



Dent Smith Memorial Issue

# PRINCIPES

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## THE INTERNATIONAL PALM SOCIETY

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## Contents for January

An Outline of a Classification of Palms John Dransfield and Natalie W. Uhl	3
Dent Smith, a Recollection Nixon Smiley	12
Dent Smith's Horticultural Contributions Walter H. Hodge	17
Along the Dent Smith Trail Jerome P. Keuper	21
Dent Smith's Favorite Palm Melvin W. Sneed	24
Dent Smith and The Palm Society Lucita Hardie Wait	25
U.S.D.A. Hardiness Zones as Applied to Cultivated Palms, and Other Horticultural Comments Dent Smith	26
Brief Comments on Palms Suited to Indoor Culture Dent Smith	32
Hybrid in <i>Chrysalidocarpus</i> Thomas A. Zanoni and Robert W. Read	35
<i>Catoblastus distichus</i> , an Interesting New Palm from Colombia Rodrigo Bernal-Gonzalez	38
Features	
Classified	25
Bookstore	34
News of the Society	42
Palm Conservation	44

## Cover Picture

Dent Smith with Serpent Palm (*Sabal palmetto*) at Ronald Ranch, Daytona Beach, Florida. Photo by W. H. Hodge. See pp. 17-20.

## PRINCIPES

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# An Outline of a Classification of Palms

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This paper formalizes a new classification of the palm family used to determine the arrangement of genera in "Genera Palmarum, a Classification of Palms Based on the Work of H. E. Moore, Jr." (Uhl and Dransfield in press). The classification will be discussed and justified in detail in "Genera Palmarum." We present this outline in part to validate new names of some tribes and subtribes and so make them available for use by others working with palms before the publication of the book.

The system we have developed is derived from that of Moore (1973) but with modifications. Although the names of Moore's suprageneric categories have been immensely useful, they have had no formal nomenclatural status. We have critically reviewed all suprageneric categories in the light of recent research to determine those we wish to recognize, and have selected the earliest validly published names that are based on genera included by us in those categories. Each suprageneric name is typified by the name of the genus which forms the root of the name. Thus, as long as a particular group contains the type genus of the earliest valid name at that rank, the category must take this name, even though the original author's conception of the category may differ widely from ours. The rules governing this selection of names are those designated in the International Code of Botanical Nomenclature (ICBN 1983).

**ORDER: PRINCIPES** Endlicher, *Genera Plantarum* 244. 1837.

**FAMILY: PALMAE** Jussieu, *Genera Plantarum* 37. 1789 (conserved name).

**ARECACEAE** C. H. Schultz-Schultzenstein, *Natürliches System des Pflanzenreichs* 317. 1832 (conserved alternative name for the family).

Subfamily I. **Coryphoideae** Griffith, *Calcutta Journal of Natural History* 5: 311. 1844. ('*Coryphinae*').

**Corypheae** Martius in Endlicher, *Genera Plantarum* 252. 1837. ('*Coryphinae*').

**Thrinacinae** Beccari, *Webbia* 2: 9. 1907. ('*Thrinaceae*'). Type: **Thrinax**.

1. *Trithrinax* (*Diodosperma*)
2. *Chelyocarpus* (*Tessmanniodoxa*, *Tessmanniophoenix*)
3. *Cryosophila* (*Acanthorrhiza*)
4. *Itaya*
5. *Schippia*
6. *Thrinax* (*Hemithrinax*)
7. *Coccothrinax* (*Haitiella*, *Thrincoma*, *Thringis*)
8. *Zombia* (*Oothrinax*)

9. Trachycarpus
10. Rhapidophyllum
11. Chamaerops (Chamaeriphe, Chamaeriphes)
12. Maxburretia (Liberbaileya, Symphyogyne)
13. Guihaia
14. Rhapis

**Livistoninae** Saakov, Palms and their culture in the USSR 193. 1954. Type:

**Livistona.**

15. Livistona (Saribus, Wissmannia)
16. Pholidocarpus
17. Johannesteijsmannia (Teysmannia)
18. Licuala (Dammera, Pericycla)
19. Pritchardiopsis
20. Pritchardia (Eupritchardia, Styloma)
21. Colpothrinax
22. Acoelorrhaphe (Acanthosabal, Paurotis)
23. Serenoa (Diglossophyllum)
24. Brahea (Erythea, Glaucothea)
25. Copernicia (Arrudaria, Coryphomia)
26. Washingtonia (Neowashingtonia)

**Coryphinae** J. Dransfield & N. Uhl, **subtribus nova**. Carpella 3, basin connata, stylis distinctis vel connatis sed canalibus stylorum discretis. Typus: **Corypha** Linnaeus.

(Although Beccari (1907) published the name '*Eucorypheae*' as a subtribe including the genus *Corypha*, the root of the subtribal name is *Eucorypha* rather than *Corypha*, and because of this it must be considered invalid under articles 19 and 32 of the International Code (ICBN 1983). We have no choice but to publish Coryphinae as a new name.)

27. Corypha (Codda-Pana, Gembanga, Taliera)
28. Nannorrhops
29. Chuniophoenix
30. Kerriodoxa

**Sabalinae** Martius in Endlicher, Genera Plantarum 252. 1837. Type: **Sabal**.

31. Sabal (Inodes)

**Phoeniceae** Drude in Martius, Flora Brasiliensis 3(2): 279. 1881. Type: **Phoenix**.

32. Phoenix (Dachel, Elate, Fulchironia, Palma, Phoniphora, Zelonops)

**Borasseae** Martius in Endlicher, Genera Plantarum 250. 1837. ('*Borassinae*').

**Lataniinae** Meisner, Plantarum Vascularium Genera 1: 357. 1842. ('*Latanieae*').

Type: **Latania**.

33. Borassodendron
34. Latania (Cleophora)
35. Borassus (Lontarus)
36. Lodoicea

**Hyphaeninae** Beccari, Palme della Tribu Borasseae 1. 1924. ('*Hyphaeneae*').

Type: **Hyphaene**.

37. Hyphaene (Cucifera, Doma, Douma)
38. Medemia
39. Bismarckia

Subfamily II. **Calamoideae** Griffith, *Calcutta Journal of Natural History* 5: 4. 1844.

**Calameae** Drude in Martius, *Flora Brasiliensis* 3(2): 270. 1881.

**Ancistrophyllinae** Beccari, *Annals of the Royal Botanic Garden, Calcutta* 12(2): 209. 1918. (*Ancistrophyllae*). Type: *Ancistrophyllum* = **Laccosperma**.

40. *Laccosperma* (*Ancistrophyllum*, *Neoancistrophyllum*)

41. *Eremospatha*

**Eugeissoninae** Beccari, *Annals of the Royal Botanic Garden, Calcutta* 12(2): 210. 1918. (*Eugeissonae*). Type: **Eugeissona**.

42. *Eugeissona*

**Metroxylinae** Blume, *Rumphia* 2: 157. 1843. (*Metroxyleae*). Type: **Metroxylon**.

43. *Metroxylon* (*Coelococcus*, *Sagus*)

44. *Korthalsia* (*Calamosagus*)

**Calamineae** Meisner, *Plantarum Vascularium Genera* 1: 356. 1842. Type: **Calamus**.

45. *Eleiodoxa*

46. *Salacca* (*Lophospatha*)

47. *Daemonorops*

48. *Calamus* (*Cornera*, *Palmijuncus*, *Rotang*, *Rotanga*, *Schizospatha*, *Zalaccella*)

49. *Calospatha*

50. *Pogonotium*

51. *Ceratolobus*

52. *Retispatha*

**Plectocomiinae** J. Dransfield & N. Uhl, **subtribus nova**. *Palmae dioecae, hapaxanthae scandentes, cirro acanthophyllis carenti; bracteae rachillas subtendentae conspicuae vel inconspicuae; rachillae gracillimae vel multo condensentes; flores staminati geminati vel solitarii; flores pistillati solitarii; sarcotesta crassa sed aliquantum sicca. Typus: Plectocomia* Martius ex Blume.

53. *Myrialepis* (*Bejaudia*)

54. *Plectocomiopsis*

55. *Plectocomia*

**Pigafettinae** J. Dransfield & N. Uhl, **subtribus nova**. *Palma elata dioeca pleoanatha; rachillae gracillimae bracteis minutissimis; flores staminati geminati; flores pistillati solitarii; sarcotesta succosa. Typus: Pigafetta* (Blume) Beccari.

56. *Pigafetta*

**Raphiinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 881. 1883. (*Raphieae*). Type: **Raphia**.

57. *Raphia* (*Sagus*)

**Oncocalaminae** J. Dransfield & N. Uhl, **subtribus nova**. *Palmae monoecae, hapaxanthae, scandentes, cirro acanthophyllas ferenti; bracteae rachillarum 3-11 flores subtendentes, flore centrali pistillato, et cincinnis duobus lateralibus 0-1 flores pistillatos et aliquot flores staminatos ferentibus. Typus: Oncocalamus* (G. Mann & H. A. Wendland) G. Mann & H. A. Wendland.

58. *Oncocalamus*

**Lepidocaryeae** Martius in Endlicher, *Genera Plantarum* 248. 1837. (*Lepidocaryinae*).

59. *Mauritia* (*Orophoma*)

60. *Mauritiella* (*Lepidococcus*)

61. *Lepidocaryum*

Subfamily III. **Nypoideae** Griffith, Palms of British India 7. 1850. (*'Nipinae'*). Type: **Nypa**.

62. *Nypa* (*Nipa*)

Subfamily IV. **Ceroxyloideae** Drude in Martius, Flora Brasiliensis 3(2): 271. 1881 (as suborder *'Ceroxylinae'*).

**Cyclospatheae** O. F. Cook, Memoirs of the Torrey Botanical Club 12: 24. 1902.

Type: *Cyclospathe* = **Pseudophoenix**.

63. *Pseudophoenix* (*Chamaephoenix*, *Cyclospathe*, *Sargentia*)

**Ceroxyleae** Satake, Hikobia 3: 125. 1962. Type: **Ceroxylon**.

64. *Ceroxylon* (*Beethovenia*, *Klopstockia*)

65. *Oraniopsis*

66. *Juania*

67. *Louvelia*

68. *Ravenea* (*Ranevea*)

**Hyophorbeae** Drude in Martius, Flora Brasiliensis 3(2): 275. 1881. Type: **Hyophorbe**.

69. *Gaussia* (*Aeria*, *Opsandra*)

70. *Hyophorbe* (*Mascarena*, *Sublimia*)

71. *Synechanthus* (*Rathea*, *Reineckea*)

72. *Chamaedorea* (*Collinia*, *Dasystachys*, *Eleutheropetalum*, *Kinetostigma*, *Kunthia*, *Morenia*, *Nunnezharia*, *Nunnezia*, *Spathoscapha*, *Stachyophorbe*, *Stephanostachys*)

73. *Wendlandiella*

Subfamily V. **Arecoideae**

**Caryoteae** Drude in Martius, Flora Brasiliensis 3(2): 278. 1881. Type: **Caryota**.

74. *Arenga* (*Blancoa*, *Didymosperma*, *Gomutus*, *Saguerus*)

75. *Caryota* (*Schunda-Pana*, *Thuessinkia*)

76. *Wallichia* (*Asraoa*, *Harina*, *Wrightea*)

**Iriarteae** Drude in Martius, Flora Brasiliensis 3(2): 278. 1881.

**Iriarteinae** J. D. Hooker in Bentham & J. D. Hooker, Genera Plantarum 3: 872, 875. 1883. (*'Iriarteae'*). Type: **Iriartea**.

77. *Dictyocaryum* (*Dahlgrenia*)

78. *Iriartella* (*Cuatrecasea*)

79. *Iriartea* (*Deckeria*)

80. *Socratea* (*Metasocratea*)

**Wettiniinae** J. D. Hooker in Bentham & J. D. Hooker, Genera Plantarum 3: 872, 876. 1883. (*'Wetteniae'*). Type: **Wettinia**.

81. *Catoblastus* (*Acrostigma*, *Catostigma*)

82. *Wettinia* (*Wettinella*, *Wettiniicarpus*)

**Podococceae** J. Dransfield & N. Uhl, **tribus nova**. *Palmae graciles, monoecae, pleonanthae, erectae, foliis reduplicate pinnatis, foliolis praemorsis, nervis basi radiatis; inflorescentia bisexualis, spicata, prophyllum et 2-3 bracteas pedunculares ferens; flores triadibus, in foveis profundis dispositis, singulariter exsertis; petala floris pistillati imbricata; gynoecium triloculare, triovulatum; fructus 1-3 lobatus, 1-3 seminibus, lobis horizontalibus, stigmatibus basali. Typus: Podococcus* G. Mann & H. A. Wendland.

83. *Podococcus*.

**Areceae**

**Oraniinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae mediocres vel robustae, inermes; foliis pinnatis, foliolis praemorsis; prophyllum bractea pedunculari multo brevius, vagina folii plerumque occultum; petala floris pistillati valvata; gynoecium triovulatum; fructus 1-3 seminalis, rotundatus vel lobatus, stigmatibus basali; epicarpio laeve; embryo laterali vel subapicali. Typus: **Orania** Zippelius.

84. Halmoorea

85. Orania (Arausiaca, Macrocladus, Sindroa)

**Manicariinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae mediocres, inermes, brevicaules, foliis grandis, integris vel irregulariter pinnatis, marginibus praemorsis; prophyllum et bractea pedunculares rostratae, retiformes, inflorescentiam includentes; petala floris pistillati valvata; gynoecium triovulatum; fructus 1-3 seminalis, rotundatus vel lobatus, suberoso-verrucatus, stigmatibus subbasali, embryo basali. Typus: **Manicaria** J. Gaertner.

86. Manicaria (Pilophora)

**Leopoldiniinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae mediocres, inermes, brevicaules, foliis pinnatis, foliolis integris; prophyllum bractea pedunculari  $\pm$  simile; petala floris pistillati valvata; gynoecium triovulatum; fructus 1-seminalis, rotundatus vel lenticularis, epicarpio laeve, mesocarpio fibris conspicuis ferenti, stigmatibus basali, embryo basali. Typus: **Leopoldinia** Martius.

