

Vol. II., No. V., 1924.

The  
Rhododendron Society  
Notes.



REPRINTED BY  
THE PACIFIC RHODODENDRON SOCIETY

# ACKNOWLEDGEMENTS

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RHODODENDRON, CAMELLIA  
& MAGNOLIA GROUP



2017



# THE PACIFIC RHODODENDRON SOCIETY

*"Dedicated to the Hobblist and Home Gardeners"*

## Foreword

The Pacific Rhododendron Society has reprinted the Rhododendron Notes in an effort to further the knowledge of the Genus Rhododendron by those enthusiasts with an avid interest in the history, exploration and biographical sketches contained herein.

The Rhododendron Notes are offered to the end that the reader may more easily understand the progress encouraged by those who contributed the wealth of information contained in these volumes, thereby making clear our understanding of the Genus Rhododendron today.

The Society wishes to gratefully acknowledge the efforts on our behalf by the following persons and organizations: Dr. R. Shaw, Curator and M.V. Mathew, Librarian of the Royal Botanic Garden Edinburgh, Scotland, for providing the missing numbers; Lord Aberconway and John Cowell, Secretary of the Royal Horticultural Society, for certain photocopies and other considerations, Sir Giles Loder and Sir Edmund de Rothschild for their esteemed counsel, and to Thomas V. Donnelly our printer.

Our greatest appreciation to Dan E. Mayers of Lorien, Wadhurst, England for providing the originals and the inspiration. Without his assistance this project would never have become a reality.

**The Pacific Rhododendron Society**  
**1976**

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The Pacific Rhododendron Society  
9025 Waverly Drive S.W.  
Tacoma, Washington 98499

Printed in the United States of America.



# NOTES

CONTRIBUTED BY  
MEMBERS OF THE SOCIETY  
FOR THE YEAR  
1924

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# The Rhododendron Society Notes.

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## RHODODENDRON SERIES.

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At the last meeting of the Society there was considerable discussion about the Notes, and a sub-committee was appointed with a view to increasing the interest and utility of the publication.

Your sub-committee felt that one of the first matters that should have attention was the preparation of a list of the species placed as far as possible in their proper series and subseries.

The vast and ever-increasing size of the Rhododendron family has undoubtedly caused much confusion and difficulty in our gardens, and such a list should at any rate assist both ourselves and our gardeners to a better understanding of the relationships within the genus. Additional complications and confusion have also arisen through the publication at various times of some of the species under different series.

The compilation of such a list is beset with difficulties on all sides, and it is only the extremely kind, able, and energetic work of the Edinburgh Royal Botanic Garden that has rendered its preparation possible, and the Society is much indebted to Professor Wright Smith, Mr. Tagg, Mr. Harrow, and their staffs for all the splendid work they have done in the matter. Your sub-committee also desire to thank Mr. J. C. Williams for much kind help.

A copy of the List is appended, but as at the moment it is only tentative in many ways, Professor Wright Smith and your sub-committee greatly hope that members will make what suggestions occur to them. Alterations will be published in future numbers of the Notes.

Eventually it should be possible to give definite characters to each section, and in this respect Professor Wright Smith has stated: 'This allocation of these species to their natural groups is necessary before we can attempt such definition of sections. It would be of little use defining our sections and then forcing our species to fit into our preconceived opinions. What is really necessary in the first place is that those who are familiar with Rhododendrons should be satisfied that these sections represent their own feeling in the way of subdivision. I am anxious for a natural grouping as opposed to one based on mechanical characters.'

Much help can probably be given to the Botanical authorities by members providing living plants, foliage, and flowers of certain species of which the material for examination is insufficient. For this purpose a list of wants will be circulated in due course. Also, whenever possible, members should note flower characters in relation to the grouping. Careful observation of this kind will be most helpful.

Two copies of the List have been sent to each member. These are of suitable size for garden use, and it is suggested that members may find it convenient to have a copy bound into Mr. Wilding's most useful book, *Rhododendrons: their Names and Addresses*, for if the grouping therein is altered to conform with the List, they will act as useful indices for each other.

