anterior 5.5 mm long, 2 mm wide, the lateral 5.5 mm long and 1.5 mm wide; corolla red, 4.1 cm long, the tube obconical, 37 mm long, 2 mm wide at base, 7 mm at middle, 9 mm at mouth, the lobes rounded, the upper lip 4 mm in diameter, the lower lip 3 mm; stamens 25 mm long, exserted; anthers 4 mm long; pollen grains typical, 60 μ long, 30 μ diameter; style 4.5 cm long, pilose at base.

TYPE.—*E. Ule 6558* (holotype B, lost, F photo 8675, isotype K), Peru, Loreto, Cerro do Escaler, 1200 m alt, Nov 1902.

DISTRIBUTION.—Known only from the type-locality.

A close affinity evidently exists between this and *A. jacobinioides*. In this latter species, however, the corolla is orange instead of red, the corolla tube about 5 mm longer, and the posterior calyx segment truncate, and thus dissimilar to the lateral and anterior segments. In *A. montis-scalaris* all the calyx segments are ovate.

144. *Aphelandra stephanophysa* Nees

Aphelandra stephanophysa Nees in Martius, *Fl. Bras.* 9:90. 1847; in de Candolle, *Prodr.* 11:300. 1847.

Aphelandra lutea Nees var. *angustifolia* Glaziou, *Bull. Soc. Bot. France.* 58, Mém. 3f:534. 1911.

Erect, suffrutescent shrub, about 1 m high; stem

terete, glabrous or puberulous; leaf blades oblong, 13.5–22 cm long, the lower about 4.5 cm wide, the upper 2.5–3 cm wide, acuminate, the tip rounded, narrowed at base and cuneately decurrent on the petiole, thin, glabrous and deep green above, the costa and lateral veins (about 10–12 pairs) usually variegated yellow, the margins somewhat repand, the lower surface drying a lighter green, glabrous except the costa and lateral veins, these puberulous; petioles (unwinged portion) 0.5–1 cm long, the pubescence similar to that of the stem; flowers on solitary, terminal, pedunculate spikes, these 4–6 cm long, 1.5 cm wide (without flowers), the peduncle 1–3.5 cm long, puberulous, the bracts imbricate, not notably spreading with age; bracts yellow, oblong to obovate, 12–15 mm long, 9–10 mm wide just above the middle, obtuse, slightly narrowed and cuneate at base, firm, 5-nerved, glabrous and glandular-punctulate without, the margins entire; bractlets lance-subulate, 7.5 mm long, 2 mm wide, carinate, striate-nerved, subhyaline, puberulous and sparingly glandular-punctulate without, the margins ciliolate; calyx 8.5 mm long, the segments lanceolate, subequal, striate-nerved, subhyaline, glabrous and sparingly glandular-punctulate, the margins ciliolate, the posterior segment 2.75 mm wide near the middle, slightly shorter than the remaining segments, the anterior pair 1.75 mm wide, the lateral pair 1.25 mm wide; corolla red, 3 cm long, well exerted beyond the subtending bracts, sparingly glandular-punctulate, the tube erect, 3 mm wide at base, thence gradually enlarged to 6 mm wide at mouth, the upper lip erect, oblong, 4 mm long and 4 mm wide, bifid, the lobes 2° mm long and 2 mm wide, obtuse, the lower lip 3-lobed, the lobes subequal, the middle lobe ovate, 4.5 mm long, 3 mm wide, obtuse, the lateral lobes oblong, 4 mm long, 2 mm wide, obtuse, erect; stamens included; filaments flattened, smooth; anthers 5 mm long, obtuse, acute at base; style included, filiform, stigma narrow, not infundibular; mature capsule not seen.

TYPE.—*Langsdorff s.n.* (holotype LE), Brazil, Rio de Janeiro, in forest, near Macahé, Jun.

DISTRIBUTION.—Known only from around the type-locality. In state of Rio de Janeiro, between Macahé and Novo Friburgo. BRAZIL. RIO DE JANEIRO: Alto Macahé, 12 Mar 1870, *Glaziou 4165* (P, holotype of *A. lutea* Nees var. *angustifolia* Glaziou, F photo 22155, isotype K); forests of Alto

da Serra near Novo Friburgo, 22 Jan 1898; *Ule 4588* (HBG); Organ Mts., Rio de Janeiro, *Miers 4002* (K).

145. *Aphelandra madrensis* Lindau

FIGURES 22, 23

Aphelandra madrensis Lindau, Bull. Herb. Boiss. II. 4:326. 1904.—Standley, Contrib. U.S. Nat. Herb. 23:1336. 1926.

Shrub 2–4 m high; branches glabrous to sparingly pubescent at tip; leaf blades oblong to ovate, 10–22 cm long, to 7 cm broad, obtusely acuminate, rather abruptly narrowed into the slender, winged petioles, 3–7 cm long, reticulately veined, entire or undulate, the upper surface glabrous to sparingly pubescent, the costa and lateral veins (10–12 pairs) more prominent on the lower surface, where they are plane or slightly elevated, and moderately pubescent chiefly on the costa and lateral veins; petioles (unwinged portion) about 2 cm long, glabrous to sparingly puberulent; spikes terminal, solitary or several, 10–15 cm long, 2 cm broad (excluding corollas), the rachis angular, densely glandular-pubescent; bracts closely imbricate or spreading with age, sometimes drying purplish red, ovate, 17 mm long, 8–9 mm wide, acuminate to acute, obscurely nerved, more or less glandular-puberulent both within and without, the margins entire, densely glandular pilose, especially the tip; bractlets linear-lanceolate, 10–13 mm long, 1–2 mm wide, aristate, carinate, striate-nerved, glandular-pubescent without, glabrous within; calyx segments subequal, linear-lanceolate, aristate, prominently striate-nerved, glandular-puberulent, the posterior segment 12 mm long, 3.5 mm wide, the anterior and lateral pairs 13–15 mm long, 2–2.5 mm wide; corolla orange to red, puberulent, 3.5–4 cm long, the tube 2.8–3 cm long, 4 mm in diameter at base, enlarged to 7 mm at mouth, the upper lip erect, obovate, about 7 mm long and 6 mm wide, minutely 2-lobed or obcordate, the lower lip 3-lobed, the lobes all rounded, the middle lobe obovate, 10 mm long and 8 mm broad, the lateral lobes elliptic, 8 mm long and 5 mm broad; stamens exerted about 5 mm beyond mouth of the corolla tube; the filaments 25 mm long, glandular-pilose; the anthers truncate both apically and basally, 3–3.5 mm long, glabrous, united apically by long weak hairs; pollen grains typical, 45 μ –55 μ long, 30 μ –38 μ in diam-

eter; staminode filiform, 2 mm long, pilose; style about 30 mm long, pilose; the stigma bifid, 1 mm long; capsule 1.5 mm long, 6 mm in diameter, shortly stipitate, puberulent.

TYPE.—*E. Langlassé 806* (holotype B, destroyed, isotypes K, US), Mexico, Guerrero, Sierra Madre, 1600 m alt, 27 Jan 1899.

DISTRIBUTION.—Mexico, found usually in canyons along streams just above coastal areas in the states of Sinaloa, Jalisco, and Michoacán. MEXICO. SINALOA: Balboa, Jan 1923, *Ortega 5023* (US). JALISCO: S of Puerto Vallarta, 26 Nov 1926, *Mexia 1134* (US); Santa Cruz de Vallarta, 700 m alt, 9 Dec 1926, *Mexia 1259* (US). MICHOACÁN: Coalcoman, Aquila, 300 m alt, 27 Oct 1941, *Hinton 16042* (US); 3 Nov 1941, *Hinton 16062* (K, NY, P, UC, US); Tizupan, 10 m alt, 9 Apr 1941, *Hinton 15912* (US); S. Naranjillo, 25 Nov 1938, *Hinto 12675* (K, US).

146. *Aphelandra lineariloba* Leonard

FIGURE 25

Aphelandra lineariloba Leonard, Kew Bull. 1938:63. 1938.

Shrub to 3 m high; the stems terete, glabrous or the tips strigillose; leaf blades oblong-ovate, to 12 cm long and 5 cm wide, acuminate, narrowed at base and decurrent on the petiole, entire, firm, both surfaces sparingly hirtellous to glabrate, the hairs of the lower surface confined chiefly to the costa and lateral nerves (8–10 pairs); petioles slender, to 2.5 cm long, glabrous to strigillose; flowers in terminal or subterminal spikes 10–30 cm long and 2 cm in diameter, the rachis finely glandular-pubescent; bracts obovate, 15–17 mm long, 8–10 mm wide, obtuse to acute, ending in a mucro 0.5 mm long, often purplish, imbricate, entire, obscurely 3-nerved, both surfaces glandular-pubescent; bractlets lanceolate, 12–13 mm long, 2–3 mm wide near base, veiny, carinate, both surfaces glandular-pubescent, the costa prominent; calyx segments subequal, striate-nerved, glandular-pubescent without, glabrous within, the posterior segment lanceolate, 14 mm long and 4 mm wide, the anterior pair narrowly lanceolate, 13–15 mm long and 2.5 mm wide, long acuminate, the lateral pair narrowly lanceolate, 13 mm long and 2.5 mm wide, long acuminate; corollas 3–4 cm long, purple, glandular-puberulous, the tube gradually enlarged

from 4.5 mm at base to 6 mm at mouth, the lips 1 cm long, the upper lip erect, ovate, 12 mm long, 9 mm wide at base, 2-lobed, the lobes 0.5 mm long, 1 mm wide at base, acute, the lower lip 3-lobed, the middle lobe linear-lanceolate, 10 mm long, 2 mm wide, the lateral lobes subulate, 8 mm long, 1.5 mm wide; stamens reaching the throat of the corolla, the shorter filament of each pair glabrous or bearing a few hairs near the base, the longer bearing a line of spreading hairs to 0.5 mm long; anthers 2.5 mm long, glabrous; ovary 3.5 mm long, glabrous; capsule ovoid, about 17 mm long, 7 mm wide, obtuse, densely brownish-puberulous, 4-seeded; retinacula 2 mm long, cucullate; seeds flat, suborbicular, 3.5 mm in diameter, densely hirtellous.

TYPE.—*G. B. Hinton 7412* (holotype K, isotype US), Mexico, México, Temascaltepec, Villaneda, 22 Feb 1935.

DISTRIBUTION.—Southeastern Mexico in the states of México, Michoacán, and Guerrero. MEXICO. MÉXICO: Temascaltepec, Acatitlan, 16 Dec 1933, *Hinton 3156* (K, US). MICHOACÁN: Coalcoman, Coalcoman, 1000 m alt, 8 Jan 1939, *Hinton 12881* (US); 16 Mar 1939, *Hinton 13623* (US); Huizotla, 600 m alt, 15 Mar 1941, *Hinton 15794* (F, K, P, UC, US, W). GUERRERO: Ashotla, 900 m alt, 1 Jan 1927, *Reko 5047* (US); Vallecitos, Montes de Oca, 9 Dec 1937, *Hinton 11648* (K, US); Sierra Madre del Sur, N of Río Balsas, Adama, Temisco, 600 m alt, 6 Dec 1937, *Mexia 8952* (US).

147. *Aphelandra jacobinioides* Lindau

FIGURE 15

Aphelandra jacobinioides Lindau, Fedde Repert. Nov. Sp. 1:156. 1905.

Shrub to 4 m high; branches puberulent above, becoming glabrate below; leaf blades oblong-elliptic, 16–20 cm long, 6–8 cm wide, acuminate, gradually narrowed at base, glabrous, thin, entire; petioles 1–3 cm long, pubescent; spikes axillary and terminal, short, few-flowered, congested at the tips of the branches, the peduncles 1–2 cm long, pubescent; bracts broadly ovate, 10 mm long and 9 mm wide, glabrous, truncate, submucronate, entire; bractlets lanceolate, 6 mm long and 1.5 mm wide, obtuse, pilose at tip; posterior calyx segment trun-

cate, 5 mm long, 2.5 mm wide, anterior pair lanceolate, 5 mm long and 1.5 mm wide, the lateral pair 5 mm long and 1 mm wide, all pilose at apex; corolla orange to yellow, 4.8 cm long, glabrous, except pilose within at base, the tube suberect, 4.2 cm long, 2.5 mm wide at base, 16 mm wide at mouth, the upper lip 6 mm long, the 2 lobes 3 mm long and 4 mm wide, rounded, the lower lip 3-lobed, the middle lobe 5 mm in diameter, the lateral lobes 5 mm long and 4 mm wide; filaments 40 mm long, pilose at base; anthers 5 mm long, dorsally pilose; pollen grains typical, 77μ – 88μ long, 27μ – 35μ diameter; ovary 2 mm high; style 5.5 cm long, exerted; capsule clavate, 1.5 cm long, 0.5 cm long, blunt at tip, nitid, glabrous; seeds dark brown, flat, suborbicular, 3 mm in diameter, sparingly papillose.

TYPE.—*A. Weberbauer 4663* (holotype B, destroyed, F photo 8666), Peru, San Martin, Moyobamba, 1300–1400 m alt, 28 Aug 1904.

DISTRIBUTION.—Southern Ecuador and northern Peru, between elevations of 150–1750 m. ECUADOR. SANTIAGO-ZAMORA: Cordillera Cutucu, ca. $2^{\circ}40'S$, $78^{\circ}W$, east-tending slope from top of ridge down toward the Itzintza, 1400–1750 m alt, 17 Nov–5 Dec 1944, *Camp 1370, 1372* (NY, US). PERU. LORETO: Alto Amazonas, Balsapuerto, 220 m alt, Jan 1933, *Klug 2847* (US, NY); Balsapuerto (lower Río Huallaga basin), 150–350 m alt, 28–30 Aug 1929, *Killip & Smith 28617*. SAN MARTIN: Moyobamba, 600 m alt, Aug 1938, *Sandeman 162* (K); Zepelacio, near Moyobamba, 1100 m alt, May 1934, *Klug 3615* (G, K, NY, US). WITHOUT EXACT LOCALITY: Probably Loreto or San Martin, July 1938, *Sandeman s.n.* (K).

Aphelandra jacobinioides is well marked by its truncate bracts and truncate posterior calyx segments.

148. *Aphelandra phlogaea* Leonard

Aphelandra phlogaea Leonard, Contrib. U.S. Nat. Herb. 31: 189. 1953.

Shrub to 2 m high; stems subterete, glabrous, or sparingly puberulous above; leaf blades oblong-elliptic, 10–19 cm long, 3.5–6.5 cm wide, rather slenderly acuminate, narrowed at base and decurrent on the petiole, entire, firm, the upper surface glabrate or bearing a few scattered hairs, except on

the costa and lateral veins (8–10 pairs), these sparingly strigose, the hairs appressed, to 0.5 mm long, the lower surface drying a lighter olive than the upper, puberulous, the hairs borne on the costa and veins barely 0.5 mm long, the others much smaller; petioles (unwinged portion) 1–2 cm long, including the winged portion to 6 cm long, puberulous; spikes 1 to several, terminal and subterminal, including flowers about 12 cm long and 2.5 cm broad, bracts ascending to appressed, the rachis densely white-pilose, some of the hairs gland-tipped, terminal spike sessile, the peduncles of the lateral ones to 2 cm long, densely puberulous; bracts lanceolate, 15 mm long and 10 mm wide or the lowermost somewhat larger, entire, acute to acuminate, densely white glandular-pilose, the hairs 0.5–2 mm long; bractlets lanceolate, 18 mm long, 3.5 mm wide, acuminate, glandular-pilose; calyx about 17 mm long, indurated at base, the posterior segment 4 mm wide, the anterior pair 2 mm wide, the lateral pair barely 3 mm wide, all striate-nerved, glandular-puberulous; corolla 5 cm long, orange-red, moderately pubescent, the tube 3 cm long, slightly curved, 4 mm broad near the base, slightly restricted at tip of ovary, thence gradually enlarged to 6 mm at mouth, the upper lip erect, elliptic, 17 mm long, 10 mm wide, emarginate, the notch about 1 mm deep, the lower lip spreading, the middle lobe oval, about 2 cm long and 13 mm wide, the lateral ones oblong, 1 cm long and 4 mm wide, all rounded; stamens slightly exerted beyond the upper lip; anthers 5.5 mm long, slightly webby-pilose and adhering at their tips; filaments pubescent or the two longer ones glabrous above; ovary glabrous; capsules not seen.

TYPE.—*Haught 3944* (holotype US), Colombia, Magdalena, in forest near stream above Manaure, 800 m alt, 16 Jan 1944.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. MAGDALENA: Sierra de Perijá, eastern of Manaure, Hacienda Nuevo Horizonte, El Podrido, forest, 1550–1600 m alt, 15–16 Nov 1959, *Cuatrecasas & Castaneda 25402* (COL, US).

149. *Aphelandra guayasii* Wasshausen

Aphelandra guayasii Wasshausen, Phytologia 25:495. 1973.

Suffrutescent shrub, to 7.5 m high; stems sub-

quadrangular, puberulous; leaf blades oblong-ovate, 18–21 cm long, 6.5–7 cm wide, acuminate (the tip rounded), narrowed and conspicuously long-attenuate at base, firm, entire, the upper surface dark-olivaceous, glabrous or sparingly and inconspicuously puberulous, the lower surface pale-olivaceous, sparingly puberulous, especially the costa and lateral veins, these rather inconspicuous, more prominent though beneath than above; petioles (unwinged portion) 1.5–2.5 cm long, hirtellous; flowers borne in one to three, terminal, peduncled spikes, these 7–9 cm long and 2 cm wide (excluding corollas), subtended by several, small, lanceolate leaves near the base, these 10 mm long, 2 mm wide, the bracts densely imbricate, viscid, the peduncle 1–1.5 cm long, hirtellous and glandular-punctate, the rachis glandular-pilose; bracts ovate, 14–17 mm long and 8 mm wide, acuminate, cuneate, colored, densely white-glandular-pilose, 3-nerved, the margins entire, ciliate; bractlets lanceolate, subcarinate, 9 mm long, 1.5 mm wide, aristate, striate-nerved, subhyaline, glandular-pilose; calyx segments lanceolate, 12 mm long, subequal, acuminate and spine-tipped, striate-nerved, glandular-pilose without, glabrous within, the posterior segment 3.5 mm wide, the anterior pair 2.5 mm wide, the lateral ones 2 mm wide; corolla straw-colored, 5.5–6.5 cm long, sparingly pilose to glandular-pilose, the tube erect, 3 mm wide at base, slightly narrowed at 5 mm above base, thence gradually enlarged to 8 mm at mouth, the upper lip ovate, erect, 2.4 cm long, 1.3 cm wide, entire, retuse the lower lip spreading, 3-lobed, the lobes subequal, the middle lobe ovate, 2.4 cm long, 1.5 cm wide, acute, the lateral lobes oblong, 7 mm long, 3 mm wide, obtuse or rounded; stamens exerted 2.2 cm beyond the mouth of the corolla tube; anthers 5–6 mm long, arachnoid at tip, mucronulate at base; ovary 4 mm long, 2 mm wide, glabrous; capsule not seen.