87. Leopoldinia.

**Malortieinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 876. 1883 ('*Malortieae*'). Type: *Malortiea* = **Reinhardtia**.

88. Reinhardtia (Malortiea)

**Dypsidinae** Beccari, *Palme del Madagascar* 2. 1914. Type: **Dypsis**.

89. Vonitra

90. Chrysalidocarpus (Macrophloga, Phlogella)

91. Neophloga (Dypsidium, Haplodypsis, Haplophloga)

92. Neodypsis (Antongilia tentatively included here)

93. Phloga

94. Dypsis (Adelodypsis, Trichodypsis)

**Euterpeinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae parvae vel magnae, columna coronae praesentia vel carenti, foliis pinnatis vel pinnate-nervis, foliolis integris; inflorescentia infrafoliacea vel raro interfoliacea, raro spicata, plerumque 1 ordine ramorum gaudens, prophylo basi ad pedunculum non adnato; bractea peduncularis ante anthesin e prophylo aliquantum vel conspicue exserta; flos masculus plerumque asymmetricalis,  $\pm$  acutus, filamentis plerumque inflexis; petala floris pistillati imbricata; gynoecium pseudomonomerum: fructus stigmatibus basali, laterali vel apicali. Typus: **Euterpe** Martius.

95. Euterpe (Catis, Plectis, Rooseveltia)

96. Prestoea (Acrista, Euterpe, Martinezia, Oreodoxa)

97. Neonicholsonia (Bisnicholsonia, Woodsonia)

98. Oenocarpus

99. Jessenia

100. Hyospathe

**Roystoneinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae elatae, robustae, inermes, foliis pinnatis, foliolis integris; columna coronae conspicua; inflorescen-

tia infrafoliacea, in 4 ordines ramificans; petala floris pistillati basin connata, apice valvata; staminodia in cupulam connata et ad petala adnata; gynoecium pseudomonomerum; fructus stigmatibus basali. Typus: **Roystonea** O. F. Cook.

101. *Roystonea* (*Oreodoxa*).

**Archontophoenicinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae mediocres vel robustae, plerumque elatae, inermes, foliis pinnatis, foliolis integris; columna coronae conspicua; inflorescentia in 2–3 ordines ramorum ramificans; prophyllum bractae pedunculari simile; flores staminati  $\pm$  asymmetricales, filamentis in alabastro erectis inflexisve; petala floris pistillati imbricata; gynoecium pseudomonomerum; fructus stigmatibus apicali, endocarpio operculo carenti, embryone basali. Typus: **Archontophoenix** H. A. Wendland & Drude.

102. *Archontophoenix* (*Loroma*)

103. *Chambeyronia*

104. *Hedyscepe*

105. *Rhopalostylis* (*Eora*)

106. *Kentiopsis*

107. *Mackeeia*

108. *Actinokentia*

**Cyrtostachyinae** J. Dransfield & N. Uhl, **subtribus nova**. Palmae inermes, mediocres vel elatae, foliis pinnatis, foliolis integris; columna coronae conspicua; inflorescentia infrafoliacea, in 3 ordines ramificans, pedunculo brevissimo, ramis basalibus valde divaricantibus; prophyllum bractae pedunculari simile, caducum; triades in foveis rotundate labiatis portati; flores staminati symmetricales, in alabastro rotundati, filamentis basin connatis, inflexis; petala floris pistillati imbricata; gynoecium pseudomonomerum; fructus stigmatibus apicali, embryone basali. Typus: **Cyrtostachys** Blume.

109. *Cyrtostachys*

**Linospadicinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 876. 1883. (*Linospadiceae*). Type: **Linospadix**.

110. *Calyptrocalyx* (*Linospadix*, *Paralinospadix*)

111. *Linospadix* (*Bacularia*)

112. *Laccospadix*

113. *Howea* (*Denea*, *Grisebachia*)

**Ptychospermatinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 874. 1883. (*Ptychospermeae*). Type: **Ptychosperma**.

114. *Drymophloeus* (*Coleospadix*, *Rehderophoenix*, *Saguaster*, *Solfia*)

115. *Carpentaria*

116. *Veitchia* (*Adonidia*, ?*Kajewskia*, *Vitiphoenix*)

117. *Balaka*

118. *Normanbya*

119. *Wodyetia*

120. *Ptychosperma* (*Actinophloeus*, *Drymophloeus*, *Ponapea*, *Romanowia*, *Seaforthia*, *Strongylocaryum*)

121. *Ptychococcus*

122. *Brassiophoenix*

**Arcinae**. Type: **Areca**.

123. *Loxococcus*

124. *Gronophyllum* (*Kentia*, *Leptophoenix*, *Nengella*)

125. *Siphokentia*



- 126. Hydriastele (*Adelonenga*)
- 127. *Gulubia* (*Gulubiopsis*, *Paragulubia*)
- 128. *Nenga*
- 129. *Pinanga* (*Cladosperma*, *Ophiria*, *Pseudopinanga*)
- 130. *Areca* (*Gigliolia*, *Mischophloeus*, *Pichisermollia*)

**Iguanurinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 876. 1883. (*'Iguanureae'*). Type: **Iguanura**.

- 131. *Neoveitchia*
- 132. *Pelagodoxa*
- 133. *Iguanura* (*Slackia*)
- 134. *Brongniartikentia*
- 135. *Lepidorrhachis*
- 136. *Heterospathe* (*Barkerwebbia*, *Ptychandra*)
- 137. *Sommieria*
- 138. *Bentinckia* (*Keppleria*)
- 139. *Clinosperma*
- 140. *Cyphokentia* (*Dolichokentia*)
- 141. *Moratia*
- 142. *Clinostigma* (*Bentinckiopsis*, *Clinostigmopsis*, *Exorrhiza*)
- 143. *Alsmithia*
- 144. *Satakentia*
- 145. *Rhopaloblaste* (*Ptychoraphis*)
- 146. *Dictyosperma* (*Dicrosperma*, *Linoma*)
- 147. *Actinorhytis*
- 148. *Lavoixia*
- 149. *Alloschmidia*
- 150. *Cyphophoenix*
- 151. *Campecarpus*
- 152. *Basselinia* (*Microkentia*, *Nephrocarpus*)
- 153. *Cyphosperma* (*Taveunia*)
- 154. *Veillonia*
- 155. *Burretiokentia* (*Rhynchocarpa*)
- 156. *Physokentia* (*Goniosperma*)
- 157. *Goniocladus*

**Oncospermatinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 872, 874. 1883. (*'Oncospermeae'*). Type: **Oncosperma**.

- 158. *Deckenia*
- 159. *Acanthophoenix*
- 160. *Oncosperma* (*Keppleria*)
- 161. *Tectiphiala*
- 162. *Verschaffeltia*
- 163. *Roscheria*
- 164. *Phoenicophorium* (*Stevensonia*)
- 165. *Nephrosperma*

**Sclerospermatinae** J. Dransfield & N. Uhl, **subtribus nova**. *Palmae inermes robustae, brevicaules vel acaulescentes, columna coronae carenti; folia magna, bifida vel regulariter vel irregulariter pinnata, marginibus integris vel praemorsis; inflorescentia interfoliacea, spicata vel in 2 ordines ramificans, condensata, pedunculo brevi, crasso, prophylo parvo, bracteae pedunculares 1 completa,*

aliquot incompletae; rachillae crassae; flores saltem staminati in foveis vadis vel altis portati; sepala plerumque angusta, non convenientia; flores pistillati petalis imbricatis, gynoecio pseudomonomero; fructus stigmatate laterali vel apicali, embryone basali. Typus: **Sclerosperma** G. Mann & H. A. Wendland.

166. *Sclerosperma*

167. *Marojejya*

**Areceae incertae sedis**

168. *Masoala*

169. *Carpoxyton*

**Cocoeae** Martius in Endlicher, *Genera Plantarum* 254. 1837. ('*Cocoinae*')

**Beccariophoenicinae** J. Dransfield & N. Uhl, **subtribus nova**. Palma maxima, inermis, foliis regulariter pinnatis, foliolis acutis; inflorescentia in 1 (raro 2) ordines ramificans; bractea peduncularis versus apicem pedunculi portata, crassissima, lignosa, apparenter circumscissilis, anthesin decidua, rachillae basi tumidae; fructus 1-seminalis, endocarpio tenui, poro inconspicuo; endospermium ruminatum, embryone laterali versus basin. Typus: **Beccariophoenix** H. Jumelle & H. Perrier de la Bâthie.

170. *Beccariophoenix*

**Butiinae** Saakov, *Palms and their culture in the USSR* 193. 1954. Type: **Butia**.

(Hooker in Bentham & Hooker, *Genera Plantarum* 3: 873, 882. 1883. Published 'Eucocoinae' at the subtribal level to include, as type, the genus *Cocos*. Unfortunately the name is invalidly published under articles 19 and 32 of the International Code (ICBN 1983), being based on *Eucocos*, a proscribed name form. Three more names have been published at the subtribal level, which include genera belonging to the subtribe as we define it. These are *Butiinae* Saakov, *Arecastrinae* Saakov, and *Jubaeinae* Saakov (Saakov 1954). Of these we have chosen the first.)

171. *Butia*

172. *Jubaea* (*Micrococos*, *Molinaea*)

173. *Jubaeopsis*

174. *Cocos* (*Calappa*, *Coccus*)

175. *Syagrus* (*Arecastrum*, *Arikury*, *Arikuryroba*, *Barbosa*, *Chrysallidosperma*, *Langsdorffia*, *Platenia*, *Rhyticocos*)

176. *Lytocaryum* (*Glaziova*, *Microcoelum*)

177. *Parajubaea*

178. *Allagoptera* (*Diplothemium*)

179. *Polyandrocos*

**Attaleinae** Drude in Engler & Prantl, *Naturlichen Pflanzenfamilien* 2, 3: 27, 78.

1887. ('*Attaleae*'). Type: **Attalea**.

180. *Attalea* (*Lithocarpus*, *Pindarea*, *Sarinia*)

181. *Scheelea*

182. *Orbignya* (*Parascheelea*)

183. *Maximiliana* (*Englerophoenix*) (*Markleya*, an intergeneric hybrid between *Maximiliana* and *Orbignya* included here)

**Elaeidinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 873,

882. 1883. ('*Elaeideae*'). Type: **Elaeis**.

184. *Barcella*

185. *Elaeis* (*Alfonsia*, *Corozo*)

**Bactridinae** J. D. Hooker in Bentham & J. D. Hooker, *Genera Plantarum* 3: 873, 881. 1883. ('*Bactrideae*'). Type: **Bactris**.

- 186. *Acrocomia* (*Acanthococos*)
- 187. *Gastrococos*
- 188. *Aiphanes* (*Curima*, *Marara*, *Martinezia*, *Tilmia*)
- 189. *Bactris* (*Amylocarpus*, *Augustinea*, *Guilielma*, *Pyrenoglyphis*, *Yuyba*)
- 190. *Desmoncus* (*Atitara*)
- 191. *Astrocaryum* (*Avoira*, *Hexopetion*, *Toxophoenix*, *Ynesa*)

**Geonomeae** Drude in Martius, *Flora Brasiliensis* 3(2): 275. 1881.

- 192. *Pholidostachys*
- 193. *Welfia*
- 194. *Calyptronoma* (*Cocops*)
- 195. *Calyptrogyne*
- 196. *Asterogyne* (*Aristeyera*)
- 197. *Geonoma* (*Gynestum*, *Kalbrejera*, *Taenianthera*, *Vouay*)

Subfamily VI. **Phytelephantoideae** Drude in Engler & Prantl, *Natürlichen Pflanzenfamilien* 2, 3: 28, 86. 1887. ('*Phytelephantinae*'). Type: **Phytelephas**.

- 198. *Palandra*
- 199. *Phytelephas* (*Elephantusia*, *Yarina*)
- 200. *Ammandra*

### Acknowledgments

We are very grateful for nomenclatural advice from R. K. Brummitt and W. J. Dress; however, we take full responsibility for any misinterpretations of the Code.

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*Principes*, 30(1), 1986, pp. 12-16

## Dent Smith, a Recollection

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In *On the Beat and Offbeat*, a book about personalities I met as a newspaperman, I told how Dent Smith made his money in Wall Street during the Great Depression when other investors were going broke and jumping out windows. After years of near poverty, during which time he tried everything from making and selling soap to trading in used cars, Dent became a bond salesman at twenty-six, and, by his early thirties, had mastered Wall Street well enough to open his own brokerage firm, Dent Smith & Company. In 1940, ten years later, he retired.

Then, after trying his hand at potato growing in Maine and losing his shirt—at least the old shirt he was wearing at the time—he became a publisher, starting a pocket-size magazine, *Encore*. Not only was he publisher but editor and circulation manager. Bennett Cerf, who met Smith in 1942, wrote favorably about the magazine, a digest of the works of classical writers as well as modern. But as the Second World War progressed the price of paper went sky-high, eventually making the cost of production exceed Smith's income from sales. He sold *Encore* to *Saturday Review of Literature*, which, unable to make a profit, closed it down.

Moving to Florida in 1949, Dent settled at Daytona Beach and began looking for a hobby that would keep his hands busy and his mind occupied. He settled for collecting palms, as he had collected trees at his country estate in New Jersey. Some years later I asked him why, if he wanted to collect palms, he hadn't moved farther south to a warmer part of the peninsula. He replied:

"I had made a study of Florida and

found the Daytona Beach area to be the most desirable place to live—at least at that time. After considering the possibility of taking up palm collecting as a hobby, I made a study of the history of weather conditions along the east coast and at the same time looked about the Daytona area to see what kind of palms were growing there. From the information I gathered, I found that severe freezes, like the ones of 1895, 1917, and 1933, were few and far between. I found thirty-foot royal palms growing in Daytona Beach, and, by inquiring and reading what literature I could find on palms, I decided that I probably could grow perhaps a hundred species that were at least equal to the royal palm in their tolerance to frost."