## The Rhododendron Society Notes.

During the current year a start will be made in the preparation of the descriptions of individual rhododendrons. The Society is indebted to Mr. W. J. Bean for the following typical example:—

### RHODODENDRON ANTHOPOGON, *D. Don.*

SERIES: Anthopogon.

SIZE: A compact evergreen shrub,  $1\frac{1}{2}$  to 3 feet high; branchlets downy, covered with brown scales.

LEAVES: Oval or ovate, narrowed abruptly at the apex to a short point, tapered or rounded at the base; 1 to  $1\frac{1}{2}$  inches long,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch wide; smooth and dark green above, covered beneath with rusty brown scales; stalk  $\frac{1}{8}$  to  $\frac{1}{4}$  inch long, scaly. Odour aromatic, slightly acrid, especially when crushed.

INFLORESCENCE: A small terminal truss 1 to  $1\frac{1}{2}$  inches wide, carrying four to six blossoms, opening in April; the base encased by a few rusty brown fringed bracts.

CALYX: Five-lobed, green; the lobes oblong,  $\frac{1}{16}$  inch long, fringed with hairs.

COROLLA: Rose-coloured to white, rather transparent,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch wide, 5-lobed, the lobes spreading, wavy. Corolla-tube cylindrical, curved, with white down in the throat.

STAMENS: Normally five, very short, included within the corolla-tube, glabrous.

OVARY: Four- or five-celled, scaly.

STYLE: Shorter than the stamens.

ORIGIN: Nepal, S.W. Sikkim.

MOST DISTINCTIVE OR PECULIAR FEATURES: Characteristic odour of the leaves; enclosed stamens and pistil. *R. ANTHOPOGON* differs from *R. HYPENANTHUM* (which has yellow flowers) in the bud-scales (perulæ) at the base of each year's growth soon falling away; in *R. HYPENANTHUM* they persist on the branches for several years.

To complete the whole of the genus in this way is a very formidable task, but it is felt that it is not impossible. From time to time these descriptions will be published in the Notes, and eventually the Society should have at its disposal sufficient information to publish a complete and really authoritative handbook of the entire genus properly described, with the collectors' numbers and placed in their correct series.

For the sub-committee,

J. B. STEVENSON.

TOWER COURT, ASCOT,  
March 1925.



## The Rhododendron Society Notes.

The Rhododendrons other than New Guinea and Malayan may be divided into the following series:—

- |   |  |
|---|--|
| No. 1. Anthopogon.  | No. 24. Laponicum.   |
| 2. Arboreum (with subseries Adenopodum, Arboreum, and Niveum).                    | 25. Lepidotum.   |
| 3. Azalea (with subseries Canadense, Luteum, Obtusum, and Schlippenbachii).       | 26. Maddenii (with subseries Ciliicalyx, Maddenii, Megacalyx, and Moupinense).   |
| 4. Barbatum.  | 27. Metternichii.  |
| 5. Camelliaeflorum.   | 28. Neriiflorum (with subseries Eudoxum, Forrestii, Haematodes, Neriiflorum, and Sanguineum).                          |
| 6. Campanulatum.  | 29. Ovatum.  |
| 7. Campylogynum (with subseries Aureum, Boothii, Brachyanthum, and Campylogynum). | 30. Ponticum.  |
| 8. Carolinianum.  | 31. Saluense.  |
| 9. Cephalanthum.  | 32. Scabrifolium.  |
| 10. Chrysanthum.  | 33. Stamineum.   |
| 11. Cinnabarinum.   | 34. Taliense (with subseries Adenogynum, Albertsenianum, Detersile, Roxieanum, Sphaeroblastum, Taliense, and Wasonii). |
| 12. Dauricum.   | 35. Thomsonii (with subseries Campylocarpum, Dasycladum, Selse, Souliei, and Thomsonii).                               |
| 13. Edgeworthii.  | 36. Trichocladum.  |
| 14. Falconeri.  | 37. Triflorum (with subseries Hanceanum, Oreotrepes, Rigidum, Siderophyllum, and Triflorum).                           |
| 15. Ferrugineum.  | 38. Vaccinioides.  |
| 16. Fortunei (with subseries Calophytum, Davidii, and Fortunei).                  | 39. Virgatum.  |
| 17. Fragrans.   | 40. Species unplaced.  |
| 18. Fulvum.   |  |
| 19. Grande.   |  |
| 20. Heliolepis.   |  |
| 21. Irroratum.  |  |
| 22. Kamtschaticum.  |  |
| 23. Lacteam (with subseries Dryophyllum, Lacteam, and Levistratum).               |  |