TYPE.—*O. Haught 3085* (holotype US), Ecuador, Guayas, 18 km W of Pedro Carbo, 5 Aug 1940.

DISTRIBUTION.—In the vicinity of Guayaquil, Ecuador. ECUADOR. GUAYAS: 10 km NW of Guayaquil on road to Salinas, 13 Sep 1961, *Dodson & Thien 513, 515* (MO, US); 12 km from Guayaquil, 22 Aug 1961, *Gilmartin 503* (US); Julio Moreno, Cerro de Isera, 250 m alt, 23 Jul 1962, *Játiva & Epling 149* (US); Cerro Azul, vicinity of Guayaquil, 14 Jun 1955, *Asplund 16641* (S, US); 10 Sep

1955, *Asplund 17600* (S, US); 50 m alt, 22 Oct 1958, *Harling 3029* (S, US).

This species is very similar in general aspects to *Aphelandra madrensis* Lindau, both its longer, glandular-pilose corolla and the entire, longer and broader upper and lower corolla lips set it well apart. With no collections available to connect the widely separate ranges of the two taxa, it seems advisable to regard them as distinct species.

150. *Aphelandra lawranceae* Leonard

Aphelandra lawranceae Leonard, Journ. Wash. Acad. Sci. 25: 437. 1935; Contrib. U.S. Nat. Herb. 31:195. 1953.

Suffrutescent, to 1.2 m high; stem terete, glabrous, more or less verrucose, the internodes 1.5–4 cm long; leaf blades narrowly oblong-elliptic, 10–12 cm long and 2.5 cm wide, acuminate (the tip blunt), gradually narrowed from about the middle to base and decurrent on the petiole, entire or undulate, both surfaces glabrous, the lower surface often dark mauve; petioles to 1 cm long; spike terminal (sometimes subtended by a whorl of 4 or 5 pairs of leaves), sessile, to 7 cm long and 2 cm broad, the rachis puberulous; bracts rather closely imbricate, erect-spreading, oblong-lanceolate, 20–22 mm long and 8 mm wide (narrowed to 4 mm at base), abruptly acuminate to acute, entire, puberulous, ciliate; bractlets narrowly lanceolate, to 9 mm long and 1.5 mm wide, 1-nerved, striate, puberulous, some of the hairs glandular; calyx segments subequal, about 9 mm long, narrowly lanceolate, acuminate, the posterior one 3 mm wide, minutely bidentate at apex, the anterior pair 1.7 mm wide, the lateral pair 1.5 mm wide, all striate and puberulous toward tip (glandular and eglandular hairs mixed); corolla 5–5.5 cm long, brilliant red, pubescent, the tube gradually enlarged from 3 mm at base to 5 mm at throat, the upper lip entire, oblong, about 15 mm long and 6 mm wide, the lower lip 3-lobed, the lobes subequal or the lateral ones slightly shorter, to 2 cm long, the middle lobe obovate, to 8 mm wide, the lateral lobes oblong, to 6 mm wide; filaments about 3.5 cm long, glabrous to puberulent toward base; staminode lobulate, about 1 mm long; style puberulous; ovary glabrous below, pilosulous above.

TYPE.—*A. E. Lawrance 244* (holotype US), Colombia, Boyacá, in forest region at Agua Perro on Mount Chapón, 1650 m alt, 17 Jun 1932.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. BOYACÁ: Mount Chapon, 1080 m alt, 20 Jun 1932, *Lawrance 243* (K), 252 (US). CUNDINAMARCA: Bogota, Oct 1874, *Saunders s.n.* (K).

151. *Aphelandra arisema* Leonard

Aphelandra arisema Leonard, Contrib. U.S. Nat. Herb. 31: 200. 1953.

Herb or low shrub; leaf blades oblong-lanceolate, 22–30 cm long and 6.5 cm wide, acuminate, narrowed at base and decurrent on the petiole, submembranaceous, entire or undulate, glabrous or the lower surface sparingly puberulous; petioles about 2 cm long, glabrous; spike terminal, solitary, subsessile, to 26 cm long, 1.5–2.5 cm broad, the rachis angled, puberulous; bracts ascending or nearly erect, entire, closely imbricate, oblong-elliptic, 25 mm long, 8 mm wide at middle, acute, narrowed at base, puberulous, ciliate, the marginal cilia about 0.25 mm long, the nerves rather prominent, the veinlets coarsely reticulate; bractlets subulate, 5 mm long, 0.75 mm wide near base, slenderly acuminate, striate-nerved, puberulous; calyx 1–1.5 cm long, the segments lanceolate, acuminate, subchartaceous, striate-nerved, puberulous, the posterior segment 2.5 mm wide near base, the anterior segments 2 mm wide and the lateral segments 1.5 mm wide near the base; corolla not seen; capsule cylindrically clavate, about 1.5 cm long, 5 mm broad, 2 mm thick, obtuse and apiculate, puberulous; seeds brown, flat, suborbicular, 2.5 mm in diameter, glabrous.

TYPE.—*J. Triana s.n.* (holotype K, US photo 3623, isotypes COL, P), Colombia, Nariño, Barba-coas, 170 m alt, Mar 1853.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. Gorgona Island, sea level, 20 Oct 1924, *Collenette 630* (K).

152. *Aphelandra galba* Wasshausen

Aphelandra galba Wasshausen, Phytologia 25:479. 1973.

Shrubs to 1.5 m high; stems terete, glabrous or minutely and inconspicuously puberulous; leaf blades oblong to elliptic, 18–23 cm long and 5.5–6 cm wide, short-acuminate at apex (the tip itself

blunt), narrowed at base and decurrent on the petiole, glabrous or the costa and lateral veins (16–18 pairs) minutely and inconspicuously puberulous beneath, the margins entire, the lower surface drying a much lighter green than the upper; petioles slender, 2–3 cm long, minutely puberulous; spikes stout, one or several, terminal, subsessile, 22–27 cm long and 2–3 cm broad (without corollas), the peduncle 0.5 cm long, the rachis glandular-pilosulous; bracts lance-ovate, pale orange, 27–28 mm long and 10–12 mm wide, acute, densely puberulous, prominently 3-nerved, the margins entire, ciliate; bractlets lanceolate, 13 mm long, 1.5 mm wide, long-acuminate, densely glandular-pilosulous, striate-nerved, subhyaline; calyx segments lanceolate, subequal, 15 mm long, the posterior segment 3.5 mm wide near the middle, the anterior and lateral pairs 2.5 mm wide, all acute, striate-nerved, densely glandular-pilosulous; corolla canary yellow, 3.5–4.5 cm long, densely pubescent, the tube erect, about 3 cm long, 3 mm broad at base, thence gradually enlarged to 4 mm at mouth, the upper lip erect, obovate, 1.5 cm long, 9 mm wide, the tip retuse, the lower lip 3-lobed, the middle lobe obovate, 15 mm long, 11 mm wide, obtuse, the lateral lobes elliptic, 12 mm long, 6 mm wide, retuse at apex; stamens almost reaching the tip of the upper corolla lip; anthers 6 mm long, apiculate at apex; capsule not seen.

TYPE.—*W. H. Camp E-830* (holotype US, isotype NY), Ecuador, Zamora-Chinchepe, Valley of the Ríos Negro and Chupianza (on trail from Sevilla de Oro to Mendez), 870–900 m alt, 1 Nov 1944.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra galba is not nearly allied to the other species. Readily distinguished from the other known *Aphelandra* by the combination of its long, stout spikes, large, pale orange bracts, and canary yellow corollas.

153. *Aphelandra diffusa* Wasshausen

Aphelandra diffusa Wasshausen, Phytologia 25:477. 1973.

Spreading plant 1.5 m high; stems terete, glabrous to sparingly and inconspicuously puberulous; leaf blades ovate, 13–15 cm long, 4.5–5 cm wide, submembranaceous, entire or shallowly undulate,

acuminate (the tip obtuse), gradually narrowed and attenuate at base, the upper surface olivaceous, glabrous or sparingly hirtellous, the lower surface light-olivaceous, moderately hirtellous, the costa and lateral veins (11–12 pairs) inconspicuous above, rather prominent below, hirtellous; petioles (unwinged portion) 1.5 cm long, sparingly puberulous; flowers borne in one or several, terminal, peduncled spikes, these 7–8 cm long and 2.5 cm wide (without corollas), the bracts densely imbricate, viscid, the peduncle 3.5 cm long, sparingly puberulous, the rachis densely glandular-pilose; bracts reddish, ovate, 25–26 mm long, 9–10 mm wide, acute, cuneate, densely glandular-pilose, prominently 2-nerved at base, becoming reticulate above, the margins entire, ciliate; bractlets linear, subcarinate, 14 mm long and 1 mm wide, gradually narrowed to an aristate tip, subhyaline, striate-nerved, glandular-pilose; calyx segments lanceolate, 17 mm long, subequal, acuminate, striate-nerved, the nerves callose below, subhyaline, sparingly glandular-pilose, the posterior segment 3 mm wide, the anterior pair 2 mm wide, the lateral pair 1.5 mm wide; corolla orange-yellow (turning deep purplish red with age), 4 cm long, glandular-pilose, the tube erect, 3 mm wide at base, gradually enlarged to 6 mm wide at mouth, the upper lip erect, concave, triangular-ovate, 12 mm long, 8 mm wide, entire, acute, the lower lip spreading, 3-lobed, the lobes subequal, the middle lobe obovate, 13 mm long, 8.5 mm wide, acute to obtuse, the lateral lobes ovate, 3.5 mm long, 2 mm wide, obtuse; stamens exerted 1 cm beyond the mouth of the corolla tube; anthers 4 mm long, arachnoid at tip, mucronate at base; style and stigma 3.6 cm long, puberulous at base, glabrous above; ovary 3.5 mm long, 1 mm wide, glabrous; capsule yellow, puberulous, elliptic, 15 mm long, 5 mm broad, acute; seeds (immature), muricate, 2.5 mm in diameter.

TYPE.—*Jorgensen & Prieto JP-52* (holotype US, isotype NY), Ecuador, Loja, 46 km S of Loja, hacienda Anganuma, at headwaters of Río Cachiyacu, on the W slopes of Cordillera Condor, 1800 m alt, 13–16 Jul 1944.

DISTRIBUTION.—Andean Ecuador and Peru, at elevations between 1800 and 2250 meters. ECUADOR. BOLIVAR: *André 796 (Poortman)* (K). PERU. PIURA: Cerro Porculla, 3–11 km W of Continental Divide down W slope of Cerro, 12 Jun 1966, *Edwin & Schunke 3768* (F, US). CAJAMARCA: Llama (Cu-

tervo), 2250 m alt, Jul 1943, *Sandeman 4082* (K).

Aphelandra diffusa superficially resembles *A. guayasii*. In *A. guayasii* though, the leaf blades are longer and broader, the bracts acuminate, shorter and narrower, and the corolla, as well as the limb, considerably longer and broader.

154. *Aphelandra cuatrecasatii* Leonard

Aphelandra cuatrecasatii Leonard, Contrib. U.S. Nat. Herb. 31:204. 1953.

Aphelandra killipii Leonard, Contrib. U.S. Nat. Herb. 31:202. 1953.

Aphelandra craura Leonard, Contrib. U.S. Nat. Herb. 31:207. 1953.

Plants suffrutescent, erect, brittle, to 3 m high; stems thick, glabrous below, densely retrorsely strigose above, the hairs brownish; leaf blades oblong-elliptic to obovate, to 28 cm long and 14.5 cm wide, acuminate, the tip blunt, narrowed from middle or slightly above the middle to the base and decurrent on the petiole, subcoriaceous, entire or undulate, the upper surface pale green, glabrous to sparingly strigose, the lower surface pale ashy and more densely strigose, the costa and lateral veins (10–14 pairs) rather prominent, more so beneath than above; petioles (unwinged portion) to 1 cm long, retrorsely strigose similar to the stem; spike solitary, terminal, sessile, slenderly conic to ovoid, 10–12 cm long, 2 cm broad, the bracts rather loosely appressed, spreading with age, subtended by several small lanceolate, bractlike leaves, the rachis glabrous to strigose; bracts pale yellowish green, entire, coriaceous, oblong-elliptic, 30 mm long, 10–14.5 mm wide, slightly obtuse, mucronulate, apparently closely striate-nerved (the meshes of the reticulations compressed), opaque, bordered by a narrow subhyaline margin about 0.5 mm wide, the lower half of the bract strigose, the upper half glabrous; bractlets narrowly lanceolate, to 6 mm long, about 1 mm wide at base, thin, 3-nerved, subhyaline, sparingly strigose dorsally; calyx segments minute, ovate to triangular, 0.5–0.75 mm long and broad, acuminate, thin, subhyaline; corolla reddish to cream-white (Lehmann's specimen at Kew), about 3 cm long, densely hirsute, the hairs more or less appressed, 0.75 mm long, brownish, the tube slender, 3.5 mm broad at base, 4–5 mm broad at mouth, the lips about equal, the upper lip oblong to ovate, 7 mm long and about 4 mm wide, bilobed at apex,

the lobes rounded, 1.5–2 mm long and 1.5 mm wide at base, the middle lobe of the lower lip (spreading) oval, 9–10 mm long and 5.5–6 mm wide, rounded, the lateral lobes lanceolate to oblong, 8–10 mm long and 2.5–3 mm wide at middle, obtuse; stamens reaching the mouth of the corolla and probably slightly exerted; anthers barely 3 mm long, adhering to the webby, dorsally borne hairs; ovary glabrous; capsule not seen.

TYPE.—*J. Cuatrecasas 16705* (holotype US), Colombia, Valle, La Trojita, along the Río Calima, 5–50 m alt, 19 Feb–10 Mar 1944.

DISTRIBUTION.—Endemic to Colombia, found in dense forests at low elevations in the departments of Chocó and Valle. COLOMBIA. CHOCÓ: La Concepción, 15 km E of Quibdo, 75 m alt, 20 Apr–23 May 1931, *Archer 2003* (US); Andagoya, 70–100 m alt, 20–30 Apr 1939, *Killip 35374* (US, holotype of *A. killipii* Leonard). VALLE: 10–15 km E of Buenaventura, dense forest along highway, near sea level, 12 Apr 1939, *Killip 34938* (US); along highway near Buenaventura, 100 m alt, 8 Dec 1946, *Haught 5337* (US, holotype of *A. craura* Leonard); along Quebrada La Brea, near Córdoba, 7 Nov 1944, *Core 1558* (US); Córdoba, 50–100 m alt, 17 Feb 1939, *Killip & García 33444* (US); Córdoba, Dagua Valley, forest along Río Calima, 80–100 m alt, 9 Oct 1922, *Killip 11788* (US); Río Digua Valley, between La Elsa and Río Blanco, 825 m alt, 2–5 Apr 1939, *Killip 34738* (US); near Buenaventura, *Lehmann s.n.* (K).

155. *Aphelandra prismatica* (Vellozo) Hiern

Aphelandra prismatica (Vellozo) Hiern, Nat. For. Kjoeb. Vidensk. Meddel. 78. 1877.—Bentham & Hooker, Genera Plantarum 2, pt. 2:1103. 1876.—Lindau in Engler and Prantl, Natürl. Pflanzenfam. 4, Abt. 3b:322. 1895.—L. B. Smith, Phytologia 1:82. 1934.

Ruellia quadrangularis Vellozo, Fl. Flum. 267, n. 7. 1825; Icones, 6, pl. 97. 1831.

Ruellia prismatica Vellozo, Fl. Flum. 267, n. 8. 1825; Icones, 6, pl. 98. 1831.

Strobilorrhachis glabra Klotzsch in Otto & Dietrich, Allgem. Gartenz. 7:308. 1839; in Link, Klotzsch & Otto, Ic. Pl. Rar., 117, pl. 48. 1841.

Hydromestus maculatus Scheidweiler in Otto & Dietrich, Allgem. Gartenz. 1842:285. 1842.—Hooker, Bot. Mag. 77, pl. 4556. 1851.

Strobilorrhachis prismatica (Vellozo) Nees in Martius, Fl. Bras. 9:84. 1847; in de Candolle, Prodr. 11:294. 1847.

Lagochilium hydromestus Nees in de Candolle, Prodr. 11:291. 1847.

Aphelandra hydromestus (Nees) Hemsley, Biol. Centr. Amer. Bot. 2:512. 1882.

Aphelandra prismatica var. *stenophylla* Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:323. 1948.

Aphelandra lurida Rizzini, Dusenya 3:181. 1952.

Small, suffrutescent shrub about 1 m high; stems purplish, terete, branching, somewhat flattened at summit, canaliculate, glabrate, the internodes 2–6 cm long; leaves glabrous, the blades oblong to ovate-lanceolate, 15–20 cm long, 4.5–9 cm wide, the tip blunt, cuneately narrowed and decurrent on the petiole at base, entire or undulate, slightly sinuate, finely membranaceous, the upper surface yellowish green, the lower surface paler green, the costa and veins (7–10 pairs) rather prominent, arcuate; petioles (unwinged portion) 2–4 cm long, very similar to the stem; flowers borne in solitary, axillary and terminal spikes, these 7–15 cm long, 1.5–3 cm broad (without corollas), the bracts closely imbricate, spreading with age, the peduncle 0.2–0.5 cm long, glabrous; bracts oblong-elliptic, 20–30 mm long, 11–13 mm wide, acute to acuminate, mucronulate, carinate, bright green, entire, glabrous, striate-nerved, bordered by a narrow subhyaline margin about 0.5 mm wide; bractlets lance-ovate, 3.5 mm long, 1.5 mm wide, acute, carinate, subhyaline, striate-nerved, glabrous to glabrate; calyx 5 mm long, the segments lanceolate (the posterior segment lance-ovate, acute to obtuse), subhyaline, striate-nerved, glabrous or the tip of the margin puberulous, the posterior segment 2.25 mm wide just below the middle, the anterior pair 1.75 mm wide, the lateral pair 1.25 mm wide; corolla showy, yellow, 3–4 cm long, well exerted beyond the subtending bracts, glabrous, the tube narrow, 2.5 cm long, 2 mm wide at base, thence gradually enlarged and infundibular, 8 mm wide at mouth, the lobes obtuse, the upper lip spreading, obovate, 10 mm long and 15 mm wide, bifid, the lobes 5 mm long and 7 mm wide, the lower lip 3-lobed, subequal, the middle lobe elliptic, 10 mm long, 6.5 mm wide, the lateral lobes elliptic-oblong, 12 mm long, 7.5 mm wide; stamens included; anthers 4 mm long, villous, apiculate, rounded at base; filaments epipetalous in throat of corolla tube, villous; style included; capsule about 12 mm long and 4.5 mm wide, smooth, pointed at tip, the valves recurved upon maturity; seeds flat, subquadrate,

4.5 mm long and 4 mm wide, brown, sparingly puberulent.