Once Dent adopted palm collecting as a hobby, he immersed himself in the study of palms as he had done in the study of Wall Street. An aggressive learner as well as an aggressive collector, he traveled through the peninsula in search of palm collections and he began acquiring all the literature on palms that was available. For several years Dent had a standing order at the Fairchild Tropical Garden's bookshop to buy any new publication on palms. The botanical garden sought to keep in contact with publishers throughout the world that produced books covering the tropical plant spectrum. Upon receiving a new palm title, a book was sent to Dent along with a bill.

I met Dent Smith in 1956, the year I became director of the Fairchild Garden. He was a fascinating character, with the kind of personality that wins you over immediately. As I now look back, he was comparatively young, for he was in his

late fifties, full of energy, a tireless worker and tireless conversationalist. He was then promoting The Palm Society, which he had organized, as well as *Principes*, which he had recently launched. Dent was spending virtually all his time collecting palms, gathering information about palms, or selling others on the worth of palm collecting as a hobby and enlisting them in the Palm Society. He talked enthusiastically with anyone who showed even slight interest in palms, and if he met a person with less than a lukewarm interest in palms he persisted in returning to the subject and sought to make a convert, although he may have met the person only moments before. He considered himself a rank "palm nut," and he sought to make everybody he met a nut about palms.

A frequent visitor to the Fairchild Gardens, he spent much of each day studying palms, making photographs of palms, in the meantime collaring visitors with the hope of finding others interested in palms. He sought to meet all the people in the Miami area who had palm collections, even if their collections amounted to no more than four or five species. He wanted to meet anybody who had any interest in palms. I introduced him to the people I knew who had shown an interest in palms and I took him to the Kampong to see David Fairchild's palm collection, to the Coconut Grove Palmetum, developed by Robert H. Montgomery, as well as to the federal Plant Introduction Garden at Chapman Field. Some of the places I took him he already had been, but went with me nevertheless, and without saying he had been there. He could never get enough of seeing these important collections.

Dent mentioned several times his disappointment in not having met Dr. Fairchild, who died in 1954, or Colonel Montgomery, who died in 1953. But he won a standing invitation from Mrs. Fairchild to visit the Kampong and from Mrs. Montgomery to visit the Palmetum.

My wife gave dinner parties so Dent

could meet "palm people," as he liked to describe them. One day he remarked that he had not met Mrs. W. J. Krome of Homestead, widow of Henry M. Flagler's chief engineer in the building of the Overseas Railway to Key West.

"But she's not a palm addict," I said. "She's a tropical fruit collector."

"I'll bet she knows a lot about palms," said Dent, "and besides I like to collect tropical fruits, too."

So we invited Mrs. Krome to Sunday brunch and she and Dent had a non-stop three-hour talk about palms and tropical fruits.

Dent's interest in palms was such that no detail about a species was too insignificant for him to store in his memory. During visits to Miami he would return to the Fairchild Garden day after day to the same palms he was studying at the moment, observing the living specimens to learn all he could about them. Upon planting the seed of a palm at Daytona Beach he recorded all significant information, including the name, source, and date of planting. He later recorded the date of germination, and, upon adding the young palm to his permanent collection, he recorded the site. Records continued over the years as he noted the palm's progress, or lack of progress, and especially its tolerance to the sometimes low temperatures that hit that area in winter. Has anyone ever kept such careful records of palms' temperature tolerance as Dent Smith? His records, which have been published in *Principes*, are a must for anyone interested in making a palm collection in Florida, or in any other area of the subtropical world that is subject to occasional frost.

Dent was an incurable optimist. If a freeze struck his tender palms, killing the foliage and the buds, he was very slow to lose faith in their recovery. Cluster type palms often did recover, sending up new sprouts from underground after all above-ground stems had been killed. And sometimes, to the surprise of everyone but Dent,

a single-trunk palm that appeared to be dead beyond any hope of recovery would contain enough energy to generate a new bud that gladdened the heart of the collector and added further proof of the value of faith. Unfortunately, during Dent's last years the upper part of the Florida peninsula was visited by a severe freeze virtually every year. As I recall, he had four in a row. In a couple of these freezes the temperature dropped to 20° F. More than a hundred thousand acres of Florida's citrus, including groves more than half a century old, were wiped out. Although jolted to his heels by the severe damage to his collection, Dent's interest seemed never to flag. Visiting him, we walked among the dead palms while he expressed hope and often certainty that this one or that one would recover.

"It's recovered before," he said with a faith that forbade contradiction. "I'll wait awhile before I put a chain saw to it."

Dent was a frequent visitor to our place on Montgomery Drive, in the southwest section of the Miami area. We would often walk over those five acres of pines and mixed plantings of tropical fruits, West Indian plants, and a scattering of other species, including palms, and he would lament that the open spaces contained no plantings.

"I don't want to plant anything in the vistas," I said in defense. "That would spoil the landscape."

"Landscape!" exclaimed Dent. "I'd fill those areas with palms," he added, impatient with any suggestion of design. Like Fairchild and Montgomery, Dent Smith was a collector, not a landscape designer.

Shortly after I became director of the Fairchild Garden, Dent complained about a mislabeled palm in the *Sabal* collection. He insisted that I accompany him to the lot so he could show me. I knew what he referred to, a sabal twenty feet tall with a trunk two feet in diameter, which had been labeled *Sabal minor*. But he was adamant, insisting that I go with him so

we could be sure we were talking about the same palm.

"We've been waiting for Hal Moore to identify this *Sabal* correctly, so we can put the proper label on it," I said.

"That's no excuse for tagging a palm with the wrong label," he replied, growing angry. "Do you know what *Sabal minor* is? It's a trunkless palm that grows in the open moist woods of north Florida and Louisiana. Anybody who knows anything about palms will look at that label and laugh. Remove that *Sabal minor* tag and replace it with one identifying the palm as *Sabal* sp. until Hal can come up with the correct name."

I agreed, and ordered the name change made. It didn't get done, however, and when Dent returned a few weeks later he went straight to the *Sabal* plot to check. Then he came straight to me.

"If that *Sabal minor* label is still on that big sabal the next time I come to Miami," he said, his eyes blazing, "I'm going to withdraw my support of the Fairchild Garden."

The correction was made within the hour.

At the southwest corner of the Fairchild Garden, facing Old Cutler Road, was a fine house that Arthur Vining Davis, the aluminum king, had built for the former director, Paul Allen. Since my wife and I insisted on remaining in our home, the Davis House, as we called it, was not in use, and I got permission from the board of trustees to open it for visiting scientists to stay. Although Dent was no scientist, he was doing a lot of important work in promoting an interest in palms, and so I invited him to stay in the Davis House when he was in town. Accepting the invitation, he installed a telephone and paid the monthly bills, and he bought a quantity of linen for the beds, towels, and kitchen equipment. To him the Davis House was like heaven. He could step out the back door and be among the largest palm collection in North America. His

response was to become a life member of the Garden, and he promoted the Garden's palm collection among the members of The Palm Society.

Eventually the Davis House became occupied by Dr. P. B. Tomlinson, plant anatomist, who came to take charge of research at the Fairchild Garden and to work on the anatomy of palms. After that Dent stayed with us when he visited Miami. Fearing he would be trouble for Evelyn, my wife, he insisted on going out to eat in the evenings. When we did go out we usually invited one or two couples, such as the H. L. Loomises or Robert Wilsons, so that Dent would be able to carry on his marathon conversation about palms.

No, Dent did not always talk palms in our house. Out of deference to Evelyn, he talked of other matters, especially his life in Mexico as a young man, his learning of Spanish, his meeting, courtship and marriage to the vivacious Guadalupe (Marta) Hopper y Martinez, of his financial hardships during the early years of their marriage, then how he hit a rich vein of investments in Wall Street. Dent made most of his money during the Depression by trading in bonds of defunct railroads and interurban rail transportation systems. At one time he figured he owned the "fourth wheel" of every bankrupt interurban rail transportation system in the country.

"A great many of the owners of the bonds in these companies failed to realize their value," he said. "Actually, the bonds often represented real estate worth a great deal of money. Stockholders were washed out when the firms went bankrupt, but not the bondholders."

Dent acquired most of his bonds at auction sales. One day he found himself bidding on the bonds of the bankrupt Chesterfield & Lancaster Railroad, a short line in South Carolina he had never heard of. When the bidding reached \$200, Dent learned that he, the final bidder, owned a thirty-mile-long railroad, with rolling stock

and valuable real estate, including a five-story office building at Cheraw, South Carolina.

"It was a crazy time," he recalled. "Everybody was unloading. They thought the end of the world was near."

After my retirement from The Miami Herald in 1973, we built a fine camp on a friend's ranch in Big Cypress Swamp. Located on an old Indian site, probably used onetime by Calusa hunters, the camp overlooked an alligator flag (*Thalia*) marsh partially ringed by a cypress stand, while a few hundred feet due south was a cabbage palm hammock that was host to deer, wild turkeys, and sometimes a visiting bear. Tracks of panthers were sometimes seen in the area. We liked this hammock. The moist ground was covered with a variety of swamp ferns, while the palms themselves bore three or four species of fern, including a rich growth of shoestring fern on their old trunks. We couldn't wait to invite Dent Smith to our camp and show him this sumptuous wilderness, and particularly the cabbage palm hammock. Eventually we did take him. It had recently rained and we had to make our way slowly in a pickup truck over a wet road in which there were many deep mud holes. Dent complained. Who would ever think of building a camp in a place so hard to reach? While Evelyn was preparing lunch, I walked Dent over to the palm hammock.

"Isn't this a beautiful collection of sabals?" I suggested as we entered the hammock. "And look at the shoestring fern. Some of those blades must be two feet long."

Dent stopped, looked about, then turned to me.

"I don't see anything so great about this hammock," he said. "It's only a colony of *Sabal palmetto*. I've got this species in my collection."

We didn't penetrate the hammock any farther. Dent had no interest in this unique setting of *Sabal palmetto* in the wilderness of Big Cypress Swamp.

We departed early to return to Miami. As the truck labored over six miles of muddy road toward the paved highway, Dent said:

"What you need is a jeep—a four-wheel-drive vehicle. You know what I'm gonna do? I'm gonna leave you my jeep, in my will."

And so he did. It was the sort of thing that Dent Smith would do.

Dent always came alone to Miami, for Marta was in poor health and could not travel with him. The loss of their only son in the Korean War had helped to undermine her health. But when Evelyn and I visited Daytona Beach, Marta always seemed able to muster enough energy so that for awhile she was her old vivacious self. We went out to dinner, for Marta was too weak to prepare a meal for guests. One night we went to a place where a dance band was playing. Marta was in such great spirits that we stayed about three hours, dancing and having a big time. But next day Marta was unable to get out of bed.

"Don't worry about me," she said. "I'll be all right. I thoroughly enjoyed myself last night."

Because of Marta's health, Dent never stayed away from home longer than a few days at a time. Knowing his enthusiasm for palms, I sought to interest him in making collecting trips. He did make a few short ones with Stanley Kiem, then Fairchild Garden superintendent, but he refused to take long journeys that would keep him out of the country for longer than a few days.

Time passed. Marta died. Soon after losing Marta, Dent lost his white-haired secretary, Miss Margueriete Martin, who had stuck with him through the arduous Wall Street years and whose secretarial work helped him to organize and promote The Palm Society. Shortly thereafter he lost his only daughter, Jessie Clark, to

cancer. Dent drove down to Miami and stayed with us a couple of days. He was in low spirits. His appetite was poor. He had lost weight. We feared he soon would follow those he had lost. Then, during a trip through the British Isles, he met a younger woman, Doris J. Murphy, a fellow tourist. Although entering his eighties, Dent found that much life was left in the old frame after all. He and Doris soon were married. Dent took a new lease on life and happiness.

This should be a perfect place to end the story. But, alas, Dent soon discovered he had lung cancer. Figuring he was not long for this world, he began getting his affairs in order. Although he did lose a great deal of his vitality, Dent continued to hang on tenaciously. Too old to undergo the rigors of chemotherapy, he was content to work among his palm collection while waiting for the inevitable. But the inevitable didn't happen as quickly as he expected. Instead, he regained enough vitality to drive to North Carolina, towing an Airstream trailer, and he and Doris visited us in Burnsville before traveling on to Virginia, his home state. The following year he and Doris took the Airstream trailer as far as New England. After that he parked the Airstream among his palms and used it as a "guest trailer." We called him on his eighty-sixth birthday.

"I feel lucky as hell," he said.

While complaining of a lack of endurance—he had given up walking two miles on the beach every day—he otherwise felt fine. He still worked several hours every day among his palms. And he maintained his sense of humor. We sensed he was a happy man.

"Four years ago the doctors had me dying of cancer within a year," he said, laughing. "You know what? I may fool them. I may die of something else—old age, for instance."



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## Dent Smith's Horticultural Contributions

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Some thirty years ago, in November of 1956, Dent Smith walked into my life. He had come to see me at Longwood Gardens, fresh from visiting one of my former students, Hal Moore, at the Bailey Hortorium. Dent needed, he claimed, the help of professional botanists to insure the vitality of his newly-established Palm Society and its journal *Principes*. His sales pitch to me was that Dr. Moore had agreed to accept the editorship of *Principes* provided that I would consent to serve the Society for a term or two as President. Who could say no to Dent Smith! From then on Dent remained a loyal, helpful and respected friend until his recent passing, and my wife and I recall with great pleasure the hospitality and discussions with Dent and his family during numerous visits to their Florida home.

Dent's avocation of course was palm horticulture. In pursuing it he made two principal contributions. Noting that many other palmophiles shared his interest he saw the value of having all such enthusiasts joined together in a new plant society devoted solely to palms. Furthermore he realized that the active promotion of new information about palms, as well as the sharing of what was already known, could only be accomplished by means of some sort of printed periodical devoted solely to the *Palmae*. By personally establishing The Palm Society and shortly thereafter its journal *Principes*, Dent Smith had accomplished the first of his principal contributions to the field of his interest. His second contribution was the substantial body of new information, primarily cultural, that he gathered carefully while growing and observing the many kinds of

palms that he planted at his Daytona Beach residence (Fig. 1). Because his garden was located close to the northernmost limit of culture for most palms his more valuable published observations have to do with the relative hardiness of the cultivated taxa.