# The Rhododendron Society Notes.

A ? in front of a species indicates that it is placed in the section with some doubt

## No. 1. Anthopogon Series

anthopogon, *D. Don.*  
daphniphyllum, *Diels.*  
haemonium, *Balf. f. et Cooper.*  
hypenanthum, *Balf. f.*  
rufescens, *Franch.*  
tsarongense, *Balf. f. et Forrest.*

## No. 2. Arboreum Series

### Subseries Adenopodum

adenopodum, *Franch.*  
argyrophyllum, *Franch.*  
Coryanum, *Tagg et Forrest.*  
fokiense, *Franch.*  
formosanum, *Hemsley.*  
Hunnewellianum, *Rehder et Wilson.*  
hypoglaucum, *Hemsley.*  
leucolasium, *Diels.*  
longipes, *Rehder et Wilson.*  
? ochraceum, *Rehder et Wilson.*  
Thayerianum, *Rehder et Wilson.*

### Subseries Arboreum

arboreum, *Smith.*  
Delavayi, *Franch.*  
Kingianum, *Hook. f. et Watt.*  
peramoenum, *Balf. f. et Forrest.*  
simiarum, *Hance.*  
zeylanicum, *Hort. ex Loud.*

### Subseries Niveum

floribundum, *Franch.*  
foveolatum, *Rehder et Wilson.*  
insigne, *Hemsley et Wilson.*  
niphargum, *Balf. f. et Ward.*  
niveum, *Hook. f.*  
pennivenium, *Balf. f. et Forrest.*  
Ririei, *Hemsley et Wilson.*  
shensiense, *Millais MSS.*  
uvarifolium, *Diels.*

## No. 3. Azalea Series

### Subseries Canadense

Albrechtii, *Maxim.*  
canadense, *Torrey.*

nipponicum, *Maxim.*  
pentaphyllum, *Maxim.*  
Vaseyi, *Gray.*

### Subseries Luteum

alabamense, *Rehder.*  
arborescens, *Torrey.*  
atlanticum, *Rehder.*  
austrinum, *Rehder.*  
calendulaceum, *Torrey.*  
canescens, *Sweet.*  
japonicum, *Suringar.*  
luteum, *Sweet.*  
molle, *G. Don.*  
nudiflorum, *Torrey.*  
oblongifolium, *Millais.*  
occidentale, *Gray.*  
prunifolium, *Millais.*  
roseum, *Rehder.*  
serrulatum, *Millais.*  
speciosum, *Sweet.*  
viscosum, *Torrey.*

### Subseries Obtusum

atrovirens, *Franch.*  
boninense, *Nakai.*  
breviperulatum, *Hayata.*  
indicum, *Sweet.*  
Kanehirai, *Wilson.*  
lasiostylum, *Hayata.*  
linearifolium, *Siebold.*  
longiperulatum, *Hayata.*  
Mariae, *Hance.*  
mesembrinum, *Balf. f.*  
microphyton, *Franch.*  
mucronatum, *G. Don (ledifolium G. Don).*  
Nakaharai, *Hayata.*  
obtusum, *Planchon.*  
Oldhamii, *Maxim.*  
phoeniceum, *Don.*  
rivulare, *Hand. Mazz.*  
rubropilosum, *Hayata.*  
rufohirtum, *Hand. Mazz.*  
Sasakii, *Wilson.*  
scabrum, *G. Don.*  
semi-barbatum, *Maxim.*

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Seniavinii, Maxim.  
serpyllifolium, Miquel.  
Simsii, Planchon.  
subsessile, Rendle.  
tosaense, Makino.  
Tschonoskii, Maxim.  
yedoense, Maxim.