TYPE.—*Vellozo s.n.*, lost, if any specimens were ever made. Typification is on the basis of the description and plate, especially the latter. The only locality data is under the synonym *Ruellia quadrangularis*: “. . . habitat silvis maritimis Pharmacopolitanis. Offendi ad ripas fluvii Paraty—merim vulgo dicti.”

DISTRIBUTION.—Southeastern Brazil, in woods in the states of Espírito Santo, Rio de Janeiro, Guanabara, and São Paulo. BRAZIL. ESPÍRITO SANTO: Cachoeira da Itapemirim, 700 m alt, 3 Jun 1949, *Brade 19971* (RB, holotype of *Aphelandra lurida* Rizzini). RIO DE JANEIRO: Near Therézopolis, 8 Feb 1826, *Burchell 2001* (K); 21 Feb 1826, *Burchell 2482* (K); Mandiocca, *Langsdorff s.n.* (LE); Serra d'Estrella, 1833, *Luschnath s.n.* (BR); near St. Anna, Dec 1823, *Beyrich s.n.* (B, destroyed, holotype of *Strobilorrhachis glabra* Klotsch); Petrópolis, 1879, *Wawra 21* (W); Serra de Petrópolis, Feb 1966, *Duarte 9671* (RB, US); woods old road to Petrópolis, 29 Jan 1968, *Smith & McWilliams 15345a* (US); 1830, *Riedel 0.36* (LE). GUANABARA: Rio de Janeiro, 1816–1821, *St. Hilaire 207* (P); 725 (P); 1817–1818, *Mikan s.n.* (W); 1817–1820, *Martius s.n.* (M), (F photo 20497); 1821, *Langsdorff s.n.* (P); Feb 1824, *Guadichaud s.n.* (K); 1831–1833, *Gaudichaud 116* (P); 494 (P); 1839, *Wilkes Expedition s.n.* (US); 1840, *Regnell s.n.* (S); 1843, *Widgren 199* (S); 1843, *Weddell 181* (P); 1844, *Widgren 23* (BR, S); Corcovado, 28 Jan 1868, *Glaziou 2653* (BR, K); eastern end of Serra da Carioca, 200–500 m alt, 26 Mar 1929, *L. B. Smith 2165* (GH); Corcovado, Feb 1818, *Pohl 5010* (W); 1838, *Raven 216* (BR); 1859–1860, *Wawra & Maly 506* (W); 9 Jun 1862, *Nadeaud s.n.* (P); 1813–29, *Langsdorff s.n.* (LE); Apr 1832, *Riedel & Luschnath s.n.* (LE); Paineiras, 27 Feb 1881, *Saldanha 502* (P). SÃO PAULO: Serra do Mar, near S. Cruz, 1818, *Martius s.n.* (M); Alto da Serra, 2 Feb 1913, *Brade 6050* (S); 1000 m alt, 14 Jun 1922, *Holway 1970* (US); Estação Biológica, 800–900 m alt, 17 Feb 1929, *L. B. Smith 1934* (US); Santos, 10.12. 1874, *Mosén 2910* (S); Rio das Pedras, *Burchell 3615* (K). WITHOUT EXACT LOCALITY. 1815, *Freyreiss s.n.* (S); 1817–1818, *Raddi s.n.* (FI); 1842, *Claussen 1962* (P); 1869, *Glaziou s.n.* (P); *Staunton s.n.* (W); *Lalande s.n.* (P); *Sellow s.n.* (K); *Riedel & Langsdorff 106* (LE).

Aphelandra prismatica has also been reported from Mexico, but to date no specimens have been seen from Mexico or Central America. It was introduced into the botanical gardens of Europe in 1842 and I assume that erroneous data placed its center of origin in Mexico rather than Rio de Janeiro, Brazil.

Aphelandra hydromestus (Nees) Hemsley is based on *Hydromestus maculatus* Scheidweiler, the latter of which is represented by a specimen deposited in the Kew Herbarium. This specimen is *A. prismatica* (Vellozo), Hiern. Nees (1847) called this species *Lagochilium hydromestus*, since the specific epithet *maculatum* was already occupied by another species.

Rizzini did not designate a type for his *A. prismatica* var. *stenophylla*, though he cited a number of specimens deposited in the Jardim Botânico (RB) namely nos. 58.964, 54.790, 34.447, and 55.576. These specimens were seen in that herbarium and I conclude that they represent typical *A. prismatica* (Vellozo) Hiern.

156. *Aphelandra paulensis* Wasshausen

Aphelandra paulensis Wasshausen, *Phytologia* 25:482. 1973.

Suffrutescent shrub; stems erect, subquadrangular, moderately pilose, the hairs sordid; leaf blades oblong to ovate, 13.5–18 cm long and 5.5–7 cm wide, short-acuminate (the tip obtuse), narrowed at base and decurrent on the petiole, submembranaceous, entire or shallowly undulate, the upper surface drying olivaceous, glabrous or sparingly strigose, the costa and lateral veins (11–14 pairs) slightly raised, scarcely conspicuous, the lower surface drying to pale olivaceous, glabrous or the costa and lateral veins sparingly strigose; petioles 2.5–3 cm long, glabrous to moderately pilose; flowers borne on one or several, terminal, sessile spikes, these 7.5–8 cm long and 2–2.5 cm wide (without corollas), the rachis puberulous; bracts imbricate, entire, red, coriaceous, oblong to elliptic, 30 mm long and 10–12 mm wide, cuspidate, the tip a spine about 1 mm long, glabrous and minutely glandular-punctate, ecarinate, reticulate-nerved; bractlets lanceolate, falcate, carinate, 10 mm long, 1.5 mm wide, slightly acute, the tip ending in a mucro, glabrous, striate-nerved, the marginal area bordered by a narrow subhyaline edging, the tip

more or less ciliolate; calyx segments lanceolate, 17–18 mm long, subequal, the posterior segment 5 mm wide, the anterior pair 2.5 mm wide, the lateral segments 1.5 mm wide, all glabrous and striate-nerved, short-acuminate and minutely mucronate at tip; corolla yellow, the tube glabrous, the lips glandular-pilose, 3.5–4.5 cm long, 2 mm wide at base, 5.5 mm broad at mouth, the upper lip spreading, obovate, 14 mm long and 8 mm wide, bilobed, the lobes oblong, 4 mm long and wide, obtuse at tip, the middle lobe of the lower lip spreading, oblong, 17 mm long, 5 mm wide, the lateral lobes oblong, 15 mm long, 4 mm wide, obtuse; stamens exerted 12 mm beyond the mouth of the corolla tube; anthers 7 mm long, acute, mucronulate at base; capsule not seen.

TYPE.—*Kuhlmann & Gehrt s.n.* (holotype US, isotype K), Brazil, São Paula, Cunha, 16 Mar 1939.

DISTRIBUTION.—Known only from the type-locality.

Aphelandra paulensis is distinguished from *A. hirta*, its nearest relative, by its cuspidate bracts, the tip a spine about 1 mm long, and the smaller corollas. The bracts of *A. hirta* are obtuse, the tip itself revolute and the corollas 4.5–5 cm long.

157. *Aphelandra liboniana* Linden ex Hooker

FIGURE 36

Aphelandra liboniana Linden ex Hooker, f., Bot. Mag. 90, pl. 5463. 1864.

Aphelandra mirabilis Rizzini, Dusenía 7:299. 1956.—Wasshausen & Smith, Fl. Illustr. Catar. I, Fasc. ACAN:70. 1969.

Large, striking shrub, 0.6–1 m high, shrubby below, somewhat herbaceous above; stems terete, glabrous; leaf blades elliptic to lance-ovate, 24–30 cm long, 6–9.5 cm wide, rather abruptly acuminate, attenuate at base and decurrent on the petiole, glabrous, the margins entire or basally slightly sinuate, deep green, marked with a fine white line down the center of the costa, lateral veins equally impressed on both surfaces, the upper leaves smaller and more abruptly acuminate, rather strongly penniveined; petioles almost entirely winged, 3–5 cm long, canaliculate above, glabrous; flowers borne in solitary, terminal, almost sessile spikes, these 7–16 cm long, 3–4 cm wide, golden, imbricate, spreading with age; bracts large, striking, red with yellow margins or bright orange, elliptic to ovate,

30–40 mm long, 12–14.5 mm wide, obtuse to slightly acute, narrowed at base, reticulate-nerved, coriaceous, glabrous, the margins entire; bractlets carinate, falcate-lanceolate, 4–5 mm long, 1 mm wide just below the middle, acute, mucronate, striate-nerved, subhyaline, glabrous; calyx 8 mm long, the segments subequal, lanceolate, striate-nerved, subhyaline, glabrous, the posterior segment 1.5 mm wide, the anterior pair slightly narrower, the lateral pair 1 mm wide; corolla yellow, red towards apex, 4.5–5 cm long, glabrous, 2 mm wide at base, the tube narrow, 3.5 cm long, 5 mm wide at mouth, the lobes obtuse, the upper lip ovate, 1.7 cm long, 8 mm wide, bifid, the lobes 2 mm long, 3 mm wide, the lower lip 3-lobed, the lobes subequal, the middle lobe oblong, 17 mm long and 4 mm wide, the lateral lobes elliptic, 16 mm long, 3 mm wide; stamens slightly exerted beyond the upper lip; anthers 7–8 mm long, acute, slightly apiculate at base, slightly cobwebby-pilose and adhering at apex; filaments smooth, flattened, basally pilose; style filiform, somewhat exceeding the stamens; capsule clavate, 15 mm long and 4 mm wide, glabrous, minutely spotted; seeds smooth, obliquely ovoid, 4 mm long, 3 mm wide, only 1 mm thick, dark brown, wrinkled.

TYPE.—(K). Typification in part, is based on the description and plate especially the latter. Introduced from Santa Catarina, Brazil by Mr. Linden.

DISTRIBUTION.—Paraná and Santa Catarina, Brazil. BRAZIL. PARANÁ: Morretes, Groto Funda, 21 Dec 1959, *Hatschbach 6654* (US); Guaraqueçaba, Fda. Abobreira, 20 m alt, 15 Oct 1969, *Hatschbach 22455* (US); Serra do Mar, Desvio Ypiranga, 1 Apr 1906, *Dusén 7497* (US); Ypiranga, 700 m alt, 22 Aug 1914, *Dusén 15444* (GH, S); Alto da Serra, 23 Jan 1953, *Stellfeld s.n.* (US); Fazenda Marumby, 23 Jan 1914, *Dusén 14386* (S). SANTA CATARINA: Blumenau, Garcia, 21 Mar 1952, *Reitz 4.644* (HBR, RB), (holotype of *A. mirabilis* Rizzini); Garuva, Três Barras, mata, 100 m alt, 19 Dec 1957, *Reitz & Klein 5.764* (HBR); Ibirama, Hórto Florestal I.N.P., mata, 200 m alt, 20 Nov 1953, *Gevieski 37* (HBR, US); Hórto Florestal I.N.P., 350 m alt, 2 Nov 1953, *Reitz & Klein 1.118* (HBR, US); Joinville, mata, 12 Jan 1951, *Reitz 3.812* (HBR, US); Estrada Dona Francisca, mata, 600 m alt, 18 Dec 1957, *Reitz & Klein 5.703* (HBR, US); Rio Do Sul, Serra do Matador, mata, 550 m alt, 25

Nov 1958, *Reitz & Klein 7.623* (HBR, US); Itajai, *Mueller 437* (K). WITHOUT EXACT LOCALITY. Prov. St. Paul and Rio, South Brazil, 1861-2, *Weir s.n.* (K). CULTIVATED MATERIAL. Hortus bot. Monacensis, 23 May 1867, (M); 22 Jun 1868, *Kummer s.n.* (M); Cult. hortus Vindob., 19 Apr 1867 (W).

LOCAL NAME.—Bãlsamo-de-duas-côres.

158. *Aphelandra bradeana* Rizzini

Aphelandra bradeana Rizzini, Arquiv. Jard. Bot. Rio de Janeiro 8:325. 1948.

Sub-shrub, to 70 cm high (according to Brade); stems pilose above; leaf blades oblong-lanceolate, 16-23 cm long, 4-6 cm wide, acute to shortly acuminate, narrowed at base and long decurrent on the petiole, entire, membranaceous, the upper surface dark green, moderately strigose, the lower surface paler green, puberulous, and the costa and lateral veins (12-14 pairs) also hirsute, the margins ciliolate; petioles (unwinged portion) minute, less than 5 mm long, puberulous; flowers borne terminal in a solitary, sessile spike, 6-8 cm long; bracts oblong-lanceolate, 30-35 mm long, 9-10 mm wide, entire, yellow except the red tip, acute, cuneate at base, puberulous both within and without, membranaceous, net-veined, bordered by a narrow subhyaline margin about 0.5 mm wide; bractlets lanceolate, 10-11 mm long, 2 mm wide, carinate, subhyaline, striate-nerved, glabrous or bearing a few hairs near the tip; calyx 2.0-2.3 cm long, the segments lanceolate, subhyaline, striate-nerved, ending in a stiff bristlelike awn, glabrous, the posterior segment 3.5 mm wide just below the middle, the anterior pair 2 mm wide, the lateral pair 1 mm wide; corolla yellow, 4.5-5.5 cm long, well exserted beyond the subtending bracts, puberulent and glandular-pubescent, the tube narrow, 2.5 cm long, 2.5 mm wide at base, thence gradually enlarged to 5.5 mm wide at mouth, the lobes obtuse, the upper lip erect, obovate, 15 mm long and 7 mm wide, bifid, the lobes 4 mm long and 2.5 mm wide, the margins ciliolate, the lower lip 3-lobed, subequal, the middle lobe longer and broader than the lateral, 15 mm long, 5 mm wide, the lateral lobes oblong, 13 mm long, 4 mm wide; stamens included in the upper lip; anthers 5-6 mm long, acute at apex, apiculate at base, dorsally pilose; filaments broad, glabrous; style apically widened,

exceeding anthers, puberulous near tip; capsule not seen.

TYPE.—*Brade 18841* (holotype RB), Brazil, Rio de Janeiro, Lote 70, Itatiaia, 12 Feb 1948.

DISTRIBUTION.—Known only from the type-locality.

Rizzini states that *Aphelandra bradeana* is closely related to *A. montana* (= *A. colorado*). He distinguishes *A. bradeana*, however, by its narrow, yellowish bracts, longer, yellowish corolla, stems pilose above and apparently membranaceous leaves.

159. *Aphelandra dodsonii* Wasshausen

FIGURE 44

Aphelandra dodsonii Wasshausen, Phytologia 25:486. 1973.

Suffrutescent, glabrous shrub to 1 m high; leaf blades ovate, 17-19 cm long, 7.5 cm wide, acuminate, ending in a blunt point, truncate at base, entire or undulate, green, the costa and lateral veins (11-12 pairs) rather prominent; petioles 5-5.5 cm long, canaliculate, glabrous; flowers borne on solitary, terminal, sessile spikes, 21-22 cm long, 1.5-2 cm wide (without corollas), the rachis glabrous; bracts imbricate, erect, entire, drying reddish, ovate, 30 mm long and 11-12 mm wide, acute at apex, truncate at base, glabrous, subchartaceous, striate-nerved; bractlets linear-filiform, 6 mm long and 1 mm wide, falcate, carinate, glabrous, striate-nerved; calyx segments triangular-ovate, 8 mm long, subequal, the posterior segment 3 mm wide at base, 2- or 3-toothed at tip, the anterior pair slightly over 2 mm wide and the lateral segments 3 mm wide, acuminate, the tip itself a spine 1 mm long, all glabrous, striate-nerved; corolla bright red, glabrous, 5 cm long from base to tip of upper lip, the tube gradually enlarged from 3 mm in diameter at base to 6 mm broad at mouth, the upper lip erect, ovate, 20 mm long and 11 mm wide, entire, acute, the lower lip spreading, 3-lobed, the lobes ovate, subequal, the middle lobe 20 mm long and 9 mm wide, acute, the lateral lobes 15 mm long and 7 mm wide, acuminate; stamens exserted about 13 mm beyond the mouth of the corolla tube; anthers 5 mm long, 0.75 mm broad, acute at both ends; staminode lobulate, 0.25 mm long; capsule not seen.

TYPE.—*Dodson & Thien 1612* (holotype US),

Ecuador, Carchi, railroad from Ibana to San Lorenzo, km #78, Río Blanco, 1400—1500 m alt, 14 Dec 1961.

DISTRIBUTION.—Known only from the type-locality.

This species is readily distinguished by the long, solitary spike, the entire, reddish bracts, and the bright red corolla. It is not very closely allied to any of the known species of *Aphelandra*.

160. *Aphelandra conformis* Leonard

Aphelandra conformis Leonard, Contrib. U.S. Nat. Herb. 31: 194, 1953.

Herbs to 40 cm high; stems ascending, subquad-rangular, glabrous to sparingly hirtellous; leaf blades oblong-ovate, to 10 cm long and 4 cm wide, acuminate, the tip blunt, narrowed at base and briefly decurrent on the petiole, submembranaceous, entire or shallowly crenate, both surfaces glabrous or the costa and lateral veins (9 or 10 pairs) of the lower surface strigose; petioles to 1.5 cm long, sparingly strigose, the hairs similar to those of the costa and veins; spikes terminal, solitary, subsessile, 3–8 cm long, about 2 cm broad (without corollas), the rachis angled, sparingly puberulous; bracts rhombic-ovate, 20 mm long, 10 mm wide, subacute, submembranaceous, rather prominently nerved, the veinlets coarsely reticulate, the outer surface puberulous, the inner glabrous to glabrate, the margins entire, eciliate or toward tip very ciliolate; bractlets lance-subulate, 7 mm long, 0.75 mm wide at base, subcarinate, subcoriaceous, puberulous toward tip; calyx segments subequal, 8.5–9 mm long, subcoriaceous, striate (the nerves swollen at base), puberulous, the posterior segment lanceolate, 2 mm wide, acuminate, sometimes with a minute tooth near tip, the anterior segments narrowly lanceolate and slenderly acuminate, 1.5 mm wide near base, the lateral segments linear-lanceolate, 0.75 mm wide near the base, slenderly acuminate; corolla orange-scarlet, 5 cm long, sparingly and finely pubescent, the tube about 3 mm broad at base, the mouth 7 mm broad, the upper lip erect, ovate, 13 mm long and 12 mm wide, entire, obtuse to rounded, the lower lip 3-parted, the lobes obovate, rounded, the middle one 15 mm long and 9 mm wide, the lateral ones 13 mm long and 7 mm wide; stamens slightly exerted but short-

er than the upper lip; ovary sparingly puberulous; capsule not seen.