Dent Smith was one of those unusual persons who, without benefit of formal training in either botany or horticulture, became a "pro" in his avocation. The remarkable thing is that palms, or for that matter any other plants, did not enter his life seriously until after his retirement at the rather early age of 42. This followed a successful business career as a Wall Street broker. As it turned out, at retirement nearly half of his life-span had passed. At the time, 1939, Dent probably had no idea that he would become deeply involved with plants and specifically the palms. It is true that trees interested him. A few years earlier he had established living collections of a sort at family residences in New Jersey and Vermont. Where, when and how this interest in trees developed I never heard him say. His unusual *vita* for the years from boyhood to 1949, when at age 52 he moved permanently to Florida (see "Dent Smith" in *Principes* 1: 120-121) gives no indication of an early interest in the plant world. The impressionable student years were occupied mainly in military-oriented schools . . . hardly the kind of place to introduce one to elementary plant science though one which quite obviously trained the youngster in the proper use of the King's English, of which he was obviously a master. Formal schooling ended at age 16 after a single semester of junior-year

college work at Auburn University. The next decade brought a variety of jobs, mostly temporary, during which he enjoyed and explored the wonders of the arid country of the American Southwest and adjacent Mexico, where he was first married.

Obviously that whole desert region entranced him greatly. And it was there, in 1924 at age 27, that palms apparently first cast their influence upon him. They were the wild washingtonias of the Colorado Desert. The impression they made was so indelible that 34 years later in 1958 he described them as vividly as though he had seen them yesterday (see *Principes* 2: 41-51, "The California Habitat of *Washingtonia filifera*"). This article is a good example of Dent Smith's talent for descriptive prose. Combined with an equivalent talent in expressive conversation he possessed two potent tools that later helped in the task of establishing The Palm Society.

Journalism appears to have attracted Dent Smith very early in his adult life. Fresh from college in his late teens he worked briefly as a reporter on the Charleston Gazette. In Palm Springs, he writes "I explored the desert, wrote reams of high-toned literature which was rudely rejected by sundry magazines . . ." And it is recorded that he retired "so as to give more time to my plant collections . . . and to do some writing."

His retirement writing was concerned initially with a national magazine, *Encore*, that he founded, edited and published from 1942 to 1945. Anyone who has read published issues of *Encore* will appreciate its excellence. It resembled *Reader's Digest* in format and size. Unlike the latter its contents, as its name implies, were a sampling in reprinted or digest form of selections of the world's great writings of the past. Through his *Encore* Dent was able to edit and see published the sort of "high-toned literature" he himself had hoped to contribute from his own writings during

his sojourn in Palm Springs. Why *Encore* failed I do not know but it may have been a quirk of timing, for its short life coincided with a country deeply involved in World War II. Had *Encore* been successful its editor-publisher probably would have remained in the North and we would have had no Dent Smith moving south, enthusiastically discovering and growing palms and/or founding a Palm Society and its journal *Principes*!

Obviously his several years with *Encore* gave Dent much valuable editorial and publishing experience. This served him well a decade later, in 1955, when he founded The Palm Society and especially the following year when he launched *Principes*. As original editor of *Principes*, as well as of the mimeographed Palm Society "Bulletin" that preceded it, Dent followed the format he had developed for *Encore*, namely the publication of excerpts ("encores") about palms from publications not readily available to most readers. Included among the selections were those of John Bartram, Berthold Seemann, John K. Small, L. H. Bailey, and David Fairchild. But Editor Smith fully realized that to become a widely respected journal *Principes* needed original contributions from its members," to provide more engaging fare. He also recognized that, unlike a literary publication, *Principes* required ideally a botanist-editor recognized also as a specialist on palms. Only such a person, he felt, would command respect in his search and in his review of appropriate manuscript material for publication. As we all know, before the first printed volume of *Principes* had been completed, he had found that ideal editor in Hal Moore.

With that mission accomplished, the final critical step, following the founding of the Palm Society, Dent Smith was able to return to what had been since 1949 his "one major activity . . . as an amateur grower of palms . . . to cultivate specimens of every genus and species obtain-

able." He had established a garden at Daytona Beach in the interim between the demise of Encore and his earliest Palm Society days. Moving to Florida in 1949 he had bought several acres of undeveloped hammock land bordering the inter-coastal waterway. There his home and garden were to be sited.

It was apparent that his gardening aim was not solely to accumulate palms *per se* but rather also to learn as much as he could about their culture and biology from his own plantings as well as from those of others. Like other new palmophiles he was acquiring seed to germinate and in so doing was finding problems. Writing me in 1956 he explained: "what we need but have not got is a timetable for the germination of palm seed. I hope gradually to ferret out this information." He obviously knew appropriate transplanting techniques: "it is best to follow the ancient adage to plant a fifty-cent palm in a fifty-dollar hole." But the information he generated that was to prove the most useful came after his plantings had been fully established. This had to do with cold tolerance and came about because his Daytona Beach garden was located on the very fringes of the climatic zone where palms can be grown. Thus only the hardiest species could be expected to survive. His detailed published accounts on the cold tolerance of the many taxa in his collection appeared rather soon in his palm gardening career. By many they are considered the most important of his published contributions. Indeed when during the preparation of *Hortus III* (1976) the need arose to include standard hardiness zone numbers for the palm taxa to be included, it was to Dent Smith that the editors turned for the pertinent figures. Doubtless his hardiness data would have been updated to cover the results of recent winter freezes in Florida but they came at a time when Dent's health was unfortunately failing. Luckily though he was still able to get out and

enjoy to the last the palms still flourishing in his garden.

Fortunately Dent Smith's numerous contributions to our knowledge of palms have been recognized. "His" Palm Society very appropriately awarded him an Honorary Membership. The utilitarian Index to the first twenty volumes of *Principes* (1956 to 1976) was dedicated by the compiler to the Journal's founding editor. And an honorary Doctorate of Science was awarded Dent in 1983 by the Florida Institute of Technology whose campus sports one of the finest palm collections in Florida, many of the plants of which originated in Dent Smith's own garden.

Dent's voluminous correspondence<sup>1</sup> has been willed to the Fairchild Tropical Garden, an appropriate gesture, for much of what he learned about palms—as well as many of his own plants, originated as seed or seedlings from that outstanding garden which honored him in 1958 with its Founders Medal.

Publications on palms from the pen of Dent Smith are summarized in the following list. They appeared almost exclusively in publications established by him for The Palm Society, first in its *Bulletin* (January, 1956 through July, 1956, in six mimeographed numbers) and subsequently in the pages of *Principes*.

Contributions of Dent Smith listed chronologically as they appeared in the six numbers of the Bulletin, issued from January through July, 1956, in mimeographed

<sup>1</sup> Representing in Dent Smith's own words (May 30, 1982, letter to Dr. Stieber of Hunt Institute):

"... all of my correspondence concerning palms over the last thirty years, comprised of letters to and from botanists, horticulturalists, plant nurserymen and just plain 'dirt gardeners.' For a wild guess, there may be two thousand or more letters in all, not counting my responses. Of those received, perhaps five hundred (another very wild guess), came from the late Dr. Harold E. Moore, Jr., successor to Liberty Hyde Bailey's extensive interest in the palms."

form. There is no number for June, the sixth number being the July issue.

- The Society. 1: 1-3  
 The Bulletin. 1: 3  
 How many palms. 1: 3-5  
 A foul deed. 1: 5  
 Bartram on palms. 1: 5-6  
 Cocos plumosa. 1: 6-7  
 Canine propagator. 1: 7  
 Ganoderma sulcata. 1: 7-8  
 Princes of the Principes [Ceroxyton]. 1: 9-11  
 More about Ceroxyton 1: 11-12  
 Progress of the Society. 2: 1  
 Arctic air. 2: 1-2  
 Search for palmologists. 2: 2-3  
 Sub-Tropical Experiment Station [Florida]. 2: 3-5  
 Two hardy palms [Trithrinax & Nannorrhops]. 2: 7-8  
 Brother León. 2: 9  
 Organizational Meeting. 3: 1  
 Business of the Meeting. 3: 1-2  
 Support of the Society. 3: 2-3  
 Printed publications. 3: 3  
 Binomials. 3: 3-7  
 The Dhoom palms [Hyphaene]. 3: 8-11  
 Notice of meeting. 4: 1  
 Progress of the Society. 4: 2  
 Mailbag. 4: 2-4  
 Oldtimers [Mr. and Mrs. A. C. Langlois]. 4: 4  
 Expedition to Cuba. 4: 6-10, with 8 photographs  
 Atkins Garden [Cienfuegos, Cuba, with list of palms]. 4: 10-13  
 The recent meeting (with: Adoption of Bylaws, Election of officers, Election of Directors, Finances, Membership). 5: 1-4  
 Seed-and-plant Exchange list. 5: 4  
 "That Mexican Palm" [Orbignya guacayule]. 5: 10-11  
 The Palm Beetle. 5: 11  
 The present membership (with: Finances, Printed Publications, New Members, Tax status). 6: 1-4  
 Palm culture. 6: 4-8  
 Palms at St. Leo [Florida]. 6: 8-9  
 Availability of palm specimens. 6: 9-10

*Note:* Except for 1961a. all citations are from Principes

- 1956a. The Palm Society. 1: 2  
 1956b. The palms of Chapman Field. 1: 12-14  
 1956c. Brevities [Arenga engleri] 1: 14-16  
 1956d. The rain forests of Golfo Dulce (review) 1: 16  
 1956e. Sources of palm seed. 1: 17-18  
 1956f. The palmyra palms. 1: 19-20

- 1957a. The Palm Society. 1: 30-31, 70-72  
 1957b. New officers of the Society. 1: 72-73  
 1957c. Palms at a high latitude in Florida. 1: 104-114, with 10 figs.  
 1957d. Comments by the past president. 1: 122  
 1958a. Palm letter from Mexico. 2: 9-16, with 7 figs.  
 1958b. The California habitat of *Washingtonia filifera*. 2: 41-51, figs. 29-31  
 1958c. Cold tolerance of the cultivated palms. 2: 116-126  
 1959a. Notes of a palmophile. 3: 100-101, 107-111, fig. 57-58  
 1959b. In and out of the palm garden. 3: 133-139  
 1960a. In and out of the palm garden. 4: 64-66, 144-146  
 1960b. The serpent palm. 4: 132-133, fig. 62  
 1960c. Tallest palms in the United States? 4: 137-140, figs. 67-68  
 1961a. Cold tolerance of cultivated palms. The American Horticultural Magazine 40: 151-157  
 1961b. In and out of the palm garden. 5: 42-46  
 1963. Growth rates of certain palms. 7: 7-18, figs. 1-20  
 1964a. More about cold tolerance. 8: 26-39, figs. 9-17  
 1964b. The editor's corner. 8: 39-40, 76  
 1967a. About editors and editing. 11: 11-14  
 1967b. Two cold-resistant palms. 11: 33-36, figs. 1-3  
 1968. A very special *Livistona*. 12: 27-30, fig.  
 1970. Palms are where you find them. 14: 129-135, figs. 1-8  
 1972a. Fruiting in the saw palmetto. 16: 30-33, fig. 1-3  
 1972b. *Lucita* retires. 16: 34-36, fig.  
 1972c. Palmologue. 16: 131  
 1973. Palmologue. 17: 20, 49-57, 84-90, 160-169, fig. 1-13  
 1974. Palmologue. 18: 58-59, 137  
 1975. Palmologue. 19: 65-71, 137-146  
 1976. Appreciation of H. F. Loomis. 20: 171-172  
 1978. Natural History notes. 22: 41-42  
 1982. Smith, Dent and H. E. Moore, Jr. Early days of the Palm Society and Principes revealed in letters: excerpts from correspondence between Dent Smith and H. E. Moore, Jr. 26: 55-69  
 1986a. U.S.D.A. hardiness zones as applied to cultivated palms, and other horticultural comments. 30: 26-31.  
 1986b. Brief comments on palms suited to indoor culture. 30: 32-34.

*Principes*, 30(1), 1986, pp. 21-23

## Along the Dent Smith Trail

JEROME P. KEUPER

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For me, to walk along the Dent Smith Trail in the Palm Garden at Florida Institute of Technology is to remember an old friend whom I greatly admired and a man who left such a wonderful mark on this natural haven on our Melbourne campus. Ruminating what I might write about Dent, I realize that in the nearly quarter century that I have known him, details of the many dates, places and events of our association have become obscure. But the larger memory of that fortunate friendship with Dent Smith can never be forgotten. These are memories that are forever clear and cherished.

My initiation into the fraternity of palm lovers came in the early 1960's, in the form of a hard freeze just after I had planted a long row of roystoneas to landscape our growing campus. Fortunately, I had heard about a man in Daytona Beach who reportedly knew a great deal about which plants could stand the freezes of Central Florida, and which could not. This was the man I needed.

I lost no time in visiting Dent Smith. I sought his advice, and stood in admiration of the great variety of palms he was growing. I found him not only willing to travel to Melbourne at my invitation, but anxious to visit our campus and study first-hand my landscaping woes.

Dent arrived in a most unexpected manner; he appeared in an outboard motorboat in the Melbourne Harbor perched on a case of beer. But his expert eyes were clear as he surveyed the campus. Dent was most impressed with a hammock that cuts across the university's campus, and with the ever flowing stream

that winds through the thickly wooded area.

"This is the place to grow palms," was his pronouncement. "There is plenty of moisture, it's a place of natural beauty, and there is ample protection from winter's north winds."