## Subseries Schlippenbachii

Farrerae, Tate.  
Mariesii, Hemsley et Wilson.  
quinquefolium, Bisset et Moore.  
reticulatum, D. Don. (apud G. Don).  
Schlippenbachii, Maxim.  
Weyrichii, Maxim.

## No. 4. Barbatum Series

adoxum, Balf. f. et Forrest.  
? agapetum, Balf. f. et Ward.  
argipeplum, Balf. f. et Cooper.  
barbatum, Wall.  
burriflorum, Balf. f. et Forrest.  
crinigerum, Franch.  
glischrum, Balf. f. et Smith.  
habrotrichum, Balf. f. et Smith.  
ixenticum, Balf. f. et Smith.  
maculiferum, Franch.  
monosematum, Hutch.  
pachytrichum, Franch.  
Smithii, Nutt.  
strigillosum, Franch.

## No. 5. Camelliaeflorum Series

camelliaeflorum, Hook. f.  
Cooperi, Balf. f.  
? lucidum, Nutt.  
? sparsiflorum, Nutt.

## No. 6. Campanulatum Series

aeruginosum, Hook. f.  
campanulatum, D. Don.  
fulgens, Hook. f.  
Parishii, Clarke.  
Wallichii, Hook. f.

## No. 7. Campylogynum Series

### Subseries Aureum

aureum, Franch.  
spodopeplum, Balf. f. et Farrer.  
tephropeplum, Balf. f. et Farrer.

### Subseries Boothii

Boothii, Nutt.  
cerinum, Balf. f. et Forrest.  
commodum, Balf. f. et Forrest.  
megeratum, Balf. f. et Forrest.  
monanthum, Balf. f. et Smith.  
sulfureum, Franch.  
tapeinum, Balf. f. et Farrer.  
theiochrom, Balf. f. et Smith.

### Subseries Brachyanthum

brachyanthum, Franch.  
charitopes, Balf. f. et Farrer.  
charitostreptum, Balf. f. et Ward.  
Genestierianum, Forrest.  
glaucum, Hook. f.  
hypolepidotum, Balf. f. et Smith.  
shweliense, Balf. f. et Forrest.

### Subseries Campylogynum

caeruleo-glaucum, Balf. f. et Forrest.  
campylogynum, Franch.  
charopoeum, Balf. f. et Farrer.  
cremastum, Balf. f. et Forrest.  
damascenum, Balf. f. et Forrest.  
glaucio-aureum, Balf. f. et Forrest.  
myrtilloides, Balf. f. et Ward.

## No. 8. Carolinianum Series

carolinianum, Rehder.  
Chapmanii, Gray.  
minus, Michaux (punctatum, Andrews).

## No. 9. Cephalanthum Series

acraium, Balf. f. et Smith.  
cephalanthoides, Balf. f. et Smith.  
cephalanthum, Franch.



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chamaetortum, *Balf. f. et Ward.*  
gymnomiscum, *Balf. f. et Ward.*  
hedyosmum, *Balf. f.*  
ledoides, *Balf. f. et Smith.*  
lepidanthum, *Balf. f. et Smith.*  
nwaiense, *Balf. f. et Ward.*  
platyphyllum, *Balf. f. et Smith.*  
praeclarum, *Balf. f. et Farrer.*  
radinum, *Balf. f. et Smith.*  
Sargentianum, *Rehder et Wilson.*  
sphaeranthum, *Balf. f. et Smith.*

### No. 10. Chrysanthum Series

brachycarpum, *G. Don.*  
caucasicum, *Pallas.*  
chrysanthum, *Pallas.*  
Fauriei, *Franch.*  
Przewalskii, *Maxim.*  
pseudo-chrysanthum, *Hayata.*  
Purdonii, *Rehder et Wilson.*

### No. 11. Cinnabarinum Series

cinnabarinum, *Hook. f.*  
Keysii, *Nutt.*  
Roylei, *Hook. f.*

### No. 12. Dauricum Series

acuminatum, *Hort.*  
dauricum, *Linn.*  
Fittianum, *Balf. f.*  
mucronulatum, *Turcz.*