TYPE.—*Ed. André 1658* (holotype K, US photo 3619), Colombia, Cundinamarca, in damp primeval woods near Viotá, 1800 m alt, 18 Feb 1876.

DISTRIBUTION.—Known only from around the type-locality. COLOMBIA. CUNDINAMARCA: Pandi, 1700 m alt, *Triana s.n.* (K); above El Colegio, La Mesa, 1800 m alt, 8 Apr 1917, *Tracey 152* (K).

161. *Aphelandra dolichantha* Donnell Smith

Aphelandra dolichantha Donnell Smith, Bot. Gaz. 27:438. 1899.—Leonard, Contrib. U.S. Nat. Herb. 31:206. 1953.

Shrubs or suffrutescent herbs to 1.2 m high; stems glabrous to pubescent toward tip, the hairs brownish; leaf blades elliptic to oblong-elliptic, to 22 cm long and 12 cm wide, acute to short-acuminate, the tip blunt, narrowed at base and decurrent on the petiole, entire, the upper surface minutely alveolar, drying dark green, glabrous to sparingly strigose, the costa and lateral veins (usually 8–14 pairs) plane or slightly elevated, less prominent than on the lower surface, this drying light green to olive, subglabrous to strigillose, the hairs evenly distributed or confined chiefly to the costa and basal portions of the lateral veins; petioles to 3 cm long, the pubescence similar to that of the stem; spikes terminal, cylindrical, solitary or occasionally in 3's, to 12 cm long and 1.5 cm broad, the rachis angular, pilose to glabrate; bracts closely imbricate or spreading with age, ovate-lanceolate, 25–40 mm long, 10–13 mm wide, acuminate, green, nerved, glabrous to pilose-strigose, the margins entire, subhyaline but not well defined, ciliolate; bractlets linear-subulate, 10 mm long, 1 mm wide at base, carinate, striate-nerved, sparingly pilose and puberulous, the smaller hairs gland-tipped; calyx minute, the segments subulate to lance-subulate, 1.5–2 mm long, less than 0.5 mm wide at base, the pubescence similar to that of the bracts; corolla white or pale cream, 6.8–7.3 cm long, glandular-pubescent except the lobes, these glabrous, the tube slender, 5.5–6 cm long but barely 2 mm broad, the throat short and slightly ampliate, about 4 mm broad, the upper lip oblong, 13 mm long, 5 mm wide, 2-lobed, the lobes about 3 mm long and 2.5 mm wide, rounded, the middle lobe of the lower lip oblong-elliptic, 18–20 mm long,

6–7 mm wide, the lateral lobes linear-oblong, 15–17 mm long, 4–5 mm wide, all rounded at apex; stamens included; the filaments about 6 cm long, affixed at the base of the throat; the anthers 3 mm long, apiculate, adhering by a lateral beard; style included; capsule narrowly clavate, about 15 mm long and 3 mm broad, glabrous, punctulate; seeds flattened, obliquely ovoid, 5.5 mm long and 3.5 mm broad, barely 1 mm thick, smooth brown.

TYPE.—*J. D. Smith 6689* (holotype US), Costa Rica, Suerre, Llanuras de Santa Clara, 300 m alt, Feb 1896.

DISTRIBUTION.—Wet forests of Costa Rica and Panama. COSTA RICA. GUANACASTE: Tilarán, 750 m alt, 17 May 1923, *Valerio 50* (US). LIMÓN: Vicinity of Guapiles, 300–500 m alt, 12–13 Mar 1924, *Standley 37170, 37175, 37219, 37264, 37329* (US); Livingston on Reventazon, Jul–Aug 1920, *Rowlee & Stork 708* (US). SAN JOSÉ: La Hondura, 1300–1700 m alt, 2–4 Mar 1924, *Standley 36470* (US), 16 Mar 1924, *Standley 37798* (US). CARTAGO: Valle Escondido, between Tuis and Siquirres, 800 m alt, 26 Mar 1966, *Hatheway 1071* (US). PANAMA. BOCAS DEL TORO: Chiriqui Trail, between Buena Vista coffee finca and Cerro Pilon, 17 Apr 1968, *Kirkbride & Duke 695* (MO). COLÓN: Along Río Fató, 10–100 m alt, Aug 1911, *Pittier 4198* (US).

162. *Aphelandra ameleta* Leonard

Aphelandra ameleta Leonard, *Wrightia* 2:148. 1961.

Shrubs to 3 m high; stems, at least the tips, densely whitish hirsute; leaf blades oblong-elliptic or oblong-obovate, 30–40 cm long and 10–15 cm wide, briefly acuminate, cuneate at base, firm, shallowly crenate, the upper surface glabrous and nitid except the costa, this strigose, the lower surface densely hirsute, the hairs light brownish; petioles 3 mm thick, 1.5–10 cm long, densely hirsute; spike terminal, 20–30 cm long, 2–3 cm broad, the peduncle 1 cm long, 4 mm thick, densely hirsute like the stem, the rachis densely puberulous with light brownish hairs; bracts elliptic, 28–34 mm long and 12–14 mm wide, subobtusate, mucronate, the mucro 5 mm wide at base, finely striate, entire, firm, with a narrow subhyaline nerveless margin, the outer surface puberulous, the inner surface striate-nerved and glabrous; bractlets narrowly ovate or lanceo-

late, 12–14 mm long, 3.5 mm wide, slenderly acute, puberulous without, glabrous and nitid within, subcarinate, striate-nerved, firm, with a narrow subhyaline margin; calyx 14–17 mm long, the posterior segment 5.5 mm wide, acute or lacerate, the anterior segments 2.5 mm wide, aristate, the lateral segments 2 mm wide, aristate, all of the segments lanceolate and striate-nerved with subhyaline nerveless margins, puberulous without and glabrous within; corolla lavender and white, about 6 cm long, glandular-pilose, the tube erect, 6 mm wide at base, narrowed to 4 mm at 3 cm above base, thence gradually enlarged to 6 mm at mouth, the upper lip erect, ovate, 18 mm long, 9 mm wide, the margins recurved, bilobed, the lobes ovate, 2 mm long and 3 mm wide, obtuse, the lower lip oval, 1.8 cm long, 1.5 cm wide, 3-lobed, the lobes spreading, the middle lobe obovate, 1 cm long and 1 cm wide just above the middle, obtuse, the lateral lobes ovate, 8 mm long, 7 mm wide, obtuse, adnate in part to the middle lobe; stamens exceeding the mouth of the corolla by the length of the anthers; anthers 5 mm long, acute and cohering at tip, sub-obtusate at base; ovary glabrous.

TYPE.—*Kjell von Sneidern s.n.* (holotype S, US photo 5377), Colombia, Caquetá, in forest at Morelia, 150 m alt, 22 Nov 1941.

DISTRIBUTION.—In rainforest, Caquetá and Putumayo, Colombia and Napo Pastaza, Ecuador. COLOMBIA. PUTUMAYO: 15 km NW of Puerto Asís, 300 m alt, 6–7 Aug 1965, *King & Guevara 2641* (US). ECUADOR. NAPO PASTAZA: Cerro Antisana, Puerto Napo, 14 Jul 1960, *Grubb, Lloyd, Pennington & Whitmore 171* (K, NY).

163. *Aphelandra gigantiflora* Lindau

Aphelandra gigantiflora Lindau, *Bull. Herb. Boiss. Ser.*, 3: 369. 1895.—Leonard, *Field Mus. Bot.* 18:1195. 1938.

Aphelandra padillana Standley, *Journ. Wash. Acad. Sci.* 14: 244. 1924.

Aphelandra gigantiflora Lindau, f. *lutea* Standley & Steyermark, *Field Mus. Publ. Bot.* 23:237. 1947.

Shrubs, to 2.5 m high, the stems glabrous to puberulent; leaf blades oblong-lanceolate to oblong-ovate, 15–25 cm long, 4–9 cm wide, more or less abruptly acuminate, narrowed or rounded at the base and decurrent on the petiole, thin, entire, bright green above, paler and bearing a few scat-

tered short hairs beneath; spikes stout, terminal and axillary, 12–30 cm long, the rachis densely glandular-pilose; the upper bracts closely imbricate, the lower loosely so, spreading, the lowermost sterile, all broadly ovate, 20–30 mm long, 10–12 mm wide, obtuse to rounded or the upper acutish, entire, green or purplish, densely glandular-pilose; bractlets linear-subulate, equalling the calyx, glandular-pilose; calyx segments linear-lanceolate, 15 mm long, long-attenuate, delicately striate-nerved, finely glandular-pilose; corolla bright red, 6.5–7.5 cm long, finely glandular-pilose, the tube 4–5 cm long, 7–9 mm in diameter at the throat, to 6 mm broad at base, the upper lip oblong, 2.5–3 cm long, 10 mm wide at the base, entire, obtuse or rounded, the lower lip 3-parted, the middle segment obovate, 2.5–4 cm long, 15–17 mm wide, the lateral segments oblong, 15 mm long, 5 mm wide, acute, sometimes unequally 2-lobed at the apex; filaments 50 mm long; anthers acute, 4–5.5 mm long; style about 6 cm long; capsule 2 cm long, oblong-elliptic, acutish, finely puberulent.

TYPE.—*Warszewicz s.n.* (holotype B, destroyed, isotype W, F photo 8707), "Costa Rica et Veragua."

DISTRIBUTION.—Damp, wet forests of Guatemala and El Salvador. GUATEMALA. AMATITLÁN: Barranca de Eminencia, 420 m alt, Feb 1892, *John Donnell Smith 2696* (US). SACTEPÉQUEZ: Near Las Lajas, 1200 m alt, 28 Nov 1938, *Standley 58132* (US); below Barranco Hondo, 1100 m alt, 11 Mar 1941, *Standley 88992* (US). ESQUINTLA: Río Guacalate, 600 m alt, 16 Dec 1938, *Standley 60209* (US). EL SALVADOR. AHUACHAPÁN: Vicinity of Ahuachapán, 800–1000 m alt, 9–27 Jan 1922, *Standley 19771* (US); 19972 (US, holotype of *A. padillana* Standley); "Chuffete", 1923, *Padilla 418* (US). SONSONATE: Finca Chilata, 26–27 Dec 1921, *Standley 19315* (US). SAN VICENTE: Volcán de San Vicente, 1200–1500 m alt, 7–8 Mar 1922, *Standley 21512* (US); 350–500 m alt, 2–11 Mar 1922, *Standley 21680* (US); Comasagua, Dec 1922, *Calderón 1364* (US); Santa Tecla, Dec 1922, *Calderón 1422*.

Standley and Steyermark described forma *lutea* from a single collection (Standley 89560, holotype F, Guatemala, Escuintla; wooded barranco of Río Gavilán, NE of Escuintla, 720 m alt, 16 Mar 1941). They distinguished this form only by the deep yellow corollas and noted that except for this single collection, this species had been found to

have brilliant deep red corollas. This constant color intensity does not quite agree with some of the other species of *Aphelandra* that I have examined, where the colors may vary from red to orange-red to orange-yellow. Until further yellow specimens are collected to determine their status I am including forma *lutea* under *A. gigantiflora*.

164. *Aphelandra alexandri* Leonard

Aphelandra alexandri Leonard, Journ. Wash. Acad. Sci. 25: 438. 1935; Contrib. U.S. Nat. Herb. 31:191. 1953.

Suffrutescent, glabrous, to 1 m high; leaf blades elliptic, to 15 cm long and 5 cm wide, acuminate, ending in a blunt point, narrowed at base and decurrent on the petiole, entire or undulate, green, the costa and lateral veins (9–10 pairs) rather prominent; petioles to 3 cm long, winged; flowers borne in terminal, sessile spikes to 10 cm long and 2 cm broad; bracts rather closely imbricate, erect or erect-spreading, brilliant red outside and yellow within, oblong-elliptic, 28 mm long and 3 mm wide at base, and 10 mm wide at middle, acute, glabrous, entire, subchartaceous, veiny; bractlets linear-subulate, 1 mm wide at base, striate-nerved; calyx segments lanceolate, subequal, 8 or 9 mm long, bearing triangular calluses at base (these conspicuous on the outside), the posterior segment oblong, 2.5 mm wide, 2- or 3-toothed at tip, the anterior pair 1.5 mm wide, the lateral pair 1 mm wide, narrowly lance-attenuate; corolla about 6 cm long, brilliant red without, yellow within (thereby giving the red the orange appearance), glabrous except the lips, these minutely pruinose within, the tube gradually enlarged from 4 mm at base to 6 mm at mouth, the upper lip erect, elliptic, about 2 cm long and 8 mm wide, acute, entire, the lower lip spreading, 3-lobed, the lobes subequal, oblong-obovate, about 2 cm long, 7–8.5 mm wide near the middle, acute or acutish; stamens slightly exerted; anthers 5.5 mm long; filaments sparingly, pilosulous; capsule not seen.

TYPE.—*A. E. Lawrance 601* (holotype K, US photo, isotypes MO, NY, S), Colombia, Boyacá, in high forest fringes at El Humbo, on Mount Chapón, 130 m N of Bogotá, 4 Feb 1933.

DISTRIBUTION.—Known only from the type locality.

165. *Aphelandra schiedeana*
Schlechtendal & Chamisso

FIGURE 24

Aphelandra schiedeana Schlechtendal & Chamisso, *Linnaea* 5:95. 1830.—Standley, *Contrib. U.S. Nat. Herb.* 23:1336. 1926.

Aphelandra melgariensis Nees in de Candolle, *Prodr.* 11:297. 1847.

Shrubs or suffrutescent herbs to 2 m high; stems glabrous or strigose toward tip; leaf blades oblong-lanceolate, 8–15 cm long, 2–4.5 cm wide, acuminate, narrowed at base and long-attenuate on the slender petiole, entire, the upper surface drying dark green, glabrous to glabrate, the costa and lateral veins (usually 5–10 pairs) less prominent above than on the lower surface, this drying light green or olive, glabrate to sparsely strigose-pilose, the hairs evenly distributed or confined chiefly to the costa and the lateral veins, petioles (unwinged portion) to 2 cm long, the pubescence similar to that of the stem; spikes terminal, solitary, to 9 cm long (usually much shorter) and 3 cm broad, the rachis densely pilose; bracts closely imbricate or spreading with age, entire, oblong-oval, 20–22 mm long, 9–12 mm wide, rounded or obtuse, greenish red, nerved, thin, glabrous to glabrate, ciliolate; bractlets linear-lanceolate, 13 mm long, 1 mm wide, thin, carinate, striate-nerved, sparingly pilose and puberulous; calyx segments subequal, lance-subulate, 1.3–1.5 cm long, 2–3 mm wide near base, thin, subhyaline, nerved, pilosulous; corolla red, about 6 cm long, tomentulose, the tube slightly oblique, 3.5 cm long, barely 2 mm wide at base, thence gradually enlarged to 6 mm at throat, the upper lip erect, obovate, arched at the tip, 2.5 cm long, 10 mm wide, entire, the tip obtuse, the middle lobe of the lower lip obovate, about 2.7 cm long, 14 mm wide, the lateral lobes narrowly deflexed, linear-subulate, about 1 cm long, 1 mm wide, rounded at apex; stamens exerted about 2 cm beyond mouth of the corolla tube; the filaments moderately tomentose; the anthers 5 mm long, glabrous; the ovary glabrous, 3.5 mm long; mature capsule not seen.

TYPE.—*Schiede & Deppe 118* (holotype B, destroyed, F photo 8715, isotypes M, W), Mexico, Vera Cruz, Hacienda de la Laguna and Barranca de Tiosela, Oct 1828.

DISTRIBUTION.—Southern Mexico and Guatemala,

along damp, forested slopes, usually above 1000 meters altitude. MEXICO. VERACRUZ: Orizaba, 1856 *Botteri s.n.* (K, P); May 1867, *Bilimek 341* (K, P); region of Orizaba, Río Blanco, 27 Sep 1866, *Bourgeau 3099* (FI, K, MO, P, US); near Orizaba, 30 Oct 1895, *Pringle 5910* (US), *5912* (US); W of Orizaba, Cerro de S. Cristobal, 1 Nov 1948, *Langman 3592* (US). OAXACA: Distrito del Centro, Hacienda de Guadalupe, 1600 m alt, 13 Jun 1909, *Conzatti s.n.* (US). CHIAPAS: Mt. Ovando, Dec 1936, *Matuda 126* (US); Cerro Brujo, between Rancho Concepcion & Olimpo, 4 Jan 1949, *Langman 3876* (US); Zinacatán, 1290 m alt, 15 Mar 1966, *Laughlin 419* (US); Tenejapa, paraje of Yash'anal, 1800 m alt, 21 Feb 1967, *Ton 2087* (US); Paraje of Kotol Té, moist slope of Yochib, 1290 m alt, 21 Nov 1964, *Breedlove 7367* (US). GUATEMALA. EL QUICHÉ: Nabaj, 1800 m alt, 19 Nov 1934, *Skutch 1724* (US). SAN MARCOS: Above Finca El Porvenir, between "Todos Santos Chiquitos" and "Loma de la Paloma", south-facing slopes of Volcán Tajumulco, 1400–1700 m alt, 8 Mar 1940, *Steyermark 37304* (US); S of San Marcos toward Castalia, 1600–2200 m alt, 16 Dec 1963, *Williams, Molina, & Williams 26112* (F, US, W). QUEZALTENANGO: Above Aguas Amargas, 2430–2850 m alt, 17 Feb 1939, *Standley 65474* (US); 14 Jan 1941, *Standley 83352* (US); S of San Martín Chile Verde, on road to Colomba, 2200 m alt, 27 Jan 1941, *Standley 84938* (US). SACATEPÉQUEZ: Barranco above Duenas, 1590–1800 m alt, 21 Jan 1939, *Standley 63149* (US); near Barranco Hondo, SE of Alotenango, 1000–1260 m alt, 9 Feb 1939, *Standley 65025* (US). CHIMALTENANGO: Quisaché, 1800 m alt, 5–6 Jan 1939, *Standley 62294* (US).

Nees described *A. melgariensis* from a Humboldt collection from "Colombia." He compares this species with *A. schiedeana* Schlechtendal & Chamisso of Mexico and suggests that it may be merely a young stage of that species. After examining the microfiche of the Willdenow Herbarium, a specimen no. 320, bearing the determination "*Justicia melgariensis*," I conclude that *A. melgariensis* is indeed *A. schiedeana* and that the specimen no. 320 is probably mislabeled since *A. schiedeana* does not occur in Colombia and also when the Humboldt and Bonpland Paris collections were examined, not a single *A. schiedeana* collection by Humboldt was found.