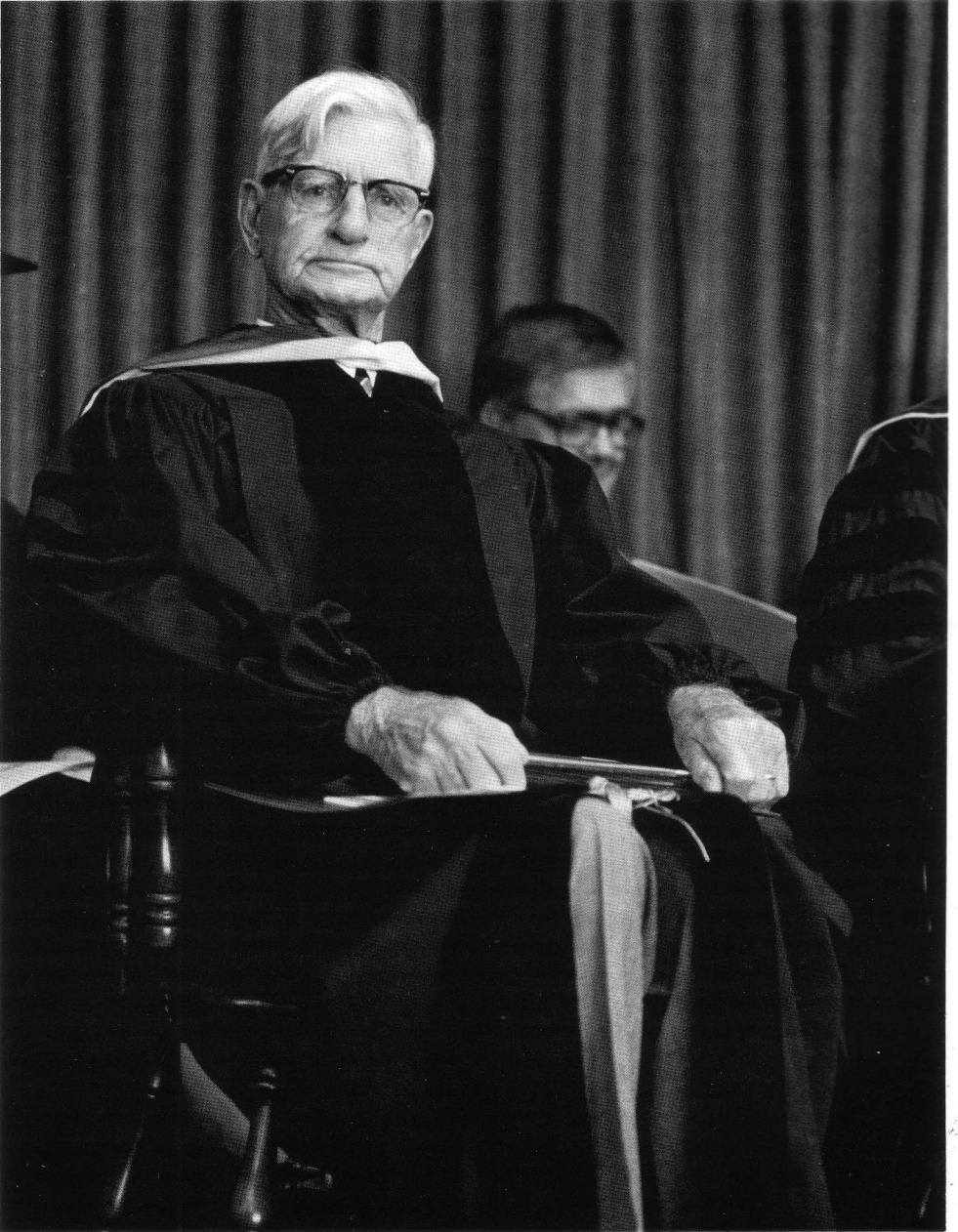
So plant palms we did. It wasn't long before Dent arrived with a truckload of *Phoenix canariensis*. He was accompanied by Dewey, his faithful gardener. Dent always remembered with much humor the great pride Dewey took in telling the university landscapers just how to plant palm trees.

The number of trees added to the hammock grew with Dent's enthusiastic interest in the project. He could not rest until the banks of the small stream were covered with *Rhapidophyllum hystrix*. The setting provided the needle palms with an ideal home.

Dent also considered that part of our campus to be the perfect spot to grow *Chamaedorea microspadix*. He was right. We planted several clumps and they thrived without harm from the elements to this day. His only disappointment came when he scattered thousands of their seeds throughout the garden, but was never rewarded with a single sprout.

Dent absolutely delighted in growing seedlings in Daytona Beach for the F.I.T. Palm Garden in Melbourne. Each year he would send down hundreds of small, cold-tolerant palms for us to plant along the Dent Smith Trail.

On my last visit to Dent, shortly before his death, he was eager to show me the latest crop of palms which he was getting



1. Dent Smith receiving Honorary Doctor of Science Degree from Florida Institute of Technology, 10 December 1983.

ready to ship to us. This past summer nearly 500 trees arrived along that "Palm Express" route he had created between his home at Daytona Beach and the campus in Melbourne.

Along with palms, the Spanish culture and language held a deep interest for Dent. He was, of course, fluent in Spanish. He delighted in speaking Spanish with me, and in exchanging books in the Spanish language. Occasionally, he would send me letters in Spanish on cassette tapes. He was particularly pleased that the first international meeting of The Palm Society took place in Mexico City. After that meeting, Dent and I, along with Otto Martens and others, visited Tikal in Guatemala. What an opportunity that visit afforded Dent! With boundless enthusiasm he climbed in and out of the palms, and up and down the pyramids to get a better view of the trees.

The years of our association brought many of those special times. I remember one occasion when Dent accompanied me to Miami to search for more palms in need of a home. Back at the campus, the rusty egg cans holding the trees fell apart when we were unloading the truck. We worked half the night getting the stuff into the ground before several hundred *Acoelorrhaphe wrightii* could expire from exposure. Dent continued to joke about that mishap for many years, especially each time he would see what are now magnificent clumps of palms.

He also liked to reminisce about the

time that he and I called upon a palm fancier in southeast Florida, unannounced. We wanted to pay our respects for his collection of palms which could be seen from the road. The reception we got was cold to say the least. But a good bit of scotch and a thorough discussion of the world's palms thawed things out. Dent and I stayed until well after midnight. Reluctantly, we eventually tore ourselves away and made our way home. That particular evening with Dent is firmly fixed in my happy memory box.

Walking along Dent Smith Trail today, there are memories of Dent also walking in this garden accompanied by friends who have gone before him. I think of palm devotees like Hal Moore, Otto Martens, and other good friends past and present whom Dent admired so much.

Dent visited F.I.T. whenever he could. On his last visit he was awarded the Honorary Doctor of Science Degree by our university (Fig. 1). He was cited for his dedication and work in helping to create and build an outstanding Palm Garden to enhance and beautify our campus.

Today, the F.I.T. Palm Garden, laced together by the Dent Smith Trail and shaped so much by Dent's dedication and his knowledge, is a botanical jewel preserved within a city rapidly growing around it. It is, I believe, a fitting symbol of a man who, in his own unique way, contributed so significantly to making this world, not only a better place, but a more interesting place, in which to live.

*Principes*, 30(1), 1986, p. 24

## Dent Smith's Favorite Palm

MELVIN W. SNEED

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In the beginning, Dent conceived of and created the *Journal of The Palm Society*, which over the years has been accepted, generally, all over the world as the foremost authority (the Bible) of current information about palms. Few other publications can boast of comparable editorship and growth in excellence since Dent founded it; in early years he paid to publish it out of his own pocket and continued to contribute to it with down-to-earth words of wisdom.

He groped around a great deal before he selected a title for the *Journal*. But he came up with a good one—all in true Dent Smith vernacular. And Dent could handle “the vernacular” as well as any one ever could. In fact, he was a master of it. So he said, in the beginning of the very first issue of the *Journal*. “*Principes*, plural of the Latin noun, *princeps*, is an alternative name of venerable age for the palms—the Princes of the vegetable kingdom.”

Somehow I always thought that Dent had a certain palm in mind when he delved into the “Princes of the vegetable kingdom.” He must have had some palm-image conceptions; certainly he wasn’t considering spinach, or carrots! I’m disposed to think, to this day, that somehow he had in mind a royal palm (*Roystonea*) which indeed is princely and always will be a palm trade-mark, although too many people perceive palms as nothing but coconuts.

No, Dent had a deeper perception of palms. He knew there were some 3,000 species of them. And he traveled to see them and, perhaps, even purchase a seedling at the annual Palm Society sale in Fairchild Garden, Miami, which he is attending in the accompanying picture with his wife, Doris. And note in the picture

that Dent is well equipped with his camera paraphernalia, as photography was another way he enjoyed capturing specimens.

So, did Dent have a favorite palm? He struggled for years with cold weather at Daytona Beach and came up with some preferred species that might be “cold-hardy.” He wrote about that in early issues of *Principes*.

But, personally, I never did get a definitive statement out of him as to his preference for a palm. The last time we talked about it I wheedled him; “Come on, Dent, which is your FAVORITE palm?” He turned his head around a time or two as he thought about this, and replied, “Mel, I won’t pick out a favorite palm; I like ALL of them!”



1. Dent and Doris at a palm sale at Fairchild Tropical Garden, October 1980. Photo by Melvin W. Sneed.



## Dent Smith and The Palm Society

LUCITA HARDIE WAIT

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One day when I was working as Curator of the Library and Museum at Fairchild Tropical Garden, Coral Gables, Florida, the door opened and a tall handsome man about fifty years old came in.

"Mrs. Wait, I am Dent Smith. I live in Daytona Beach. I have come to look at palms."

Thus began a friendship that lasted for over thirty years. We went out and "looked at palms" then and about every six months thereafter for many years. Dent was an ardent collector and student of palms. He would come to southern Florida and take back to Daytona Beach a U-haul truck loaded with small palms of many kinds. He collected an excellent group of them, both cold-hardy and tender, over about ten years of good weather, before a freeze decimated them. He repeated this act many times, until he finally said, "I'm tired of murdering palms."

One day he was in my office and said, "Lucita, there is every kind of plant society—why don't we have a Palm Society? Would you join if we started one?"

"Of course I would," I replied.

"Well, you are the fourth member. I have found two others who would join. Do you think we could find seventy-five peo-

ple over the whole world who would join?" (We now have 2,084 members!)

Dent undertook the entire work of the Society for the first year. He was President, Treasurer, Secretary, everything. He published several Bulletins before we felt we could afford *Principes*, and wrote quantities of letters. He told me once that he had spent over \$3,000 on the Society during that year.

I was taking a sabbatical from my job at Fairchild Tropical Garden, so he asked me if I would become the executive secretary of The Palm Society. I agreed, and we had about twenty years of good times, he telling me what to do and I doing it.

Dent was a firm supporter of The Palm Society during all these years, contributing generously of money and interest even after his health began to fail.

He contributed a great deal to the growing of palms when he started The Palm Society. For many years he had an outstanding collection, and was generous in letting people come to see it. He encouraged the Society both monetarily and with his interest, and helped many beginning collectors get started. He was the heart and soul of the Society and we will all miss him very much.

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*Principes*, 30(1), 1986, pp. 26-31

## U.S.D.A. Hardiness Zones as Applied to Cultivated Palms, and Other Horticultural Comments<sup>1</sup>

DENT SMITH

Using the USDA Hardiness Zones Map<sup>2</sup> for palms in the continental United States poses very knotty problems in many cases. If I know anything on the subject of palm hardiness, it is not only because I have learned the hard way but because, and chiefly because, I have for years been studying as a contributing sideline meteorology and comparative climatology. Add to this that I have been everywhere in these states where palms are grown, whether few or many, and I have observed with all the zealous fanaticism that could be mustered just what palms are grown where—as well as checking with local growers and fanciers in very state where any palms can be grown, minus only Pennsylvania and Rhode Island. Them's my credentials for what follows.

The absolute yearly minima from 1932 to 1960, as averaged out on the color map, cover entirely too wide a range for the palms. Zoning for palms is impractical for the reason that within the mapped zones, or any other imaginary zones of good extent, there are several distinct cli-

mates (especially here in Florida) in some of which certain palms may be grown with assurance of success and others in which the same palms positively will fail. Let's take one zone, which on this map is 9b, in which I grow now (in 1960) 150 species belonging to about 55 genera. Zone 9b in Florida is delineated as far north as Jacksonville and as far south as Lake Okechobee. Within this zone the climatological differences in winter are huge. Here there have always been hibiscus plants in virtually every dooryard—in Jacksonville none, because they are winter killed. For palms, Jacksonville, Ocala, and many other parts of the zone are limited to a handful of the very hardiest palms, and their climate is colder than parts of the South Carolina and Georgia immediate coasts. Frost occurs at Homestead, thirty miles south of Miami, about twice as often as it does where I live. Zone 10, the warmest in the continental U.S., contains climates too rigorous for at least fifty of the palms that are successfully grown right here (Daytona Beach).

Continuing with my own zone, 9b: This zone takes in outside of Florida a large area around New Orleans, another radiating out and northward from Brownsville, Texas, one in southwestern Arizona, and various in California and on north to Oregon. Well, you see, it would be a pretty forlorn distortion to name the palms hardy enough for a zone of this scope. The heck of it is, though, that one can't explain away the differences just within one zone by compartmenting the zone into 9a, 9b, 9c, 9d, and all the way to 9z, without

<sup>1</sup> This article is an edited digest of information contained in several lengthy communications to Walter Hodge from Dent Smith (in Daytona Beach, FL.) and intended as raw data of possible use in the preparation of "Cultivated Palms" (the Special Issue of the *American Horticultural Magazine*, published in January, 1961) and for *Hortus III* (1976). The material here presented brings useful details on the relative hardiness of cultivated taxa into one convenient place—W.H.H.

<sup>2</sup> See "Plant Hardiness Zone Map," *Miscellaneous Publication* Number 814, Agricultural Research Service, United States Department of Agriculture, May 1960.

writing a complementary explanation about the great differences between a subtropical humid climate (Florida) and a Mediterranean climate (Southern California) with much further discussion about the frequency and duration of cold weather, neither of which is accounted for in any way on the map.

The isotherms from which the map was compiled are fairly correct. It should be obvious, though, between the two extremes given for my zone, 9b, 20° F to 30° F, that the ten-degree difference means life or death for most of the palms, save only the hardiest. Palms are never killed either here or in Miami by a brief temperature of 30° F or even 29° F, but most of the palms (which, of course, excludes the few hardy ones) will be fatally affected by 20° F. Thus the fallacy, for palms, of a zone in which the worst that can be expected is anywhere from 20° F to 30° F.