### No. 13. Edgeworthii Series

bullatum, *Franch.*  
Edgeworthii, *Hook. f.*  
pendulum, *Hook. f.*  
sciaphyllum, *Balf. f. et Ward.*

### No. 14. Falconeri Series

arizelum, *Balf. f. et Forrest.*  
basilicum, *Balf. f. et Smith.*  
coriaceum, *Franch.*  
decipiens, *Lacaita.*

eximium, *Nutt.*  
Falconeri, *Hook. f.*  
fictolacteam, *Balf. f.*  
galactinum, *Balf. f.*  
Hodgsonii, *Hook. f.*  
megaphyllum, *Balf. f. et Forrest.*  
preptum, *Balf. f. et Forrest.*  
regale, *Balf. f. et Ward.*  
rex, *Levl.*  
sino-Falconeri, *Balf. f.*

### No. 15. Ferrugineum Series

ferrugineum, *Linn.*  
hirsutum, *Linn.*  
Kotschyi, *Simon.*

### No. 16. Fortunei Series

#### Subseries Calophytum

asterochnoum, *Diels.*  
calophytum, *Franch.*  
Openshawianum, *Rehder et Wilson.*  
praevernum, *Hutchinson.*  
sutchuenense, *Franch.*

#### Subseries Davidii

Davidii, *Franch.*  
erubescens, *Hutch.*  
Fargesii, *Franch.*  
haematocheilum, *Craib.*  
Limprichtii, *Diels.*  
orbiculare, *Decaisne.*  
oreodoxa, *Franch.*  
praeteritum, *Hutch.*  
Reginaldii, *Balf. f.*

#### Subseries Fortunei

araliaeforme, *Balf. f. et Forrest.*  
Aucklandii, *Hook. f.*  
auriculatum, *Hemsley.*  
decorum, *Franch.*  
diaprepes, *Balf. f. et Smith.*  
discolor, *Franch.*  
euanthum, *Balf. f. et Smith.*  
Fortunei, *Lindley.*  
glanduliferum, *Franch.*

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Griffithianum, *Wight*.  
Hemsleyanum, *Wilson*.  
? hexamerum, *Hand. Mazz.*  
Houlstonii, *Hemsley et Wilson*.  
planetum, *Balf. f.*  
rasile, *Balf. f. et Smith.*  
rhantum, *Balf. f. et Smith.*  
serotinum, *Hutch.*  
Sheltonae, *Hemsley et Wilson*.  
vernicosum, *Franch.*

## No. 17. *Fragrans* (Adamsii) Series

anthopogonoides, *Maxim.*  
clivicola, *Balf. f. et Smith.*  
Collettianum, *Aitchison.*  
cremnophilum, *Balf. f. et Smith.*  
fragrans, *Maxim.* (*Adamsii, Rehder*).  
primulaeflorum, *Bureau et Franch.*  
trichostomum, *Franch.*

## No. 18. *Fulvum* Series

fulvoides, *Balf. f. et Forrest.*  
fulvum, *Forrest et Smith.*

## No. 19. *Grande* Series

argenteum, *Hook. f.*  
coryphaeum, *Balf. f. et Forrest.*  
giganteum, *Forrest.*  
grande, *Wight.*  
Macabeanum, *Watt.*  
? peregrinum (undescribed).  
praestans, *Balf. f. et Smith.*  
protistum, *Balf. f. et Forrest.*  
semnoides, *Tagg et Forrest.*  
semnum, *Balf. f. et Forrest.*  
sidereum, *Balf. f.*  
sinogrande, *Balf. f. et Smith.*  
Watsonii, *Rehder et Wilson.*