References

- Anderson, T.
1864. *Aphelandra ornata* T. Anderson: A Recently Introduced Acanthaceous Plant from Brazil. *Journal of Botany*, 2:289.
- Anonymous
1887. [*Aphelandra chrysops* Bull.] *The Gardener's Chronicle* (London), series 3, 1:736, fig. 140.
1927. [*Aphelandra squarrosa* Nees var. *leopoldi* Van Houtte.] *The Gardener's Chronicle* (London), series 3, 82:283.
- Baillon, H. E.
1891. Monographie des Acanthacées. Volume 10 of *Histoire des Plantes*. Paris: Librairie Hachette & C^o.
- Bentham, G.
1844. *The Botany of the Voyage of H.M.S Sulphur*. London: Smith, Elder and Co.
- Bentham, G., and J. D. Hooker
1876. *Genera Plantarum*. Volume 2. London: L. Reeve & Co. [Pages 1102-1103.]
- Bolkhovskikh, Z., V. Grif, T. Matvejeva, and O. Zakharyeva
1969. *Chromosome Numbers of Flowering Plants*. 926 pages. Leningrad: Academy of Sciences of the U.S.S.R.
- Bremekamp, C. E. B.
1938. Notes on the Acanthaceae of Surinam. *Recueil des Travaux Botaniques Néerlandais*, 35:148-149.
1955. Notes on Some Acanthaceous Genera and Species of Controversial Position. *Acta Botaniques Néerlandais*, 4:644-655.
- Endlicher, S.
1839. *Genera Plantarum*. Vienna. [Acanthaceae, pages 696-708.]
- Erdtman, G.
1952. *Pollen Morphology and Plant Taxonomy*. xii + 539 pages. Stockholm: Almqvist & Wiksell. [Acanthaceae, pages 30-32.]
- Grant, W. F.
1955. A Cytogenetic Study of Acanthaceae. *Brittonia*, 8:121-149.
- Hooker, J. D.
1891. *Aphelandra blanchetiana*, Native of Brazil. *Botanical Magazine*, 117, plate 7179.
- Hooker, W. J.
1837. *Icones Plantarum*. Volume 2. London: Longman, Rees, Orme, Brown, Green, and Longman.
1848. *Icones Plantarum*. Volume 8. London: Hippolyte Bailliére.
- Jacquin, N. J.
1762. *Enumeratio Plantarum Caribaeis*. Volume 11. Vienna.
1798. *Plantarum Rariorum Horti Caesarei Schoenbrunnensis*. Volume 3. Vienna: C. F. Wappler.
- Killip, E. P.
1932. The Botanical Collections of William Lobb in Colombia. *Smithsonian Miscellaneous Collections*, 87 (1):1-13.
- Klotzsch, J. F.
1839. *Strobilorrhachis*. Pages 308-309 of volume 7 in Otto and Dietrich, *Allgemeine Gartenzeitung*.
1841. *Strobilorrhachis glabra* Klotzsch. Pages 117-120 of volume 1 in Link, Klotzsch, and Otto, *Icones Plantarum Rariorum*. Berlin: Verlag von Veit und Comp.
- Leonard, E. C.
1938. Acanthaceae. *Field Museum of Natural History Publications, Botanical Series*, 18:1188-1264.
1954. Acanthaceae. Pages 362-364 of volume 2 in *Flora of Trinidad and Tobago*. Trinidad, B.W.I.: Department of Agriculture, Trinidad and Tobago.
1953. The Acanthaceae of Colombia. *Contributions from the United States National Herbarium*, 31:127-280.
1961. Acanthaceae. *Wrightia*, 2 (3):142-157.
- Lindau, G.
1894. Beiträge zur Systematic der Acanthaceen. *Botanische Jahrbücher*, 18:36-64.
1895. Acanthaceae. Pages 274-354 of volume 3b in Engler and Prantl, *Die Natürlichen Pflanzenfamilien IV*. Berlin.
1900. Acanthaceae. Pages 209-210 of volume 2 in I. Urban, *Symbolae Antillanae*. 2 volumes. Berlin: Fratres Borntreager.
1904. Acanthaceae Americanae III. *Bulletin de L'Herbier Boissier*, series 2, 4:322-323.
- Lindley, J.
1836. *A Natural System of Botany*. 2nd edition. London: Longman, Reese, Orme, Brown, Green, and Longman. [Acanthaceae, pages 284-285.]
1845. *Aphelandra aurantiaca*. *Botanical Register* (London), 31, plate 12.
- Long, R. W.
1970. The Genera of Acanthaceae in the Southeastern United States. *Journal of the Arnold Arboretum*, 51:257-309.
- Lowe, E. J.
1861. *Beautiful Leaved Plants*. London: Groombridge and Sons.
- Mabry, T. J., K. R. Markham, and M. B. Thomas
1970. *The Systematic Identification of Flavonoids*. 250 pages. New York: Springer-Verlag.
- Melchoir, H.
1964. *Engler's Syllabus der Pflanzenfamilien*. 12th edition, volume 2. Berlin: Gebrüder Borntraeger. [Acanthaceae, pages 456-460.]
- Metcalfe, C. R., and L. Chalk
1950. *Anatomy of the Dicotyledons*. Volume 2. Oxford: Clarendon Press. [Acanthaceae, pages 1014-1023.]
- Nees von Esenbeck, C. G.
1847a. Acanthaceae. Pages 290-303 of volume 11 in A. P. de Candolle, *Prodromus Systematis Naturalis Regni Vegetabilis*. Paris.

- 1847b. Acanthaceae. Pages 84–91 of volume 9 in C. F. P. von Martius, *Flora Brasiliensis*. Plates 10, 11. Munich.
- Nicholson, G.
1900. *Dictionary of Gardening*. London: L. Upcott Gill. [*Aphelandra*, page 60.]
- Radlkofer, L.
1883. Ueber den systematischen Werth der Pollenbeschaffenheit bei den Acanthaceen. *Sitzungsberichte der mathematisch-physikalischen Classe der k. b. Akademie der Wissenschaften zu München*, series 2, 13: 256–314.
- Rafinesque, C. S.
1838. *Flora Telluriana*. Volume 4. Philadelphia. [989. *Amathea Raf.*, page 65.]
- Rao, V. S.
1953. The Floral Anatomy of Some Bicarpellatae, I: Acanthaceae. *Journal of the University of Bombay*, series 2, 21 (5,B):7–34.
- Rizzini, C. T.
1948. Disquito circa Acanthacearum Aliquot genera Brasiliensia. *Archivos do Instituto de Biologia Vegetal Jardim Botânico Rio de Janeiro*, 8:314–329
- Scheidweiler, M. J. F.
1842a. *Hydromestus maculatus* Scheidweiler. Page 285 of volume 10 in Otto and Dietrich, *Allgemeine Gartenzeitung*.
1842b. *Hemisandra*. *Bulletin Academie Sciences Bruxelles*, 9:22.
- Schrader, H. A.
1821. *Synandra*. Page 342 of volume 2 in Wied-Neuwied, M.A.P., *Reise nach Brasilien*. Frankfurt.
- Smith, J. D.
1893. *Aphelandra heydeana*, new species. *The Botanical Gazette*, 18:210, plate 23.
- Wasshausen, D. C.
1973a. New Species of *Aphelandra* (Acanthaceae). *Phytologia*, 25:465–502.
1973b. Two Additional New Species of *Aphelandra* (Acanthaceae). *Phytologia*, 26:393–396.
- Wasshausen, D. C., and L. B. Smith
1969. Acantáceas. *Flora Ilustrada Catarinense*, 1 (Fasc. ACAN):67–77.

FIGURES 1-56

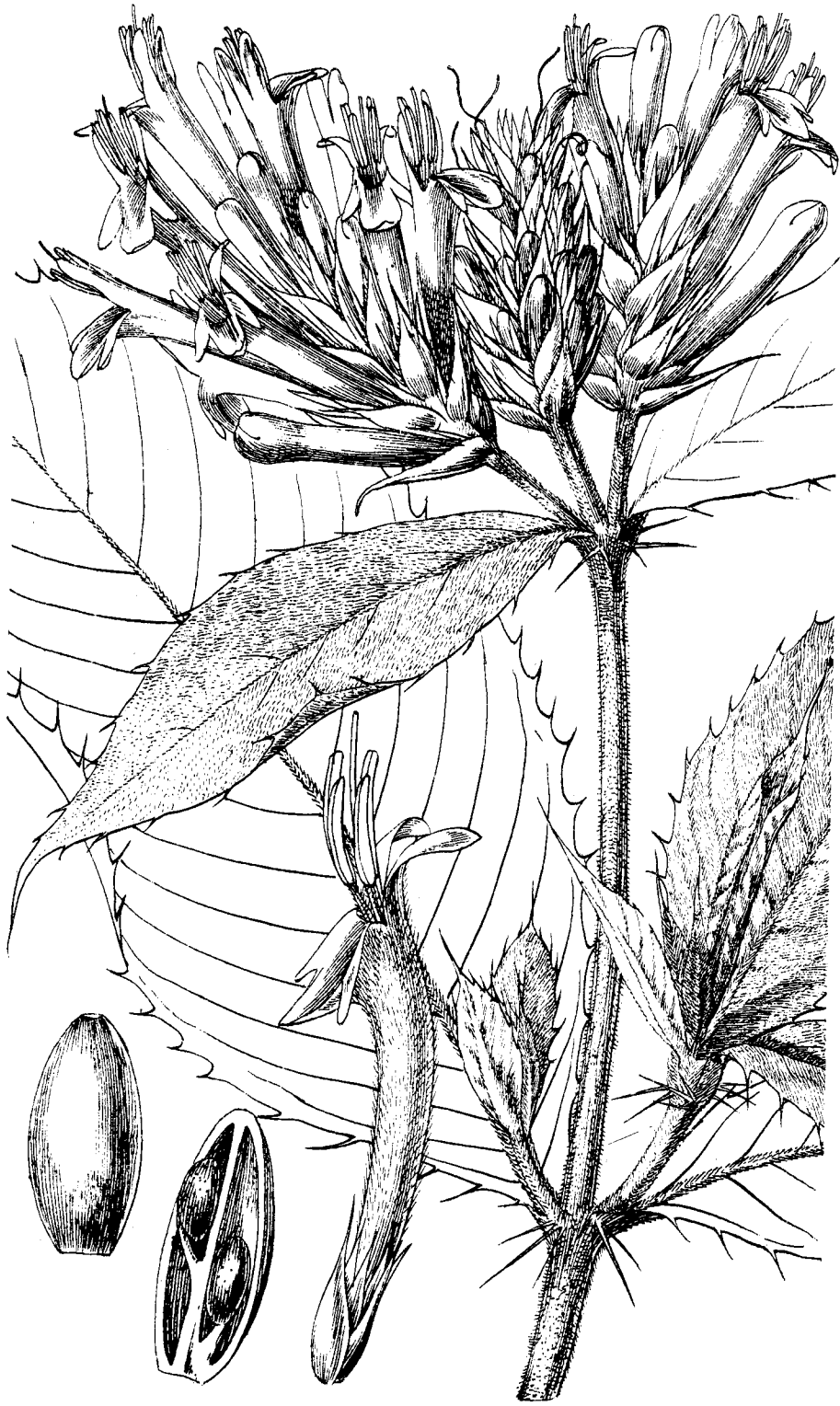


FIGURE 1.—*Aphelandra acanthifolia* Hooker.
(From W. J. Hooker, 1837:2, pl. 113.)



FIGURE 2.—*Aphelandra formosa* (Humboldt & Bonpland) Nees. (From W. J. Hooker, 1848, pl. 718, representing *Aphelandra cardiifolia* Hooker.)



FIGURE 3.—*Aphelandra nemoralis* Nees.
 (From Nees von Esenbeck, 1847b:9, pl. 11.)



FIGURE 4.—*Aphelandra heydeana* Donnell Smith.
(From J. D. Smith, 1893, pl. 23.)



FIGURE 5.—*Aphelandra maximiliana* (Nees) Bentham. (From Nees, 1847b, pl. 10, representing *Lagochilium maximilianeum* Nees.)



FIGURE 6.—*Aphelandra sinclairiana* Nees.
(From Bentham, 1844, pl. 47.)

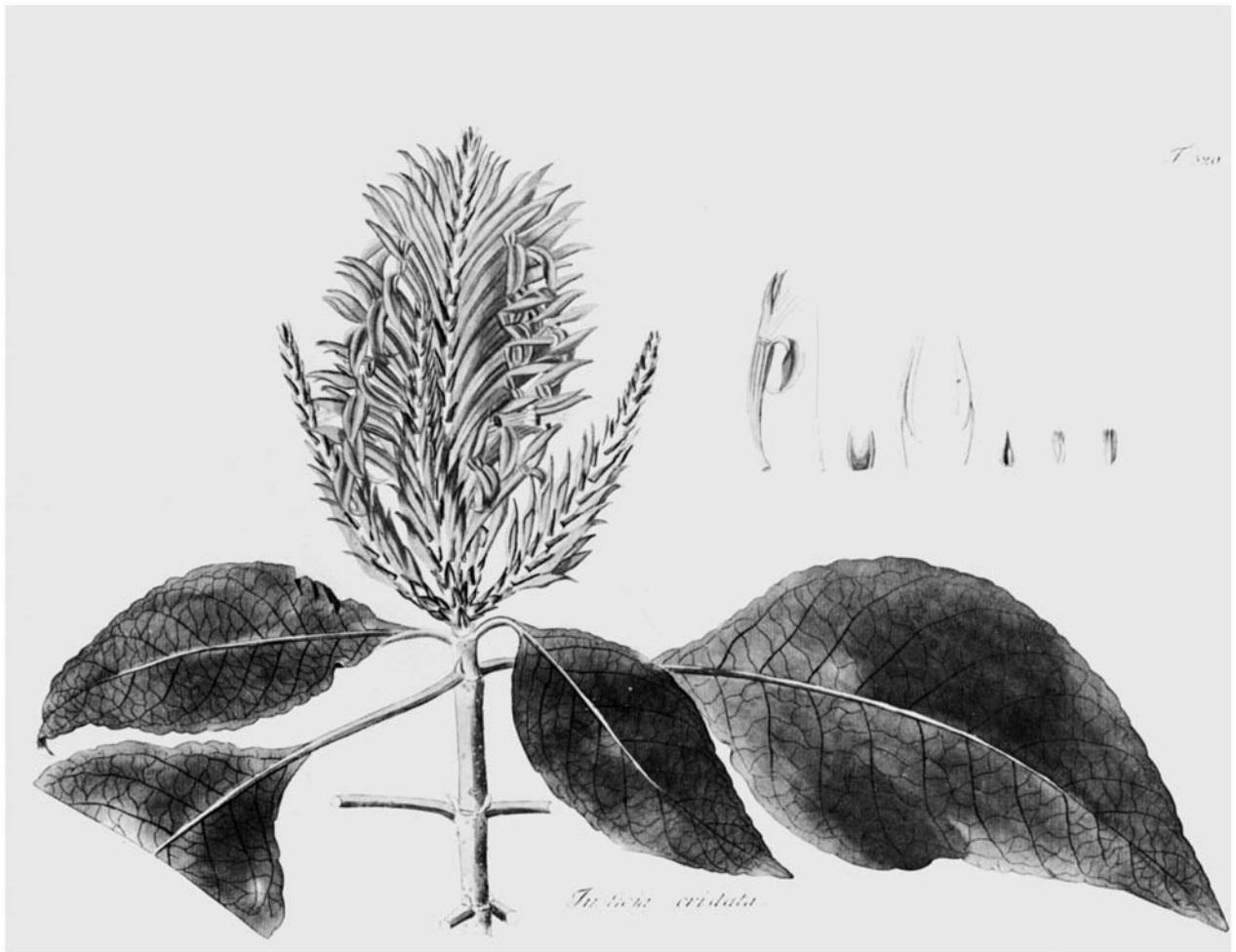
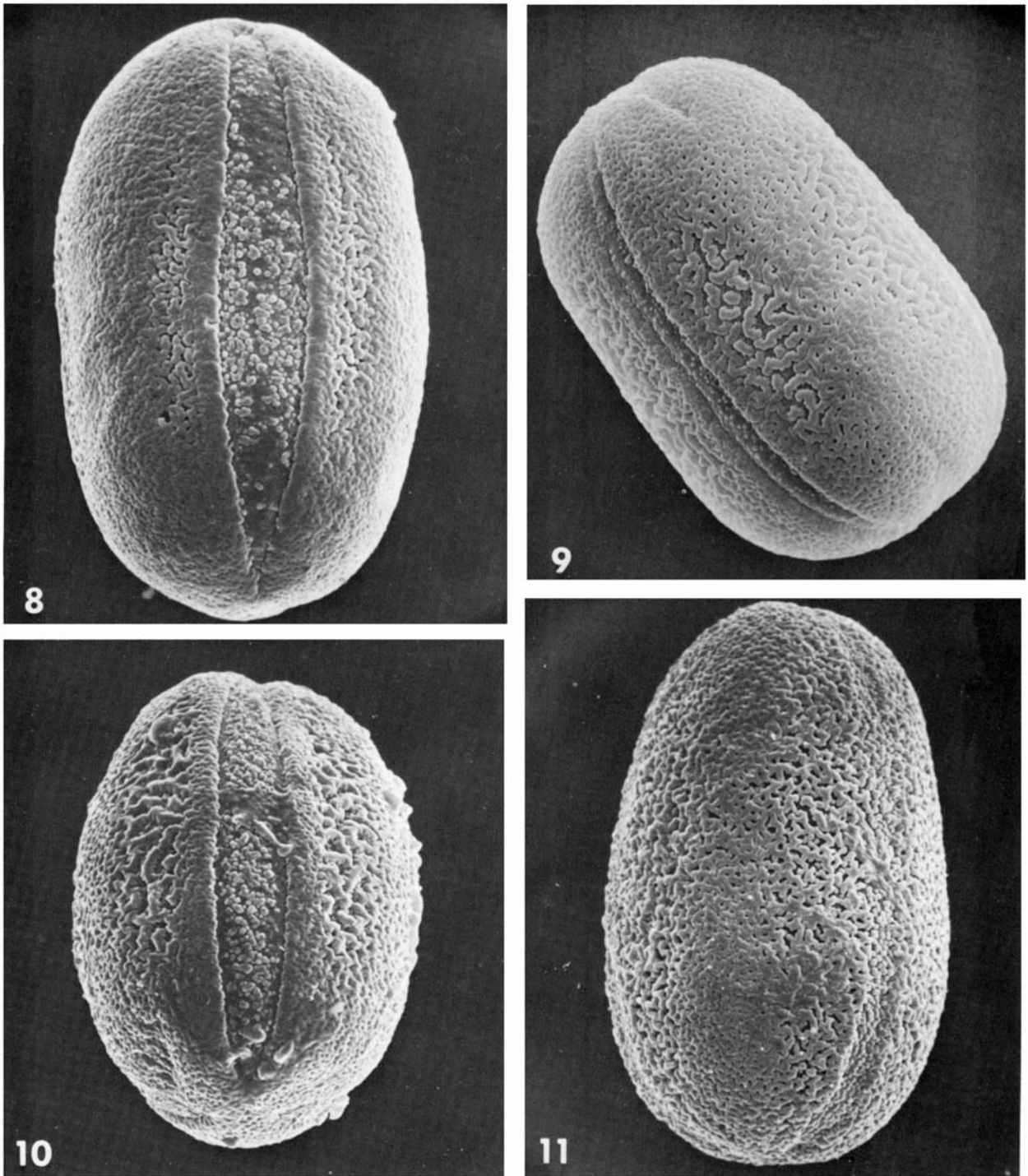
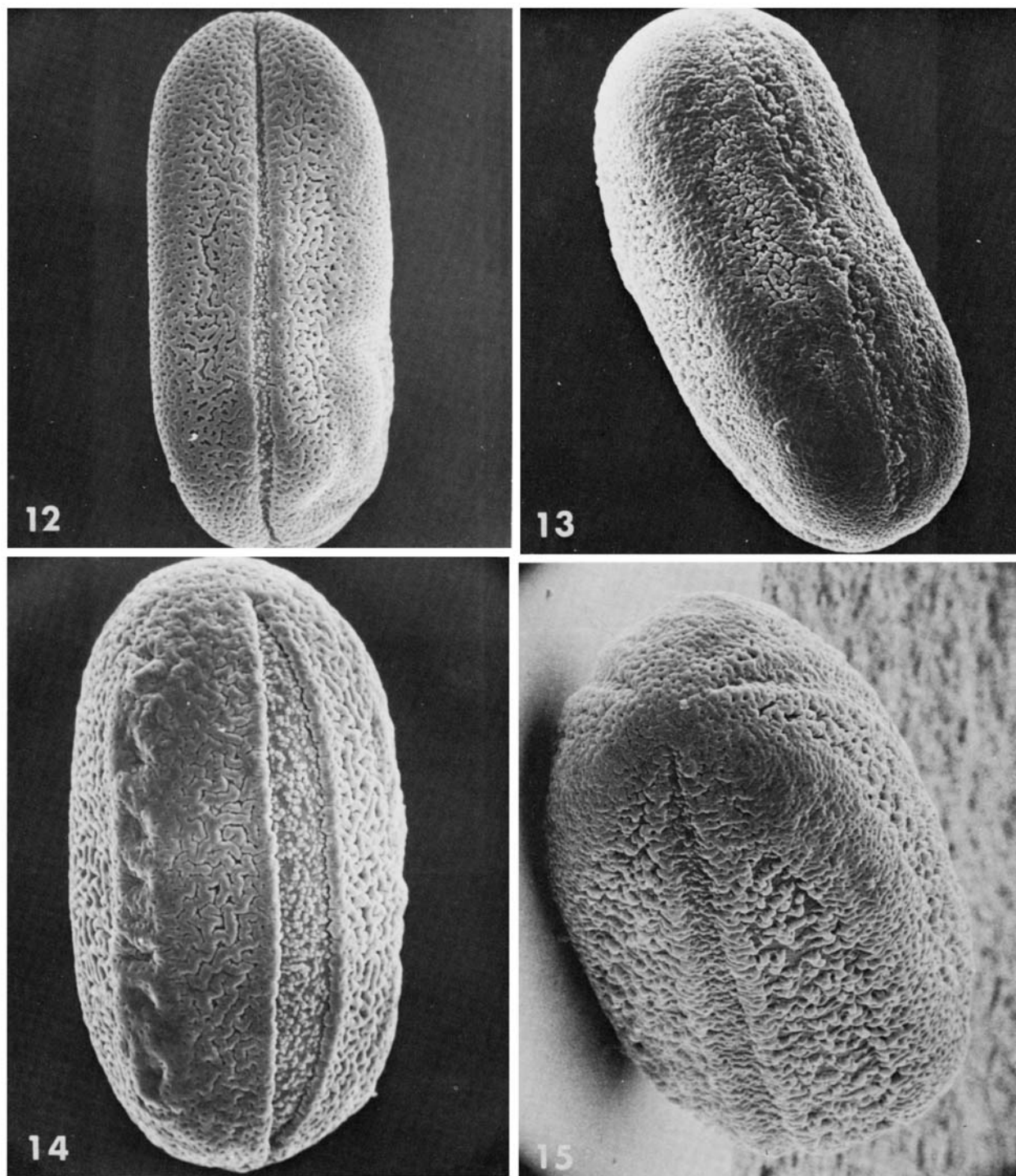