Whoever compiled the map (no, whoever finally selected the terms used) should have had guidance right then from a meteorologist. The "Approximate Range of Average Annual Minimum Temperatures" means something quite different from what it was intended to convey. This would ordinarily be interpreted as the average annual mean temperature for the years included instead of the average of the absolute annual minima. The job appears not to have been properly coordinated. Very erroneous in the "Indicator Plant Examples," for instance, is the assignment of the Queen Palm, *Syagrus romanzoffianum* to Zone 10—as "coldest zone in which they will normally succeed." This is the only palm mentioned, and it's lamentably wrong. This palm thrives in Orlando and here in 9b, whereas it is indifferent and sparsely planted in the zone assigned to it, providing a good example of the absurdity one can get into trying to go by rote. *Syagrus* in central Florida is the commonest of all exotic palms, and it always has been, outnumbering those in the map version area by

100 to 1. But, and it's a big but, there are many parts of zone 9b in which it cannot be grown at all.

The same problem would apply in assigning USDA zones to certain other palms. The only effective way to deal with this, it seems to me, is to affix a symbol to the zone number, as for example an asterisk, which would signify ONLY IN THE WARMER PARTS OF THE ZONE. Thus we would have for *S. romanzoffianum*, 9b\*.

There must be twenty distinct zones within Zone 9b alone, perhaps more. The isotherms correspond, but we can't do much here anywhere in Florida with *Jubaea*, *Howeia*, *Erythea*, etc. Why not? Because we don't duplicate the cool, dry winters of southern California, even though we duplicate the worst sudden plunges in temperature. Here it usually recovers quickly; there it stays cool and lacks our humidity.

I feel that zoning cannot be made 100% exact, no matter how one goes about it. In relation of palms to cultivation, the zones sometimes overlap. It's surely best to be conservative, yes, but at the same time it should be explained, perhaps, that minimum temperatures are by no means the only guide to the suitability of certain palms for restricted areas beyond the assigned zones. The most noticeable disparity is between the same zones in Florida and California. We can grow a fair number of palm kinds here in Florida that cannot be grown in the same zones in California because of the higher average temperatures, even though the minimum temperatures are often lower than anything experienced in California. I have tried to be conservative and at the same time not deceptive to gardeners and growers, but occasionally I feel as if I'm trying to balance on a high wire.

As for other horticultural comment, one or two things might be amplified or modified (in the new *Hortus III*), as for example the usual warning not to overpot. The

warning should still be heeded for seedlings, but nowadays the tendency is to "step up" into containers larger than immediately required once the very small seedling stage has been passed. This is to assure faster growth by providing room for root expansion and to reduce labor factors. Not too much can be said about the desirability—even the necessity—of providing containered palms with good drainage. In large cans, an inch of gravel plus two inches of coarse sand would be good insurance. Many quite different potting media are used, but all should provide a fair amount of organic matter. Sand, perlite, sawdust, peat moss, ordinary topsoil, wood shavings, rotted leaves, pulverized manure, and several other substances are used in combinations to suit one's preferences, which sometimes amount to fervid conviction not open to question by anyone. Even with good drainage provided, it still is possible to overwater containered palms. Only a few kinds will tolerate soggy soil indefinitely. When to water? Only when the soil has dried out on its surface, which can be determined by sight if one is experienced, and by feel if not.

When small palms are planted in the ground, a hole much larger than the young palm requires should be dug and backfilled with topsoil mixed with a liberal quantity of manure or the best organic matter

obtainable. In extremely sandy soils it is preferable to remove most or all of the sand and replace with soil high in organic content. When transplanting large palms from the wild, or from wherever they have been firmly established, it is best to follow the ancient adage to plant a fifty-cent palm in a fifty-dollar hole. If then backfilled with good topsoil mixed with rotted manure or other good organic matter, the palm should be healthy and vigorous without any additions of fertilizer in future years. Whenever palms are thriving in the wild, it is not because anyone has applied any kind of fertilizer. Plant it right, and there's an end on't. Unluckily, most transplants get indifferent treatment, and such subjects do require endless fertilizing and watering to withstand the deficient treatment. Hundreds of times, I guess, people have asked me how I fertilize my palms. Answer: I don't, they don't need it. 'Course, if I had to grow my palms in limerock, as they do at Fairchild Tropical Garden, I'd have to feed 'em.

Now I'll try to go methodically through the genera listed, making any observations I can for *Hortus III* about either genera or species, but skipping entirely those I know nothing about or to which I can add nothing of the slightest interest apart from anything already said in *Hortus II*.

**Acrocomia.** The species are still confused—at least in the trade and among gardeners. If one has a very cold-tolerant species, it is assumed to be *A. totai*. There is reason to believe it to be, since it is the southernmost. Bailey's treatment (in *Gent. Herb.*) even refers to "the Florida *Totai*," by which he meant that there was still uncertainty about the specific identity. I believe I have here several examples of *A. totai*, which are all certainly very cold tolerant. And I've got several of what I take to be *A. aculeata*, which loses its foliage in hard freezes but always fully recovers. Midway between the two, for cold tolerance, is *A. mexicana* (my plant grown from a seed collected in Valles, S.L.P.). What I suppose to be *A. totai* is suitable for Zone 9b, but only the most favorable locations in 9a. I would assign the other species to 9b\*. I have noticed that, whenever I have been in close proximity to any acrocomia in flower, a fetid odor permeates the air, indistinguishable from the odor of a dead animal. All the acrocomias I have planted are of extremely rapid growth, exceeded at this location only by the two species of *Archontophoenix*.

**Areca.** *A. catechu* 10b. *A. langloisiana* 10b. *A. triandra* 10a and marginal in warmest parts of 9b. Like most other multiple-stem palms, will rise from the roots if killed to ground by cold.

**Arenga.** *A. pinnata* 10b but marginal in colder sections of 10a and warmer sections of 9b. *A. engleri* 9b. The ripe fruits should be handled with rubber gloves, for the juicy pulp irritates human skin.

**Arikuryroba.** See *Syagrus*.

**Asterogyne.** 10b.

**Astrocaryum.** *A. mexicanum*, warmer sections of 10a and marginal in warmer parts of 9b.

**Attalea.** 10b.

**Bismarckia.** *B. nobilis* 9b\*. Many palms are successfully bare-rooted for shipment, but bismarckias will not tolerate that kind of treatment.

**Brahea.** *Brahea* species are said to occur only in areas of limestone outcropping, and hence agricultural lime should be applied under cultivation in normally acid soil. Full sun is required for good development.

**Butia.** *Butia* species 9a, but several reported vigorous in Virginia Beach, Virginia.

**Calamus.** *Calamus* species 10b.

**Caryota.** 10a, but several species may be grown to perfection in the warmer sections of 9b except for a destructive freeze at unpredictable intervals. The soboliferous kinds will slowly rise from the roots following the total loss from freezing of not only foliage but stems also.

**Ceroxylon.** (I'd hardly want to guess at a zone for this one.) One or more species are said to be moderately successful in California, but all efforts to grow these palms outdoors in Florida have ended in failure.

**Chamaedorea.** *C. microspadix* and *C. radicalis*, both red-fruited species, are probably the most cold-tolerant species in cultivation, withstanding the lowest temperatures occurring in the warmer sections of 9a. Many other species are remarkably hardy to cold, but unluckily many species succumb to attack by certain nematodes where present. *C. seifrizii* has been wiped out in some localities, but not attacked in others. The two species named above are less susceptible to nematode attack, and one of them, *C. microspadix*, is virtually immune.

**Chrysalidocarpus.** 10a\*. The species are successfully cultivated in the warmest parts of 9b barring an occasional killing freeze.

**Chamaerops.** 9a. Not so widely planted in Florida as it deserves to be.

**Coccothrinax.** 10a, but the species thrive in the warmest parts of 9b in all but the coldest winters.

**Cocos.** 10a\*.

**Copernicia.** 9b\*. Six species have survived the coldest weather of record at one location in this zone.

**Corypha.** 10a.

**Cryosophila.** *C. nana* 9b\*.

**Daemonorops.** 10b.

**Deckenia.** 10b.

**Desmoncus.** 10a.

**Dictyosperma.** 10a.

**Drymophloeus.** 10a.

**Elaeis.** 10b.

**Euterpe.** Perhaps some species of this genus may now be cultivated outdoors in Florida, but only a few years ago there were none—except for one example of *Euterpe edulis*

that prospered at my place in Daytona Beach, until March of this year (1974) when it died of unknown causes. Stanley Kiem used to say that every euterpe tried at Fairchild Garden had petered out for no assignable reason. Possibly some species is making the grade somewhere outdoors in the U.S. If so, it's news that is not general.

**Gastrococos.** Noteworthy about this palm in cultivation is that it is a laggard for two or three years when first planted out as a juvenile, but then its growth is sudden and no less than phenomenal. 10a except in colder locations within the zone.

**Gaussia.** 10b. *G. maya* (formerly *Opsiandra*), 10b. Reaches 90' in height at Tikal, Guatemala.

**Geonoma.** *G. schotiana* 9b—perhaps hardiest species cultivated in U.S.

**Hedyscepe.** 10a\*. Growers have had better success with *H. canterburyana* in California than Florida.

**Heterospatha.** 10a, in warmer sections.

**Howea.** 9b\*. Both species are much happier in California than in Florida.

**Hydriastele.** 10b.

**Hyophorbe.** 10a except in colder parts.

**Hyphaene.** 9b. Though injured by hardest freezes, the species recover.

**Jubaea.** The full cold-tolerance of this Chilean palm is not yet known, but it has withstood 22° F in zone 9b without injury.

**Jubaeopsis.** 10a in California, but its hardiness in Florida not known.

**Latania.** 10a in Florida, not enough protracted warm weather in 10a in California.

**Licuala.** 9b\*. The species are remarkably hardy in Florida, but prolonged cold of 25° F or lower is usually fatal.

**Livistona.** 9b, though some of the hardier species have survived for long periods in the warmest sections of 9a. *L. australis* is perhaps the hardiest, and *L. rotundifolia* is one of the tenderest.

**Lodoicea.** 10b in warmer sections, but nowhere vigorous in the continental U.S.

**Lytocaryum** (*Microcoelum*) 9b\*. In this case the asterisk, signifying marginal, derives from killing cold of 22° F at my own place in the zone. Such a low temperature had never before occurred in the history of the Weather Service at this location, and might not occur again for 50 years, or might occur any winter, even next year.

**Mauritia.** 10b. The species require flooding with fresh water for good development. Two or more specimens are growing where planted in a very deep pothole at Chapman Field, the idea being to place the roots near the water table.

**Nannorrhops.** *N. ritchiana* 8b. Very likely 8a also, but not verified.

**Neodypsis.** *N. decaryi* 9b. Zones for other species uncertain.

**Normanbya.** *N. normanbyi*. Warmer sections of 10a.

**Nypa.** *N. fruticans* 10b.

**Opsiandra.** See *Syagrus*.

**Orbignya.** *O. cohune* 9b\*. *O. guacuyule* 9b\*. *O. spectabilis* 9b\*.

**Parajubaea.** *P. cocoides* 9b in California, but apparently not suitable for Florida.

**Phoenixophorium.** *P. borsigianum* 10b.

**Phoenix.** *P. abyssinica* 9b. *P. canariensis* 9a in warmer sections. *P. dactylifera* 9a in warmer sections. *P. paludosa* 9b. *P. reclinata* 9b. *P. roebelenii* 9b in warmer sections. *P. sylvestris* 9a.

**Pinanga.** *P. kuhlii* 10a. It has thrived at my place since 1962, but this hardly qualifies it for Zone 9b. Another thing I strive to bear in mind is that what applies to my palms, so far as cold tolerance is concerned, applies to very few exotic palms located elsewhere in the same zone 9b. Two miles west from my location, where normally 160 or more

species are faring more than moderately well, it's doubtful that over 20 species could survive 2 or 3 winters.

**Polyandrococus.** *P. caudescens* 9b\*.

**Pritchardia.** *P. pacifica* and *P. thurstonii*, 10b. All 7 species endemic in the Hawaiian Islands have made the grade here so far—that is, since 1962, but I can only guess how they would fare elsewhere in zone 9b. (I meant the 7 Hawaiian species I have here, which of course are not nearly all of the species.)

**Pseudophoenix.** 10b.

**Ptychosperma.** 10a. But, several species of this genus grow normally in my small part of 9b, except in those offbeat years when the temperature drops below 27° F, which is not often—not, in fact, since 1962. The same thing would definitely NOT apply to most of the same zone 9b.

**Raphia.** *R. farinifera*, 9b in warmest sectors only.

**Reinhardtia.** 10a.

**Rhapidophyllum.** *R. hystrix*. Not possible as yet to mark limits by zoning. This palm has not been injured by temperatures of 9 below zero. It is very much more tolerant of cold than the *Trachycarpus* species.

**Rhapis.** *R. excelsa* and *R. humilis*, 9b, but succeed in some of the warmer parts of 9a.

**Rhopalostylis.** *R. sapida*, 10a in California, but virtually absent in Florida, probably because it is not well adapted to the climate. *R. baueri*, 9b in warmest sections.

**Roystonea.** *R. regia* 10a. *R. elata* 10a. *R. oleracea* 10b. The royal palms have been sporadically grown in Zone 9b, but have been virtually wiped out by "hard" freezes at intervals usually, though not always, many years apart.

**Sabal.** Most of the species are fully hardy or half-hardy in Zone 9b. *S. palmetto* is hardy in 9a. *S. minor* 8b.

**Scheelea.** *S. liebmannii* 10a. Marginal in warmer parts of 9b.

**Schippia.** *S. concolor* 9b\*.

**Serenoa.** *S. repens* 9a.

**Syagrus.** *amara* (*Rhyticocos*) 10b. *S. flexuosa*, *S. comosa*, *S. coronata*, all 9b. *S. romanzoffianum* (*Arecastrum*) 9b\*. Commonest exotic in central Florida, except in coldest sections. In some locations, subject to attack by a fatal fungus disease. Hardest strains are obtained from its native land, southern Brazil. *S. schizophylla* (*Arikuryroba*) 10a, and marginal in warmest parts of 9b.