## No. 20. *Helirolepis* Series

bracteatum, *Rehder et Wilson.*  
brevistylum, *Franch.*  
catapastum, *Balf. f. et Forrest.*  
desquamatum, *Balf. f. et Forrest.*  
fumidum, *Balf. f. et Smith.*

helirolepis, *Franch.*  
invictum, *Balf. f. et Farrer.*  
oporinum, *Balf. f. et Ward.*  
pholidotum, *Balf. f. et Smith.*  
plebeium, *Balf. f. et Smith.*  
porrosquameum, *Balf. f. et Forrest.*  
rubiginosum, *Franch.*  
stenoplastum, *Balf. f. et Forrest.*

## No. 21. *Irroratum* Series

adenostemonum, *Balf. f. et Smith.*  
admirabile, *Balf. f. et Forrest.*  
adroserum, *Balf. f. et Forrest.*  
agastum, *Balf. f. et Smith.*  
anthosphaerum, *Diels.*  
araiophyllum, *Balf. f. et Smith.*  
ceraceum, *Balf. f. et Smith.*  
cerochiton, *Balf. f. et Forrest.*  
chawchiense, *Balf. f. et Farrer.*  
Elliottii, *Watt.*  
epapillatum, *Balf. f. et Cooper.*  
erigynum, *Balf. f. et Smith.*  
eritimum, *Balf. f. et Smith.*  
facetum, *Balf. f. et Ward.*  
gymnanthum, *Diels.*  
gymnogynum, *Balf. f. et Forrest.*  
heptamerum, *Balf. f.*  
hylaeum, *Balf. f. et Farrer.*  
hylothreptum, *Balf. f. et Smith.*  
irroratum, *Franch.*  
Kendrickii, *Nutt.*  
Kyawi, *Lace et Smith.*  
laxiflorum, *Balf. f. et Forrest.*  
leptopeplum, *Balf. f. et Forrest.*  
lukiangense, *Franch.*  
? Magorianum, *Balf. f. MSS.*  
mengtszense, *Balf. f. et Smith.*  
Morii, *Hayata.*  
? nankotaisanense, *Hayata.*  
ningyuenense, *Hand. Mazz.*  
ombrochares, *Balf. f. et Ward.*  
papillatum, *Balf. f. et Cooper.*  
persicinum, *Hand. Mazz.*  
pogonostylum, *Balf. f. et Smith.*  
prophantum, *Balf. f. et Forrest.*  
schistocalyx, *Balf. f. et Forrest.*  
spanotrichum, *Balf. f. et Smith.*  
tanastylum, *Balf. f. et Smith.*



**No. 22. Kamtschaticum Series**

glandulosum, *Standley*.  
kamtschaticum, *Pallas*.  
Redowskianum, *Maxim*.

**No. 23. Lacteum Series**

*Subseries Dryophyllum*

agglutinatum, *Balf. f. et Forrest*.  
dryophyllum, *Balf. f. et Forrest*.  
helvolum, *Balf. f. et Forrest*.  
intortum, *Balf. f. et Forrest*.  
lophophorum, *Balf. f. et Forrest*.  
nakotiltum, *Balf. f. et Forrest*.  
phaeochrysum, *Balf. f. et Smith*.  
sigillatum, *Balf. f. et Forrest*.  
syncollum, *Balf. f. et Forrest*.  
theiophyllum, *Balf. f. et Forrest*.  
vicinum, *Balf. f. et Forrest*.

*Subseries Lacteum*

Beesianum, *Diels*.  
colletum, *Balf. f. et Forrest*.  
dichropeplum, *Balf. f. et Forrest*.  
emaculatum, *Balf. f. et Forrest*.  
lacteum, *Franch*.  
microterum (undescribed).  
Traillianum, *Forrest et Smith*.  
? Wightii, *Hook. f.*

*Subseries Levistratum*

aiolopeplum, *Balf. f. et Forrest*.  
dumosulum, *Balf. f. et Forrest*.  
levistratum, *Balf. f. et Forrest*.