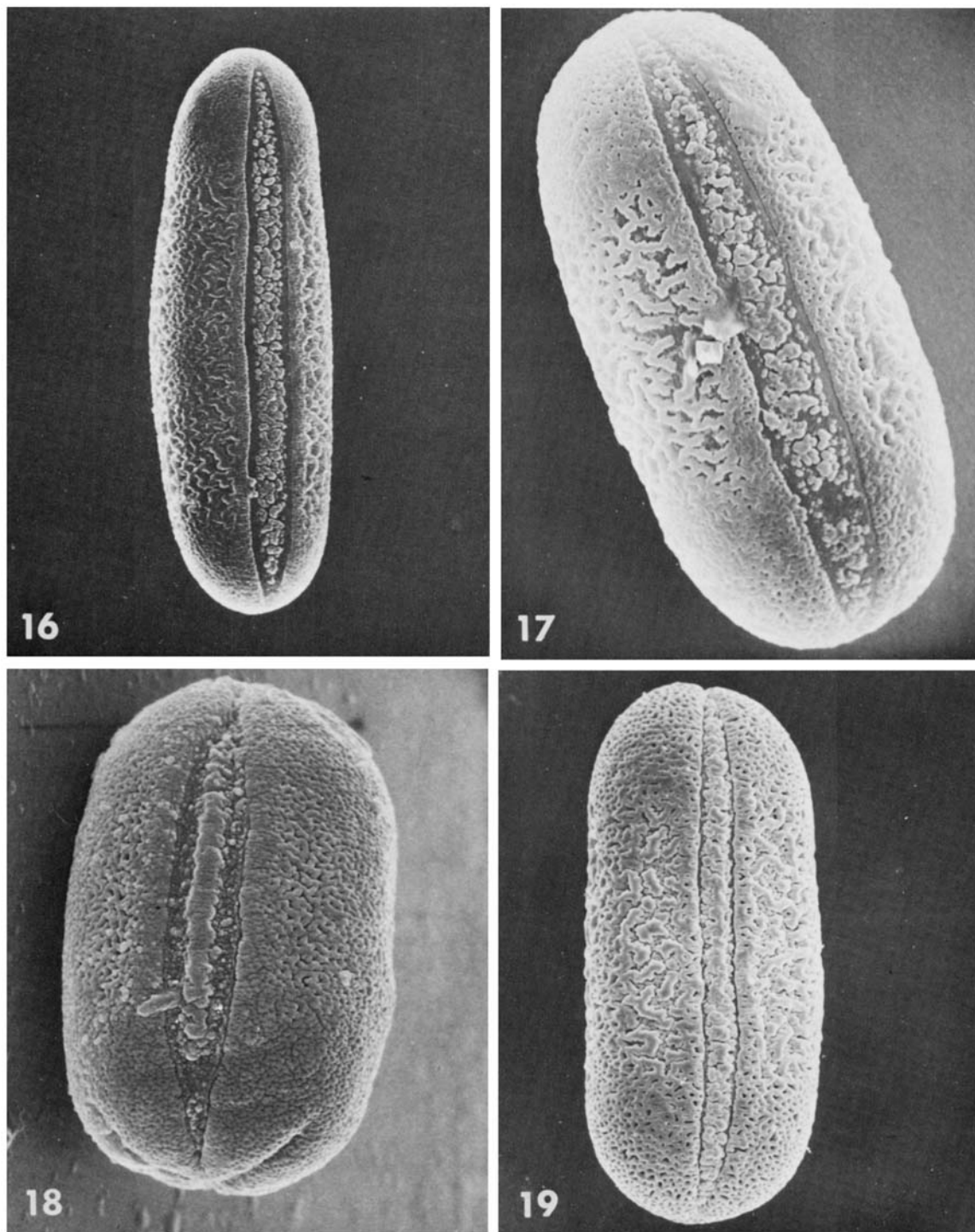
FIGURE 7.—*Aphelandra tetragona* (Vahl) Nees.
(From Jacquin, 1798, pl. 320, representing *Justicia cristata* Jacquin.)



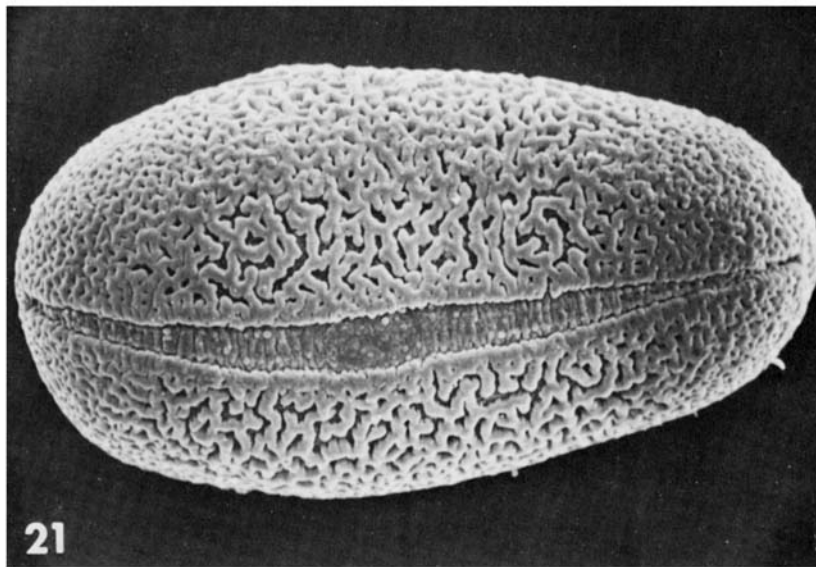
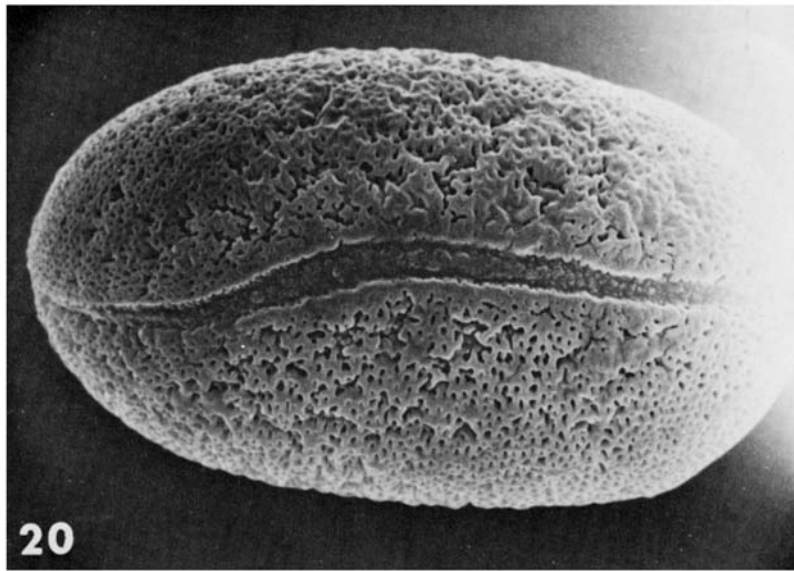
FIGURES 8-11.—Pollen grains of *Aphelandra*: 8, *A. caput-medusae* Lindau (*Wolfe 12128A*), equatorial view, $\times 2000$; 9, *A. flava* Nees (*Cult. Bot. Gard. Munich*), equatorial view, $\times 1800$; 10, *A. guerrensis* Wasshausen (*Hinton 11199*), equatorial view, $\times 2000$; 11, *A. clausenii* Wasshausen, new name (*Hatschbach 31349*), equatorial view, $\times 1500$.



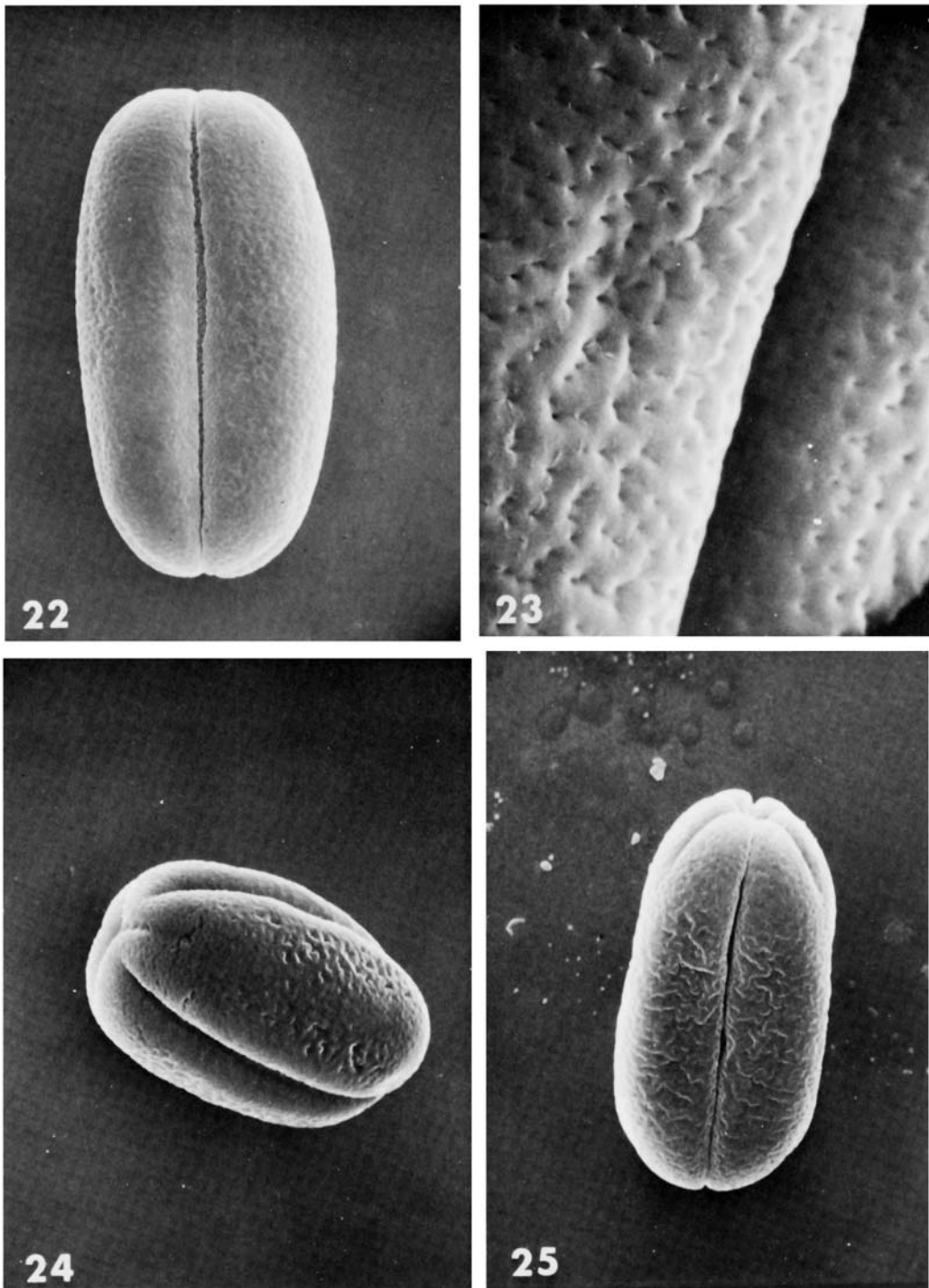
FIGURES 12-15.—Pollen grains of *Aphelandra*: 12, *A. bahiensis* (Nees) Wasshausen, new combination (*Cult. Hort. Bot. Kew*), equatorial view, $\times 1500$; 13, *A. montis-scalaris* Lindau ex Pilger (*Ule 6558*), equatorial view, $\times 1500$; 14, *A. maculata* (Tafalla ex Nees) Voss (*Schunke 4658*), equatorial view, $\times 2000$; 15, *A. jacobinioides* Lindau (*Klug 2847*), polar view, $\times 2000$.



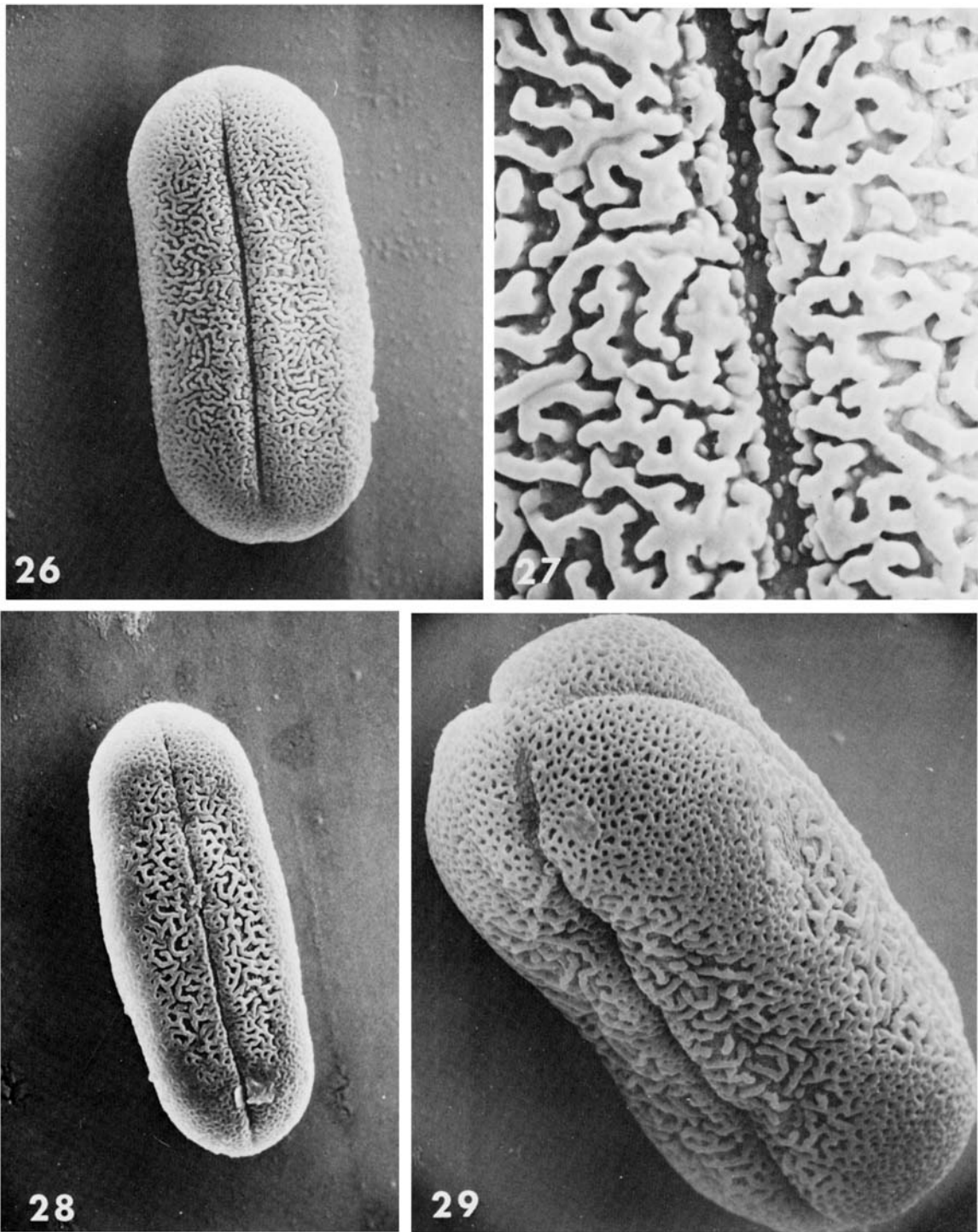
FIGURES 16-19.—Pollen grains of *Aphelandra*: 16, *A. gracilis* Leonard (*Allen 2301*), equatorial view, $\times 1200$; 17, *A. pulcherrima* (Jacquin) Humboldt, Bonpland, & Kunth (*Steiermark 100261*), equatorial view, $\times 1700$; 18, *A. verticillata* Nees ex Hemsley (*Moore 5503*), equatorial view, $\times 2000$; 19, *A. schieferae* Leonard (*Barclay 3191*), equatorial view, $\times 1500$.