**Synechanthus.** 10a\*.

**Thrinax.** *T. floridana* 10a and only marginal in warmest sections of 9b.

**Trachycarpus.** 8b. Reports of living palms persist from colder zones.

**Trithrinax.** 9b.

**Veitchia.** 10b. Numbers of the species are grown elsewhere, but approximately 5,000 small field-grown *V. merrillii* were destroyed by the 1962 freeze in Stuart, Florida, which is itself in Zone 10b.

**Verschaffeltia.** 10b.

**Wallichia.** 9b\*.

**Washingtonia.** *W. filifera* 9a. *W. robusta* 9b. A few examples of both species are reported from colder zones.

**Zombia.** *Z. antillarum* 9b\*.

## Brief Comments on Palms Suited to Indoor Culture<sup>1</sup>

DENT SMITH

The subject has never been treated as fully as it deserves, though of course something has appeared in print from time to time. David Barry's article, "Palms for home and greenhouse," adapted for *Principes* from the special issue of the *American Horticultural Magazine* entitled "Cultivated Palms" (1961), was excellent as far as it went. Two lists of palms suitable for house cultivation accompanied the article (*Principes* 5: 17-20).

My contention is that those lists could and should be greatly expanded. In my own experience, nearly all palms not demanding a sunny or arid atmosphere, or else not too rampant growers, can be successfully grown indoors at least for a year or two, and some of them for many years. Obviously the rattans, coconuts, washingtonias and other desert dwellers (braheas, etc.) would not be good subjects indoors, but the truth seems to be that hundreds of palms, instead of only a handful (note Fig. 1), can be handsome plants in the house if properly watered and kept free of mealybug, red spider, and other pests, to all of which they are more subject than if grown outdoors.

My conclusions about the large number of palms quite suitable for house decoration are based on the experiences of having kept as many as 40 or more species indoors for months on end during the colder months here in Daytona Beach

without any material damage of any kind. In fact, I would be at a loss to name many palms unsuitable for home use during one or more seasons. Manifestly the size of the plant and of the room would most often be the determining factor.

In a none too well-lighted foyer of a motel in South Miami (Florida), there were three *Coccothrinax* palms perhaps to 3 feet tall overall in a long planter in the center of said foyer. I just knew that these plants would soon turn sickly and become eyesores soon, but to my astonishment there they remained for all of four years with scarcely a blemish. This was the Riviera Motel on U.S. 1 opposite the University of Miami campus. So, say I, add *Coccothrinax* to the list of house palms; but I'd be the last person to suggest hiding it from the natural light. I'd also suggest adding two or three hundred other palms, with emphasis on the slower growing kinds and the medium, smaller, and dwarfish kinds.

I can confirm something our late friend Dave Barry said on p. 17 of his article, viz., "one of the most delightful palms for interior use is *Livistona rotundifolia*." I took one of these in a 12-inch pot up to Staunton, Va., as a gift to my aunt who lives there. She kept this little gem in her livingroom for four years and it never failed to excite admiration until one day she fell and fractured an ankle, which kept her out of running for about six weeks, during which time the plant never saw one drop of water and went into a fatal decline. How much longer it might have lived if taken care of, I can't even guess at, but probably for another 4 years before beginning to fail. I cite this plant, because it is ultimately of huge proportions, and yet

<sup>1</sup> In December of 1974, I sent Dent Smith a copy of an account on house palms ("Nine Iron-clad Palms," chapter XII in *House Plants and How to Grow Them* by Parker T. Barnes. Doubleday, Page & Company, 1909). This is a portion of his response to me dated January 16, 1975—W.H.H.





1. *Chamaedorea elegans*, most popular of all palms used inside the home in U.S.A. Many other palms would be striking candidates. Photo by W. H. Hodge.

this seems not to militate soon against its use in the house. Reason indicates that the same thing would apply to an amazingly large number of palms.

By the bye, I had a friend in San Luis Potosi, who kept in his patio an *Archontophoenix cunninghamiana* in a large ceramic jardiniere for 57 years. Five years

ago my friend, Francisco Cabrera, died, but so far as I know the palm still lives on and on and on. It had become stunted when it had about 12 feet of woody trunk, but the crown remained handsome. This plant could very nearly qualify as a house

palm, for the small patio is surrounded on all four sides by a two-story house.

The point, quite briefly, is that numerous palms may be grown indoors if given due care, and nearly all are strikingly ornamental.

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## Hybrid in *Chrysalidocarpus*

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In Puerto Plata, Dominican Republic, the garden of the residence of Luis Ariza Julia is well known for its great variety of orchids and bromeliads, including species native to the island of Hispaniola (Haiti and Dominican Republic). A small collection of exotic palms can be found amid the magnificently displayed plants which daily receive his personal attention.

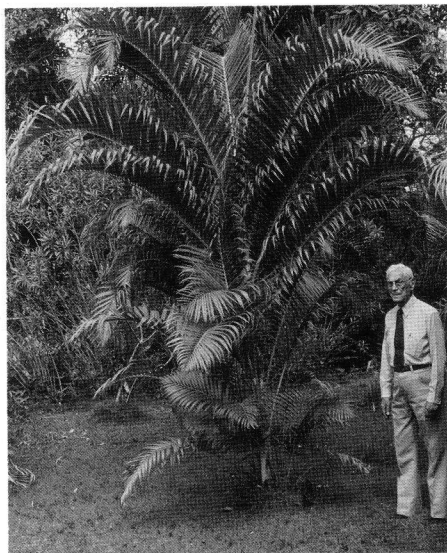
In November, 1983, Mr. Ariza Julia showed the authors several young palms that appear to be hybrids resulting from the cross of *Chrysalidocarpus madagascariensis* var. *lucubensis* (Beccari) Jumelle & Perrier and *C. lutescens* H. Wendland.

The putative hybrids (Fig. 1) apparently arose from spontaneous crossing between the solitary trunked female parent var. *lucubensis* and the clump-forming male parent *C. lutescens*. Two of the hybrid plants were transplanted from the base of the var. *lucubensis* parent to a garden on the adjacent property. A young plant of what appears to be a "pure" *C. madagascariensis* var. *lucubensis* (Fig. 2) was also transferred to the same property. Two of the hybrids remain at the base of the *C. lucubensis* and are not clump forming.

Mr. Ariza Julia reports that his plant of var. *lucubensis* was obtained from a public garden in Jamaica about fifty years ago. His *C. lutescens* was obtained from plants already in cultivation in the Dominican Republic about the same time, just after he had the family residence built. The two species were planted within one

hundred feet of each other. He estimates that the hybrids are about five years old.

The pinnate leaves of *Chrysalidocarpus madagascariensis* var. *lucubensis* have the leaflets attached to the rachis at several angles, and are usually in groups of three or four (sometimes singly, or in pairs, or in fives, Fig. 4). The trunk bears its leaf scars in close arrangement (Fig. 3). *Chrysalidocarpus lutescens* on the other hand, bears its leaflets in a single rank on each side of the rachis and the leaflets do not appear in groups (Fig. 4).



1. Sr. Ariza Julia with his young hybrid, a natural cross between *Chrysalidocarpus lutescens* and *C. madagascariensis* var. *lucubensis*.

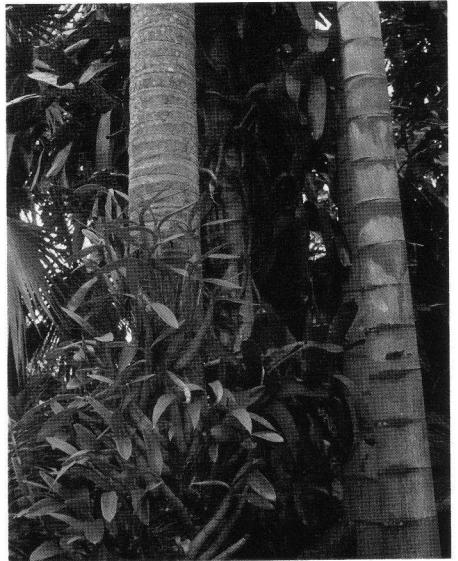


2. Young plant of *Chrysalidocarpus madagascariensis* var. *lucubensis*.

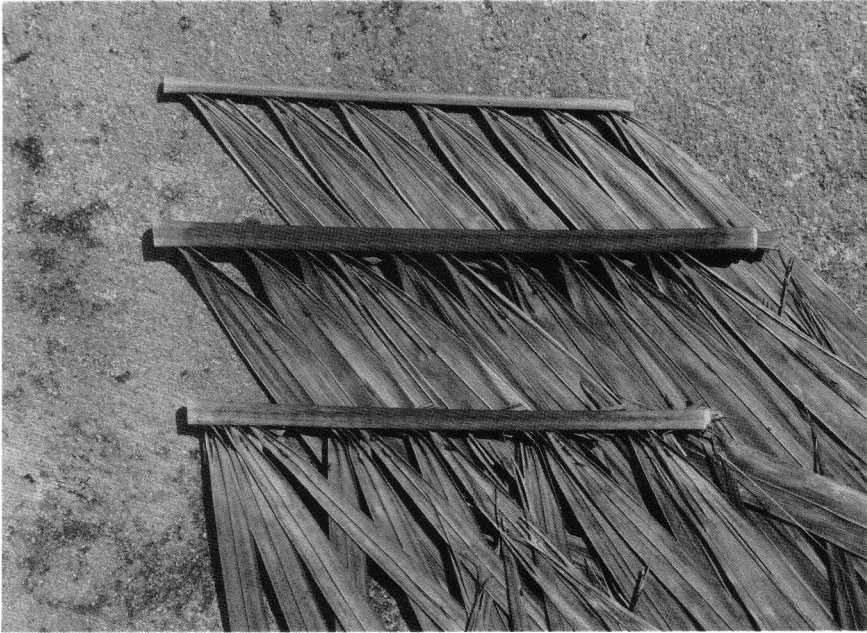
The leaf scars of the trunk are widely spaced. The putative hybrid plants have the leaflets in a single rank on each side of the rachis, like *C. lutescens*, but have the leaflets in groups, like var. *lucubensis* (Fig. 4). The number of leaflets per leaf is intermediate between the numbers in the suspected parents. The leaf scars are widely spaced (similar to *C. lutescens*) on the trunk (Fig. 3).

The hybrid plants have not yet flowered. It should also perhaps be noted here that the putative hybrid plants bear a resemblance to our old friend *C. cabadae*, described from plants found in cultivation in Dr. Cabadae's garden in Cuba some years ago.

This is the first known case of hybrids between these two species of *Chrysalidocarpus*, a genus originally from Madagascar (Malagasy Republic).



3. *Chrysalidocarpus madagascariensis* var. *lucubensis* on the left. A putative hybrid trunk on right. Note the length of the internodes.



4. Upper leaf, *C. lutescens*; middle leaf, putative hybrid; lower leaf, *C. madagascariensis* var. *lucubensis*.

Note: McCurrach, J. C. 1960. *Palms of the World* is in error by stating that the "Sex:" of *Chrysalidocarpus* as a genus

or as the species *C. lutescens* is "Dioecious." In fact, all species are monoecious.

## Catoblastus distichus, an Interesting New Palm from Colombia

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Intensive collections of palms on the western slopes of the Cordillera Occidental, in northern Colombia, since 1982, have resulted in a number of interesting findings (Bernal in preparation, Bernal and Henderson in preparation, Galeano in press). The species described here was collected in that area for the first time in January 1982, when most individuals bore inflorescences at different stages of development, but not one had ripe fruits. Although fruits are usually required to determine species of *Catoblastus*, it was immediately evident that the species was undescribed, and efforts were made to collect fruiting material. After two literally fruitless expeditions in May 1982 and June 1983, fruits were finally collected in March 1984, and the species can now be described in full.

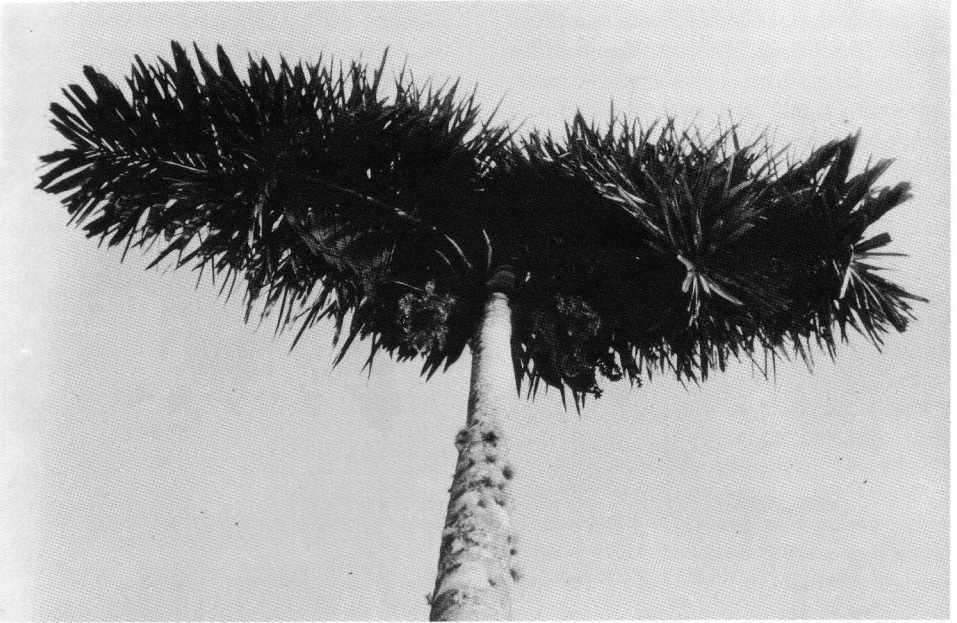
**Catoblastus distichus** R. Bernal, sp. nov. (Figs. 1,2)

Caudex solitarius ad 17 m altus, radicibus epigeis ad 1.8 m altis sustentatus. Folia 4-6, disticha; pinnae utrinque 27-32, in segmentos 2-7 fissae, segmentis utrinque 90-131. Inflorescentiae 7-11 in quoque nodo, ramosae, bracteis peduncularibus 4. Flores masculi staminibus (7-) 10 (-11). Fructus 2.2-2.5 cm longi, 1.9-2.1 cm diametro, ellipsoideo-subglobosi, exocarpium oculo inermi leve. Albumen aequabile.