**No. 24. Lapponicum Series**

achroanthum, *Balf. f. et Smith*.  
alpicola, *Rehder et Wilson*.  
Amundsenianum, *Hand. Mazz*.  
batangense, *Balf. f.*  
blepharocalyx, *Franch*.  
cantabile, *Balf. f.*  
capitatum, *Maxim*.

chamaezelum, *Balf. f. et Forrest*.  
cheilanthum, *Balf. f. et Forrest*.  
chryseum, *Balf. f. et Ward*.  
complexum, *Balf. f. et Smith*.  
cremnastes, *Balf. f. et Farrer*.  
cuneatum, *W. W. Sm.*  
dasypetalum, *Balf. f. et Farrer*.  
diacritum, *Balf. f. et Smith*.  
drumonium, *Balf. f. et Ward*.  
Edgarianum, *Rehder et Wilson*.  
fastigiatum, *Franch*.  
flavidum, *Franch*.  
hippophaeoides, *Balf. f. et Smith*.  
idoneum, *Balf. f. et Smith*.  
impeditum, *Balf. f. et Smith*.  
intricatum, *Franch*.  
lapponicum, *Wahlenberg*.  
litangense (undescribed).  
muliense, *Balf. f. et Forrest*.  
nigropunctatum, *Bureau et Franch*.  
nitidulum, *Rehder et Wilson*.  
nivale, *Hook. f.*  
oreinum, *Balf. f.*  
oresbium, *Balf. f. et Ward*.  
orthocladum, *Balf. f. et Forrest*.  
parvifolium, *Adams*.  
polifolium, *Franch*.  
polycladum, *Franch*.  
primulinum, *Hemsley*.  
propinquum (undescribed).  
pyncocladum, *Balf. f. et Smith*.  
ramosissimum, *Franch*.  
ravum, *Balf. f. et Smith*.  
rupicola, *W. W. Sm.*  
russatum, *Balf. f. et Forrest*.  
scintillans, *Balf. f. et Smith*.  
sclerocladum, *Balf. f. et Forrest*.  
semanteum (undescribed).  
setosum, *D. Don*.  
stictophyllum, *Balf. f.*  
tapetiforme, *Balf. f. et Ward*.  
telmateium, *Balf. f. et Smith*.  
thymifolium, *Maxim*.  
verruculosum, *Rehder et Wilson*.  
vicarium, *Balf. f.*  
violaceum, *Rehder et Wilson*.  
Websterianum, *Rehder et Wilson*.  
yaragongense, *Balf. f.*  
yungningense (undescribed).

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## No. 25. *Lepidotum* Series

*Baileyi*, *Balf. f.*  
*elaegnoides*, *Hook. f.*  
*lepidotum*, *Wall.*  
*obovatum*, *Hook. f.*  
*pumilum*, *Hook. f.*  
*salignum*, *Hook. f.*  
*sinolepidotum*, *Balf. f.*  
*thyodocum*, *Balf. f. et Cooper.*

## No. 26. *Maddenii* Series

### *Subseries Ciliicalyx*

*assamicum*, *Hort.*  
*atentsiense*, *Hand. Mazz.*  
*burmanicum*, *Hutch.*  
*carneum*, *Hutch.*  
*ciliatum*, *Hook. f.*  
*ciliicalyx*, *Franch.*  
*Cubittii*, *Hutch.*  
*Cuffeanum*, *Craib.*  
*dendricola*, *Hutch.*  
*formosum*, *Wall.*  
*inaequale*, *Hutch.*  
*iteaphyllum*, *Hutch.*  
*Johnstoneanum*, *Watt.*  
*lasiopodum*, *Hutch.*  
*Ludwigianum*, *Hosseus.*  
*Lyi*, *Levl.*  
*missionarum*, *Levl.*  
*pachypodum*, *Balf. f. et Smith.*  
*pilicalyx*, *Hutch.*  
*pseudociliicalyx*, *Hutch.*  
*roseatum*, *Hutch.*  
*rufosquamosum*, *Hutch.*  
*Scottianum*, *Hutch.*  
*Smilesii*, *Hutch.*  
*supranubium*, *Hutch.*  
*Surasianum*, *Balf. f. et Craib.*  
*Valentinianum*, *Forrest.*  
*Veitchianum*, *Hook. f.*

### *Subseries Maddenii*

*brachysiphon*, *Balf. f.* (*brevitubum*,  
*Balf. f. et Cooper*).  
*calophyllum*, *Nutt.*  
*crassum*, *Franch.*