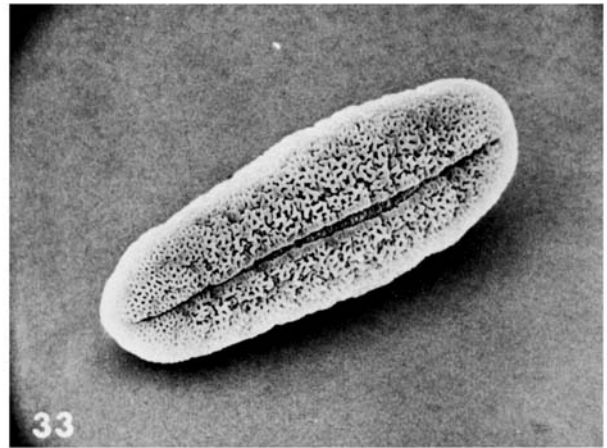
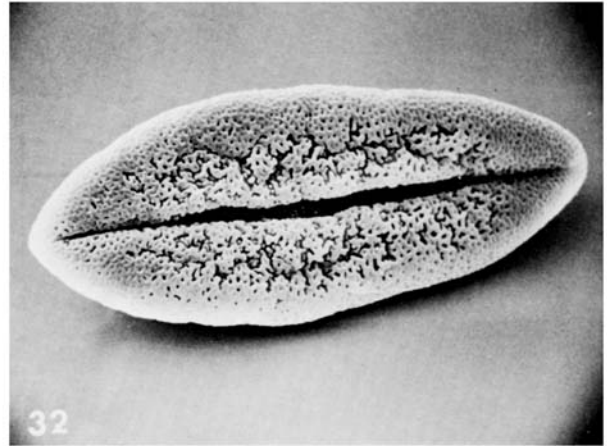
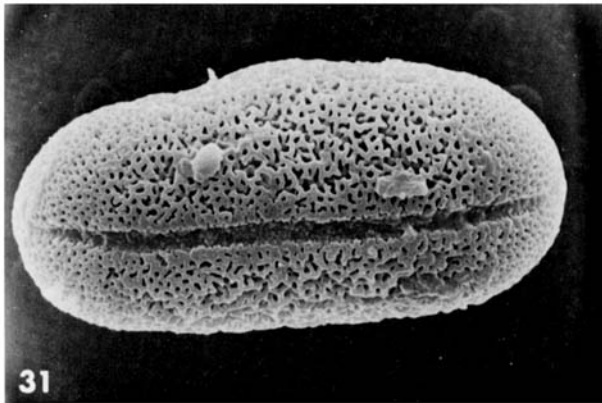
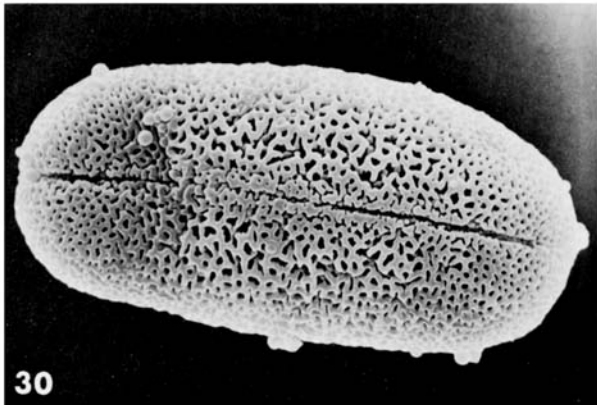
FIGURES 20-21.—Pollen grains of *Aphelandra*: 20, *A. mutisii* Leonard (*Camp E-2751*), equatorial view, $\times 2000$; 21, *A. inaequalis* Lindau (*Eyerdam 24827*), equatorial view, $\times 2000$.



FIGURES 22-25.—*Aphelandra* pollen grains with a smooth sexine: 22, *A. madrensis* Lindau (*Hinton 15912*), equatorial view, $\times 1150$; 23, *A. madrensis* Lindau (*Hinton 15912*), surface view showing tectal perforations, $\times 5700$; 24, *A. schiedeana* Schlechtendal & Chamisso (*Ton 2087*), equatorial view, $\times 1000$; 25, *A. lineariloba* Leonard (*Mexia 8952*), equatorial view, $\times 1200$.

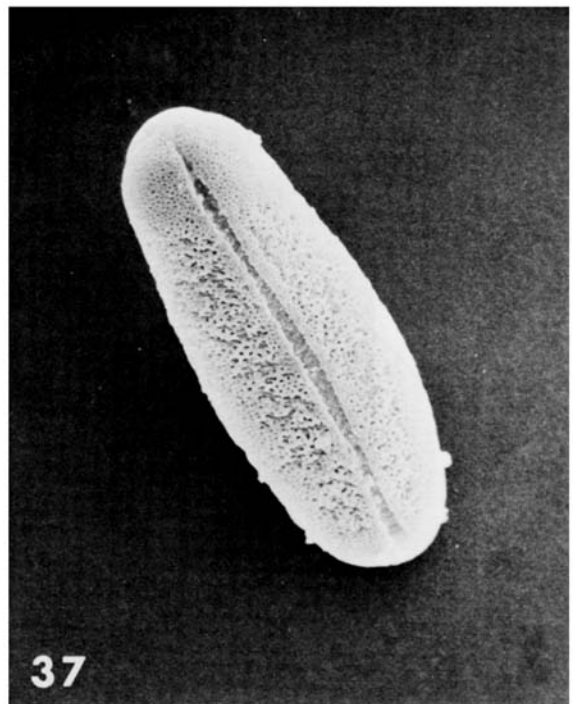
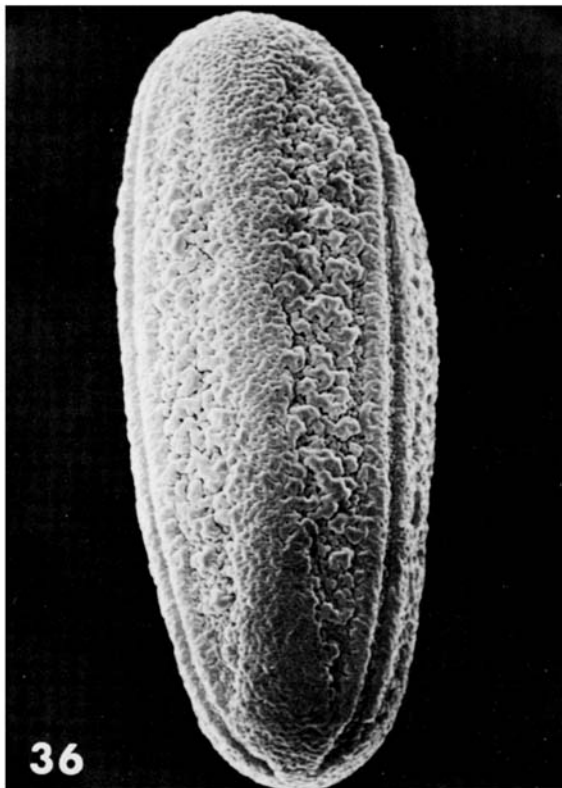
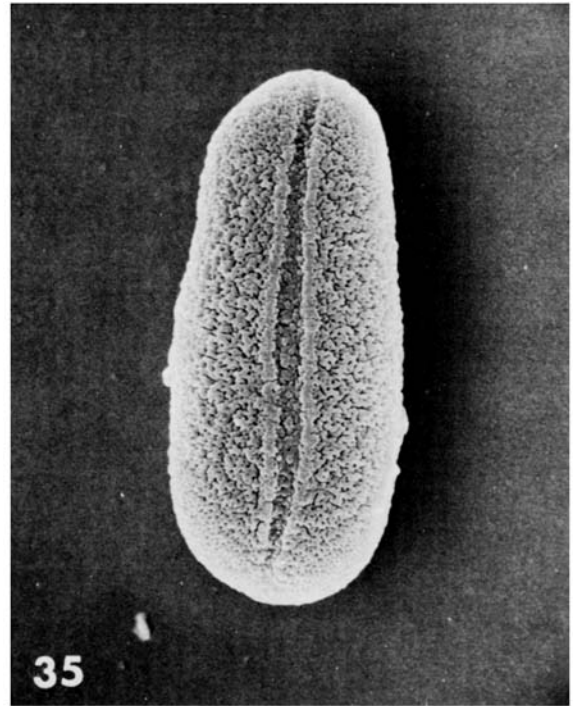
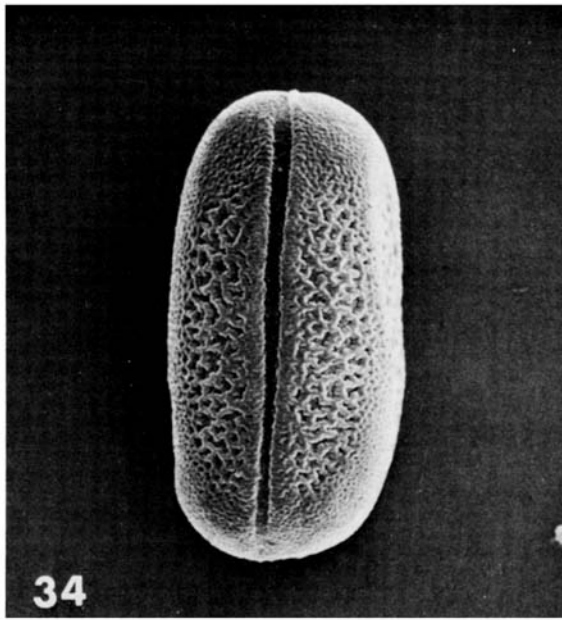


FIGURES 26-29.—Perprolate pollen grains of *Aphelandra* with a vermiculate sexine: 26, *A. peruviana* Wasshausen (Vargas 15249), equatorial view, $\times 1100$; 27, *A. peruviana* Wasshausen (Vargas 15249), surface view, $\times 5500$; 28, *A. chamissoniana* Nees (Hatschbach 23361), equatorial view, $\times 1000$; 29, *A. limbatifolia* Lindau (Vargas 17577), polar view, $\times 1900$.

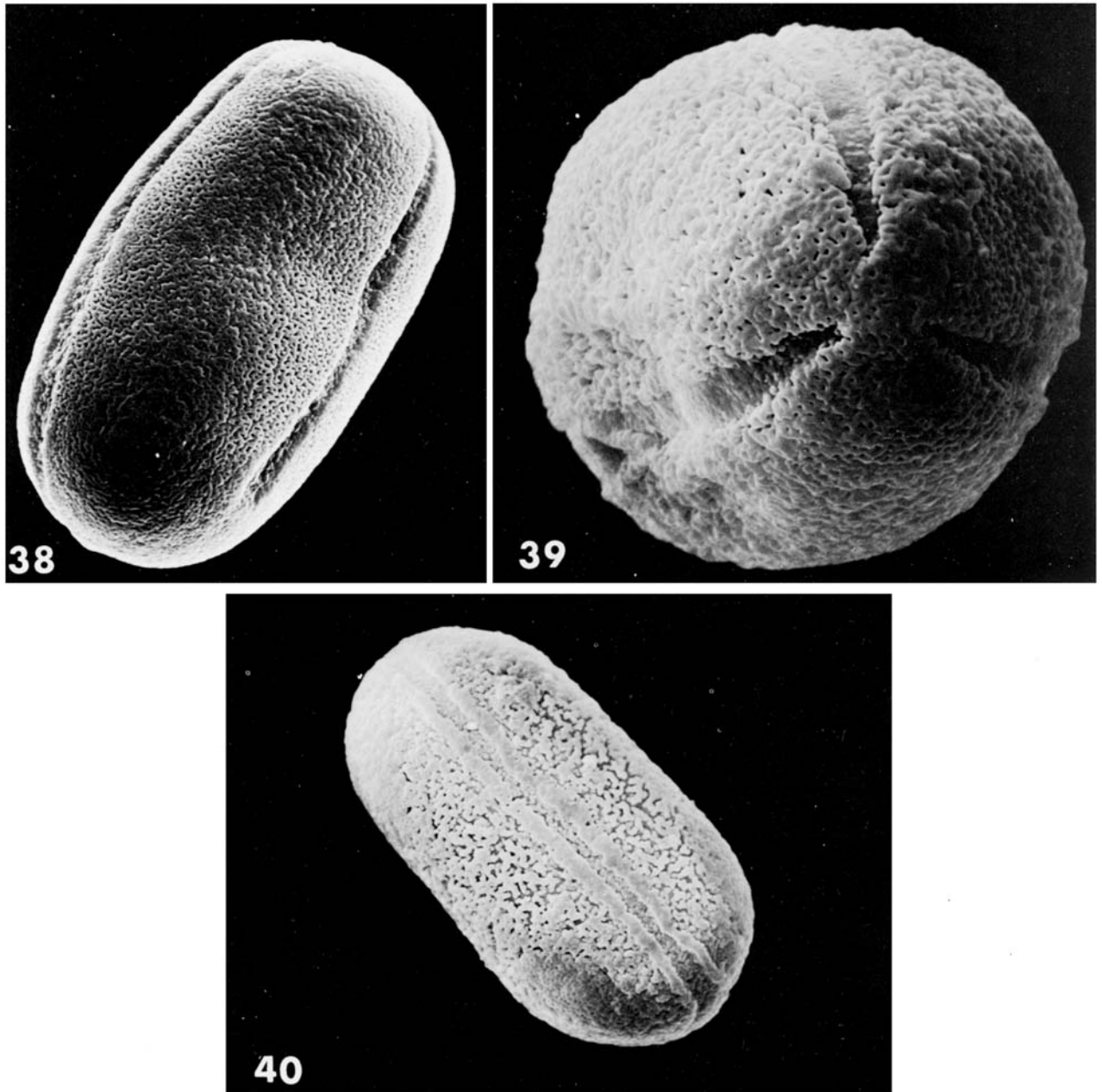


FIGURES 30-31.—Perprolate pollen grains of *Aphelandra* showing a striatoreticulate sexine: 30, *A. wurdackii* Wasshausen (*Wurdack 1487*), equatorial view, $\times 2000$; 31, *A. grangeri* Leonard (*Poortmann 247*), equatorial view, $\times 2000$.

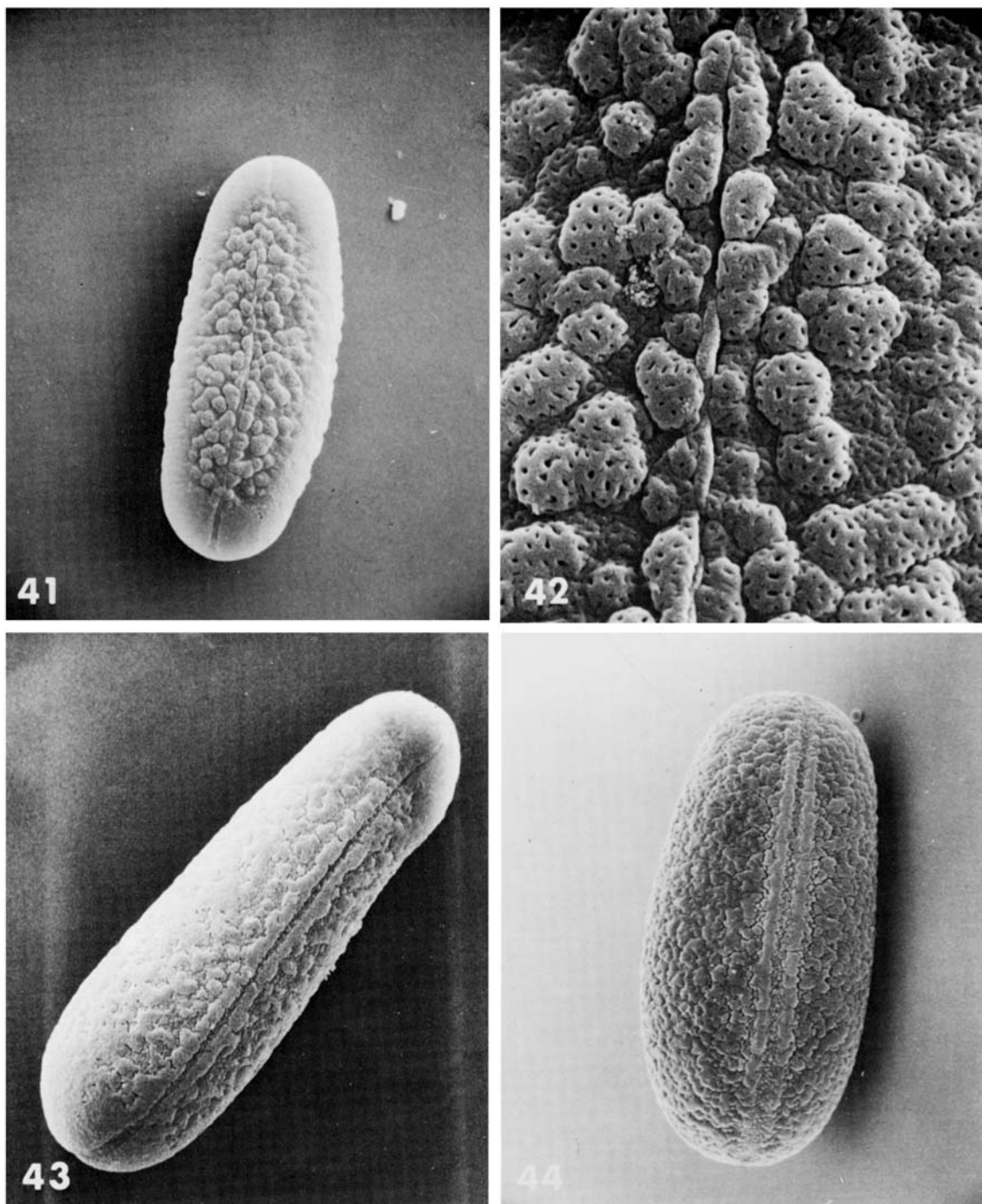
FIGURES 32-33.—Perprolate pollen grains of *Aphelandra* showing a distinctly vermiculate sexine: 32, *A. runcinata* Klotzsch ex Nees (*Uribe 2115*), equatorial view, $\times 900$; 33, *A. formosa* (Humboldt & Bonpland) Nees (*Rimbach 630*), equatorial view, $\times 1000$.