Typus: Colombia, *D. Restrepo et al.* 144 (holotypus COL, isotypus MEDEL).

Trunk 10-17 m high, 12-17 cm diam.,

grayish, with a thick outer layer of hard, blackish fibers, supported by a cone of stilt roots 0.5-1.8 m high, 0.8-1 m diam. at base, individual roots 3-5 cm diam., with conical spines 2-3 mm long. Leaves 4-6, perfectly distichous; sheath 104-160 cm long, purple, forming a conspicuous crownshaft, the latter cylindrical toward base and strongly compressed toward apex in the same plane as the leaves, marginally dry with very scattered, appressed, short, purplish hairs; petiole 7-17 cm long, green and terete when fresh, 2.2-3.8 cm diam. when dry, with a thin, brown-rufous indumentum of strongly appressed hairs, except for a light glabrous stripe on the adaxial surface; rachis 206-296 cm long, 1.3-2.6 cm wide at middle, adaxially acute, striate, with a brown-ferruginous tomentum, eventually glabrescent and exposing the furfuraceous surface, abaxially light brown, with an indumentum of appressed, flattened and scalelike white hairs; pinnae 27-32 on each side, longitudinally divided (except the basal, subapical and apical) into 2-7 segments, in total 90-131 segments on each side, these rather stiff, arranged in many planes but never downwards, covered above near base with an indumentum like that of the rachis, otherwise glabrous, except for some short, bulbous-based, purplish hairs, very scattered along the veins, with long brownish hairs very scattered on the surface below, the veins with short, appressed, bulbous-based, yellowish hairs more densely arranged; segments of each pinna linear, 0.9-5.5 cm wide, the outer much wider



1. The crown of *Catoblastus distichus* seen from below.

than the inner; lowermost pinnae 38–50.5 cm long, usually undivided, second pair of pinnae 56–69 cm, middle pinnae 72–91.5 cm, apical pinnae connate into a narrow flabellum 17–18 cm along the lower margin, to ca. 9 cm wide at the apex. Inflorescences 7–11 per node, only the central one maturing, and either staminate or pistillate. Staminate inflorescences 26–31 cm long; peduncle 10–15.5 cm long, with short, purplish-brown tomentum; prophyll 5.5 cm long, 4 cm diam., tubular, bicarinate, with appressed, caducous, purplish hairs; peduncular bracts 4, the lower 2 tubular, open at the apex, 4.3–9.5 cm long, with scattered rufous hairs, the upper 2 cucullate, shortly rostrate, 20–25 cm long, slightly striate, with brownish tomentum toward base, the remaining surface with very scattered, easily removed, short, purplish hairs; rachis 5.5–8.5 cm long, with dense indumentum of short, bulbous-based, yellowish-brown hairs; rachillae 12–15, to 14 cm long, with an indumentum



2. *Catoblastus distichus*, note lateral rows of inflorescence scars.

like that of the peduncle. Staminate flowers 7–7.7 mm long, glabrous; sepals 1.2–1.5 mm long, 0.6–1 mm wide, connate for ca. 0.1 mm, triangular to elliptical, thick, acute to rounded at the apex; petals 5–6.7 mm long, 1.8–2.3 mm wide, imbricate at base, narrowly ovate-triangular, thick, acute or acuminate; stamens (7–) 10 (–11); filaments 1–2 mm long; anthers 4.5–5.8 mm long, including an apiculum 0.4–0.8 mm long, sometimes shortly unequal at base, with a few long, caducous hairs. Pistillate inflorescence 53 cm long; peduncle 23–27 cm long, with a thick, easily removed indumentum of short, bulbous-based, purplish-brown hairs; prophyll similar to that of the staminate inflorescence; peduncular bracts 4, the lower 2 tubular, open at the apex, 8.5–13 cm long, with an indumentum like that of the prophyll, the upper 2 cucullate, to 40 cm long, with an indumentum like that of the upper bracts of the staminate inflorescence; rachis 14–23 cm long, with an indumentum like that of the peduncle; rachillae 15–24, to 45 cm long, 4–5 mm diam. at middle, with an indumentum like that of the peduncle. Pistillate flowers (just fertilized) 12–15 mm long; sepals 2.3–2.8 mm long, 2–4 mm wide, shortly connate at base, ovate to suborbiculate; petals 4.5–5.5 mm long, 4–6 mm wide, ovate to broadly so, rounded at the apex, glabrous; fertile carpel 12–13 mm long, 7.5–9 mm diam., somewhat unequally ellipsoid to ovoid, verruculous, with bulbous-based, yellowish-brown hairs; stigmas sessile, 4–5 mm long; sterile carpels minute, ellipsoid; staminodes minute, triangular or linear. Fruits 2.2–2.5 cm long, 1.9–2.1 cm diam., ellipsoid-subglobose, sparsely pubescent with short, bulbous-based, brownish hairs, more or less glabrescent; pericarp ca. 1 mm thick, the surface smooth to the naked eye, minutely granulose under a lens, dull, somewhat rough to the touch; fruiting perianth 1.3–1.4 cm diam.; stigmas 5–6 mm long. Seeds 1.7–

1.8 cm diam., ovoid-subglobose, brown, the raphe branches anastomosing; endosperm homogeneous.

Vernacular name: “*macana*.”

*Distribution*: Known only from a restricted region in northern Colombia, on the western slopes of the Cordillera Occidental, between 1,700 and 2,100 m alt., in an area of mountain cloud forest, mapped by Instituto Geográfico “Agustín Codazzi” (1977) as *bosque pluvial premontano* and *bosque pluvial montano bajo* (premontane and lower montane rain forest) in Holdridge’s life zone system.

*Specimens examined*: COLOMBIA. DEPARTAMENTO DE ANTIOQUIA: Municipio de Frontino: carretera Nutibara–La Blanquita, verriente occidental, 1,950 m alt., 17 March 1984, *D. Restrepo et al.* 144 (COL, holotype; MEDEL, isotype); same locality, 4 January 1982, *G. Galeano & R. Bernal* 465 (COL), 466 (COL); same locality, 1,800–1,900 m. alt., 6 January 1982, *G. Galeano & R. Bernal* 483 (COL). Municipio de Urros, camino al Parque Nacional Natural de Las Orquídeas, páramo de San Pedro, 2,100 m alt., 23 June 1982, *R. Bernal & G. Galeano* 378 (COL).

This new species is readily distinguished from all others so far known in *Catoblastus sensu lato*, by the combination of distichous leaves, purple crownshaft, divided pinnae provided below with long, brownish hairs very scattered on the surface, the staminate flowers with (7–) 10 (–11) stamens, and the ellipsoid-subglobose fruits, with the exocarp appearing smooth to the naked eye. In fruit characters it recalls *Catoblastus kalbreyeri* (Burret) Burret and *Catostigma inconstans* Dugand,\* but neither of these

\* *Catostigma inconstans* was transferred to *Catoblastus* by Glassman (1972: 63), but his new combination was not validly published, according to article 33.2 of the International Code of Botanical Nomen-



species has distichous leaves. The former, which I have seen at the type locality, is easily distinguished by the very thick, white indumentum that initially covers the peduncular bracts; the latter species, of which I have seen photographs taken by Cuatrecasas (the collector of the type) and determined by Dugand, is characterized by a dense tomentum of yellowish hairs on the undersurface of pinnae.

*Catoblastus distichus* is the first species of the Iriarteoid Major Group of palms (Moore 1973) so far known to have distichous leaves. Although the arrangement of leaves is seldom mentioned by collectors on the specimen labels, all Iriarteoid palms I have seen in the field or in photographs have the leaves arranged in more than two rows.

Distichy is easily noticeable in *Catoblastus distichus*, not only because of the quite unusual aspect of the palm, particularly when seen from below (Fig. 1), but also because the scars of the old inflorescences are arranged in two conspicuous vertical rows (Fig. 2), and the crownshaft is remarkably compressed toward the apex

clature (Voss et al. 1983), since a full and direct reference to the place of publication of the basionym was not given, Glassman's complete citation of *Catostigma inconstans* on page 64 was intended only as a regular entry of the Index, and not as the reference to the basionym of the new combination made on page 63. Glassman's new combination is here validated as follows:

*Catoblastus inconstans* (Dugand) Glassman, comb. nov. Basionym: *Catostigma inconstans* Dugand, *Caldasia* 2: 392. 1944 Type: *Cuatrecasas 14957* (COL, holotype; F, isotype).

in the same plane of the leaves. While the adaptive advantage (if any) of distichy in palms is not known (cf. Dransfield 1978), it is interesting to note that *C. distichus* grows together with *Aiphanes linearis* Burret, another palm with distichous leaves.

### Acknowledgments

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*Principes*, 30(1), 1986, pp. 42-44

## NEWS OF THE SOCIETY

### Mission Bay Park, San Diego

Mission Bay Park is by far the largest aquatic park ever created on earth. It boasts 2,300 acres of navigable waterways and 1,900 acres of land. Twelve million residents and tourists visit it every year. The sites, the plantings, and the improvements are valued at over \$100,000,000. It is entirely owned by the City of San Diego, the eighth largest city in the USA.

All the waterways in the park are public property. About a fourth of the land is leased to concessioners—Sea World, boatyards, and hotels and including 13 acres (expiring in 2016) to the Bahia Hotel, the headquarters for the next Biennial Meeting of The International Palm Society, June 23 to June 30, 1986.

The opening event of the 1986 Biennial Meeting will be an all-hands tour of the blue waters of Mission Bay on the paddle-wheel steamer "Bahia Belle," departing from its dock at the Bahia Hotel. Sights to be seen during this tour include shoreside plantings of many palms, planted by species in groves. The words "planted by species in groves" are the key words here. Because Mission Bay Park is big, it



1. Mission Bay Park is enhanced by *Washingtonia robusta* palms in large numbers. Between these two groups winds one of the channels of the bay.

provides ample room for planting palms in groves—rather than as individual specimens or as groups of intermingled specimens. San Diego's Department of Parks and Recreation has taken advantage of this opportunity.

On the sandy public beach is a long grove of large *Phoenix canariensis*, planted in the fashion of coconuts in the South Seas. Illustrating this article is a photograph of part of this grove—taken from the fifth-floor dining hall of the Bahia Hotel, the site of the Biennial's banquet and some of its meetings (Fig. 1).

Along the western perimeter of Mission Bay is a grove of 32 young *Jubaea chilensis*. These are also photographed. Scattered throughout the park are many groves of *Washingtonia robusta*, two of which appear in an accompanying picture (Fig. 2).

In addition, not illustrated, are groves of *Howea fosteriana*, of *Butia capitata*, of *Phoenix reclinata*, and a memorial grove of 52 palms in memory of the 52 U.S. hostages released by Iran in 1981.

Each of these groves differs from the more cramped collections of mixed palms which typify San Diego's Balboa Park, Florida's Fairchild Botanical Garden, and the private gardens which will be toured during the 1986 Biennial Meeting. As such, they should be particularly appreciated—during the tour of the "Bahia Belle," during walks in the park in "free"



2. These *Phoenix canariensis* palms substitute for *Cocos nucifera* on the sandy public beach immediately to the west of the Bahia Hotel in Mission Bay Park.

interludes of the Biennial, and during bus tours while passing en route to other attractions.

BILL GUNTHER

### News from Australia

On Christmas (1984) a gathering was held at the home of Mrs. Betty Hart, where members admired her flourishing collection, including plantings in a simulated rock grotto setting, constructed by herself in a former quarry site.

*Garden visits.* In 1985, garden inspections were made to the recently-moved collection of Ken Veness and the home of David Stewart at Avalon where everyone commented on the luxuriance of his well-stocked garden. Plenty of water and commercially prepared chicken manure were the basis for David's success.

*Membership.* Our membership now embraces all the states of Australia, as well as Malaysia, New Zealand, and Fiji.

*Visits.* Dieter Barthe from Germany visited our April meeting and gave us a short address (his first in English) contrasting the growing of palms in Germany and Sydney. He was impressed by our *Phoenix canariensis*, some of which evoked praise as "the most noble of all palms."

*Illustrated talks.* These are always popular at the meetings and have covered a wide range of experiences and interests, including the remote parts of Australia, the gardens of Japan, trips through India, Malaysia, New Zealand, the U.S., and Borneo.

Other meeting activities include palm and seed sales and auctions and displays of unusual palms, always a topic of interest.

*Surveys.* In 1984 our Chapter undertook to document members' experiences in the growing of species in the Sydney area. From a questionnaire, a summary was compiled by Sarry Daly showing the results with trials of over 200 species.

Members have been asked to write articles for *Principes Minor*, recounting their experiences in greater detail.

*Sydney area's palms.* The chapter is compiling a list of the species of palms planted in public gardens and the location of plantings of special interest.

*Show.* Our second public exhibition was held with other plant societies in the Royal Botanic Gardens in October, where members erected the display and manned it for four days to answer inquiries and to promote the Society.

In all, a variety of activities has stimulated a fair degree of enthusiasm and provided an opportunity for members to exchange ideas and enjoy the fellowship of people of similar interests.

KEN VENESS

### Dent Smith to be the Only Honorary Member

At the interim annual meeting on 14 September 1985, Board Members of The International Palm Society decided not to establish a category for "Honorary" memberships. This title has already been given to the founder of The Society, Dent Smith. Because of his many contributions, Board Members thought it appropriate that Smith remain the only honorary member of The Society.

### Palm Research

Greg de Nevers (Missouri Botanical Garden, St. Louis, Missouri, 63166), is studying the systematics and reproductive biology of the genus *Calyptrigyne* H. Wendland. He would be delighted to receive vouchered, pickled flowering or fruiting material from Central America.

### Editor's Note

Dr. Walter H. Hodge, former President of The International Palm Society and currently a member of the Advisory Committee, has served as guest editor for this issue.