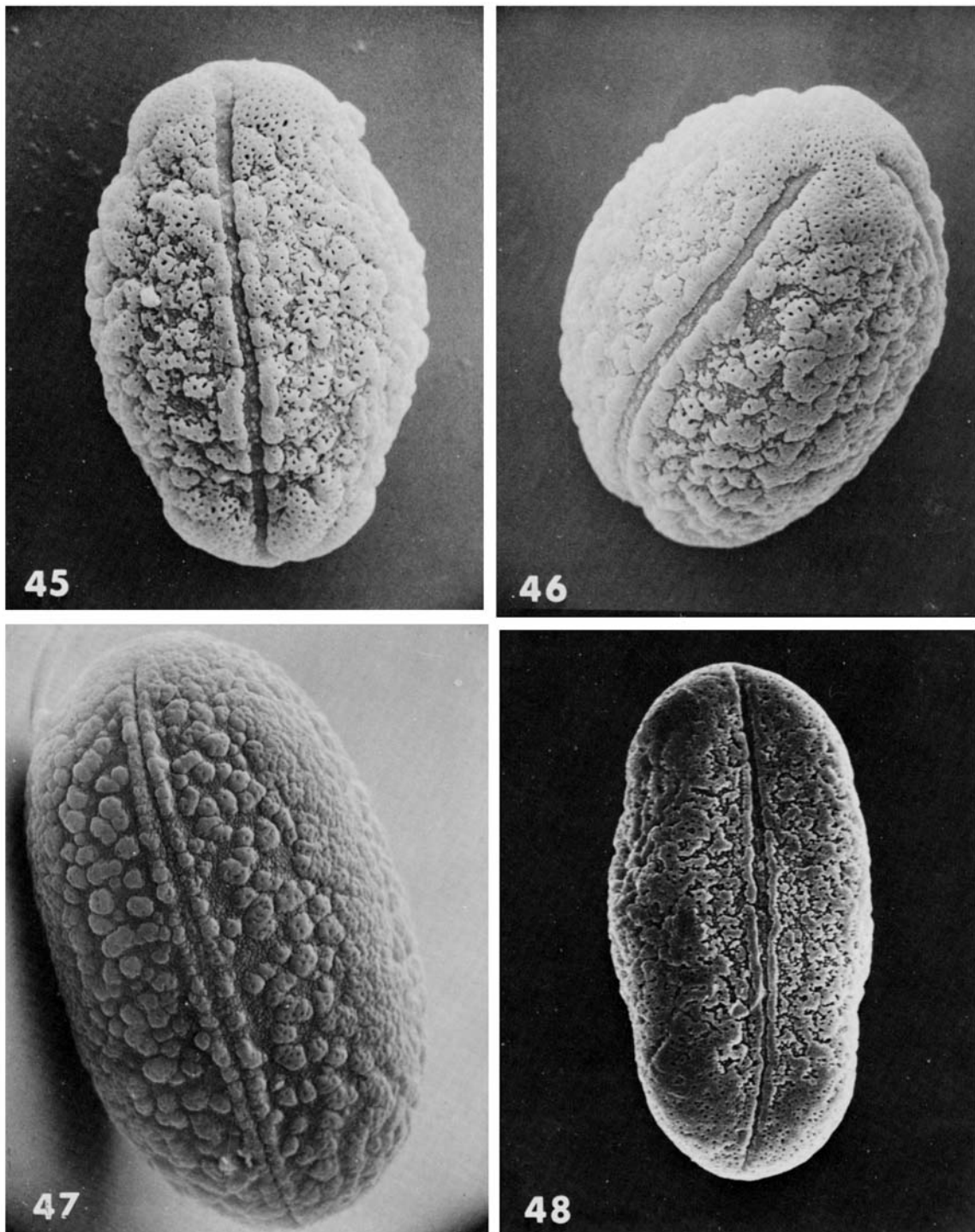
FIGURES 34-37.—Perprolate pollen grains of *Aphelandra*: 34, *A. sinclairiana* Nees (*Pittier 5572*), equatorial view, $\times 1000$; 35, *A. tillettii* Wasshausen (*Tillett 673-291*), equatorial view, $\times 1000$; 36, *A. liboniana* Linden ex Hooker (*Hatschbach 22455*), equatorial view, $\times 1500$; 37, *A. juninensis* Wasshausen (*Weberbauer 6537*), equatorial view, $\times 1000$.



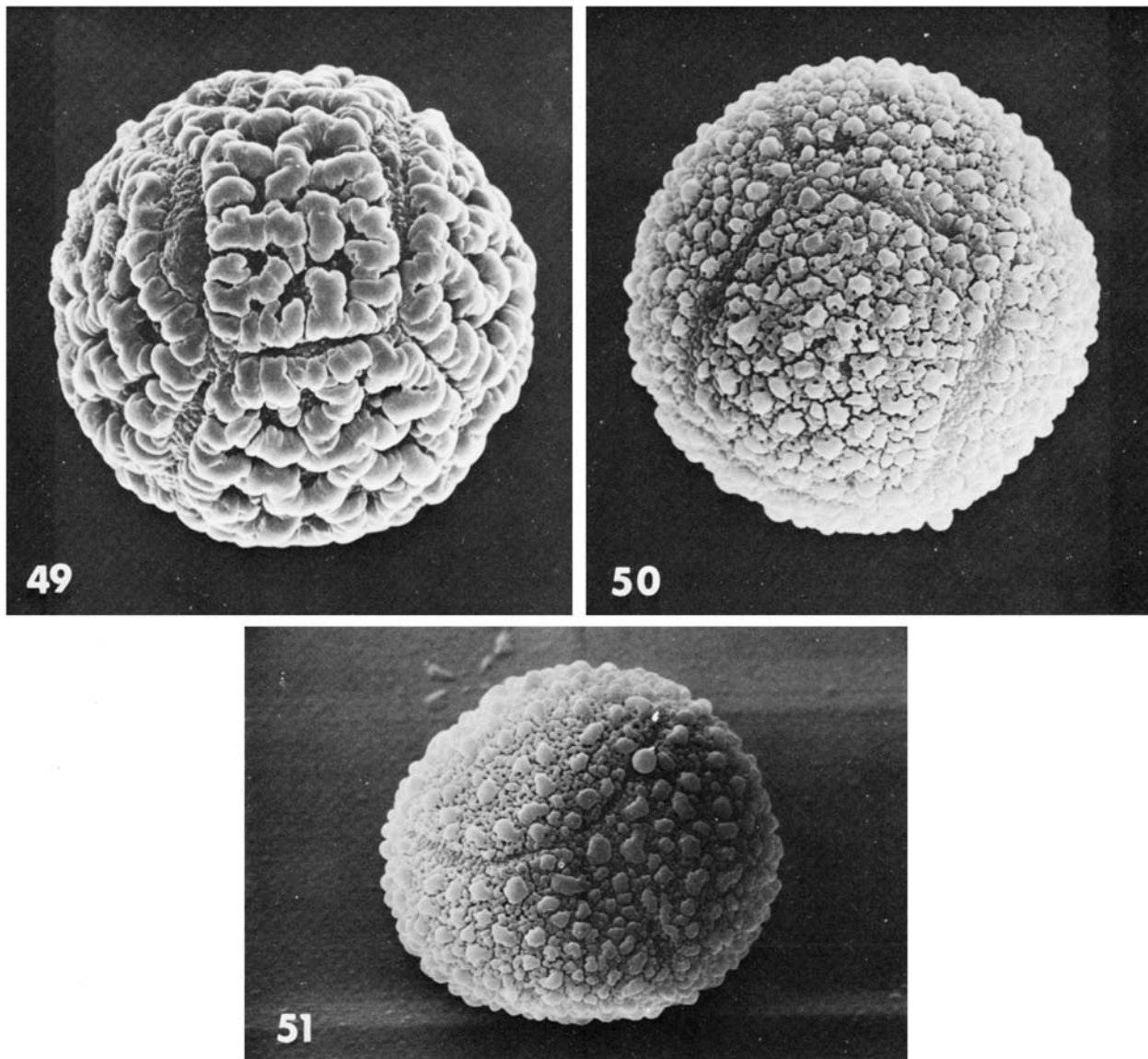
FIGURES 38-40.—Pollen grains of *Aphelandra*: 38, *A. ignea* (Schrader) Nees ex Steudel (*Bull s.n.*), equatorial view, $\times 1300$; 39, *A. acanthifolia* Hooker (*Wurdack 745*), polar view, $\times 1850$; 40, *A. squarrosa* Nees (*Barth I-198*), equatorial view, $\times 1000$.



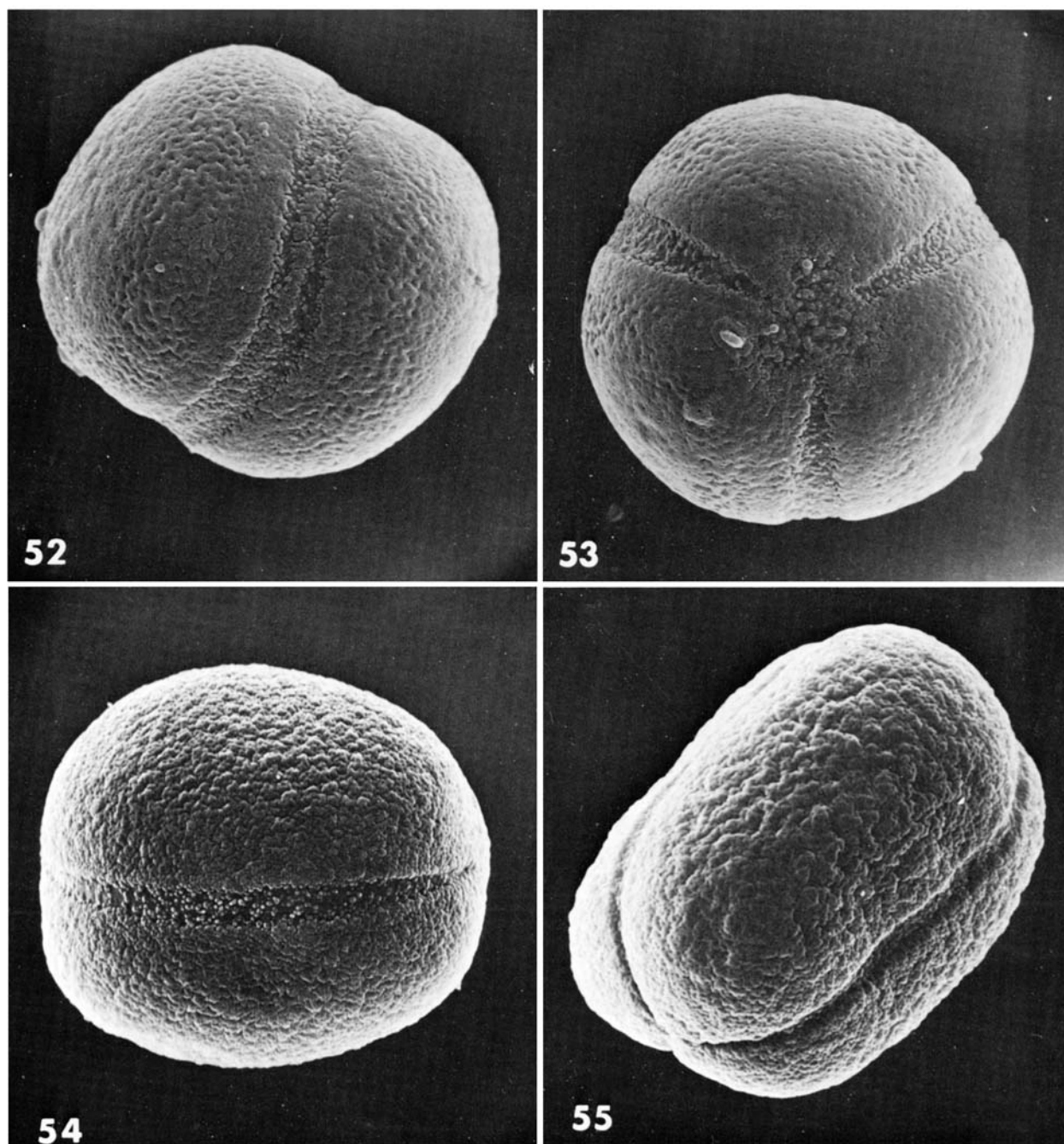
FIGURES 41-44.—Perprolate pollen grains of *Aphelandra*: 41, *A. marginata* Nees & Martius (*Belém 1194*), equatorial view, $\times 950$; 42, *A. marginata* Nees & Martius (*Belém 1194*), surface view showing the verrucose sexine, $\times 4800$; 43, *A. weberbaueri* Mildbraed (*Weberbauer 6657*), equatorial view, $\times 1000$; 44, *A. dodsonii* Wasshausen (*Dodson & Thien 1612*), equatorial view, $\times 1000$.



FIGURES 45-48.—Prolate pollen grains of *Aphelandra*: 45, *A. chrysantha* Wasshausen (Dodson & Thien 1515), equatorial view showing verrucose sexine, $\times 1030$; 46, *A. chrysantha* Wasshausen (Dodson & Thien 1515), polar view, $\times 1030$; 47, *A. aurantiaca* (Scheidweiler) Lindley var. *aurantiaca* (Vargas 018894), equatorial view showing verrucose sexine, $\times 1120$; 48, *A. acanthus* Nees (Harling 3927), equatorial view $\times 1000$.



FIGURES 49-51.—Prolate spheroidal pollen grains of *Aphelandra*: 49, *A. flammea* Wasshausen (*Mexia 6700*), equatorial view, $\times 2000$, showing a serpentine-cerebriform sexine; 50, *A. variegata* Morel (*Cult. Hort. Vindob.*), verrucose grains with furrows converging in a manner suggesting that the surface of each grain is divided into 6 tetragonal sectors, $\times 900$; 51, *A. variegata* Morel (*Cult. Hort. Vindob.*), polar view, $\times 800$.



FIGURES 52-55.—Pollen grains of *Aphelandra*: 52, spheroidal grains of *A. dielsii* Mildbraed (*Camp E-2404*), equatorial view, $\times 2000$; 53, spheroidal grains of *A. dielsii* Mildbraed (*Camp E-2404*), polar view, $\times 2000$; 54, subprolate grains of *A. steyermarkii* Wasshausen (*Steyermark-Agostini 1*), equatorial view, $\times 2000$; 55, subprolate grains of *A. steyermarkii* Wasshausen (*Steyermark-Agostini 1*), polar view, $\times 2000$.

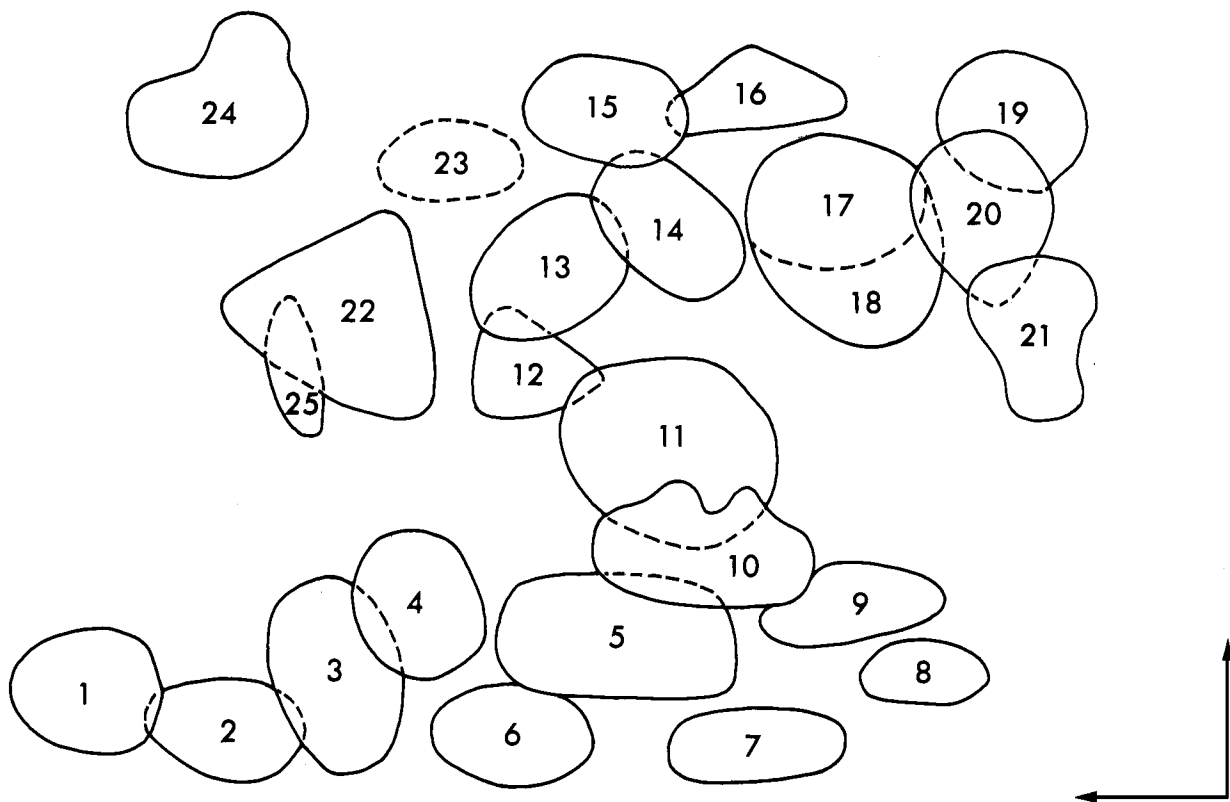


FIGURE 56.—The two-dimensional paper chromatographic profile of flavonoids obtained from *Aphelandra* plant material.