*Maddenii*, *Hook. f.*  
*manipurense*, *Balf. f. et Watt.*  
*polyandrum*, *Hutch.*

### *Subseries Megacalyx*

*Dalhousiae*, *Hook. f.*  
*excellens*, *Hemsley et Wilson.*  
*liliiflorum*, *Levl.*  
*Lindleyi*, *Moore.*  
*megacalyx*, *Balf. f. et Ward.*  
*Nuttallii*, *Booth.*  
*rhabdotum*, *Balf. f. et Cooper.*  
*sino-Nuttallii*, *Balf. f. et Forrest.*

### *Subseries Moupinense*

*dendrocharis*, *Franch.*  
*moupinense*, *Franch.*  
*petrocharis*, *Diels.*

## No. 27. *Metternichii* Series

? *dendritrichum*, *Balf. f. et Forrest.*  
*Fordii*, *Hemsley.*  
*Metternichii*, *Sieb. et Zucc.*  
*pentamerum*, *Maxim.*  
*Smirnowi*, *Traut.*  
*Ugernii*, *Traut.*

## No. 28. *Neriiflorum* Series

### *Subseries Eudoxum*

*asteium*, *Balf. f. et Forrest.*  
*eudoxum*, *Balf. f. et Forrest.*  
*pothium*, *Balf. f. et Forrest.*  
*temenium*, *Balf. f. et Forrest.*  
*trichomiscum*, *Balf. f. et Forrest.*

### *Subseries Forrestii*

*erastum*, *Balf. f. et Forrest.*  
*Forrestii*, *Balf. f.*  
*porphyrophyllum*, *Balf. f. et Forrest.*  
*pyrrhoanthum*, *Balf. f.*  
*repens*, *Balf. f. et Forrest.*  
*serpens*, *Balf. f. et Forrest.*

### *Subseries Haematodes*

*aemulorum*, *Balf. f.*  
*apodectum*, *Balf. f. et Smith.*  
*catacosmum* (undescribed).

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chaetomallum, *Balf. f. et Forrest.*  
? codonanthum, *Balf. f. et Forrest.*  
coelicum, *Balf. f. et Farrer.*  
euchroum, *Balf. f. et Ward.*  
farinosum, *Levl.*  
floccigerum, *Franch.*  
haematodes, *Franch.*  
hemidartum (undescribed).  
? lanatum, *Hook. f.*  
liratum, *Balf. f. et Forrest.*  
mallotum, *Balf. f. et Ward.*  
microgynum, *Balf. f. et Forrest.*  
pocophorum (undescribed).  
rufum, *Batal.*  
sperabile, *Balf. f. et Forrest.*

### Subseries *Neriiflorum*

agetum, *Balf. f. et Forrest.*  
aperanthum, *Balf. f. et Ward.*  
dimidiatum, *Balf. f.*  
dimitrum, *Balf. f. et Forrest.*  
diphrocalyx, *Balf. f.*  
euchaites, *Balf. f. et Forrest.*  
neriiflorum, *Franch.*  
phaedropum, *Balf. f. et Farrer.*  
phoenicodum, *Balf. f. et Farrer.*  
spilotum, *Balf. f. et Farrer.*

### Subseries *Sanguineum*

asmenistum, *Balf. f. et Farrer.*  
brunneifolium, *Balf. f. et Forrest.*  
chlanidotum, *Balf. f. et Forrest.*  
citriniflorum, *Balf. f. et Forrest.*  
cloiophorum, *Balf. f. et Forrest.*  
? dichroanthum, *Diels.*  
didymum, *Balf. f. et Forrest.*  
epipastum, *Balf. f. et Forrest.*  
fulvastrum, *Balf. f. et Forrest.*  
glaphyrum, *Balf. f. et Forrest.*  
haemaleum, *Balf. f. et Forrest.*  
herpesticum, *Balf. f. et Ward.*  
himertum, *Balf. f. et Forrest.*  
horaeum, *Balf. f. et Forrest.*  
jangtzwense, *Balf. f. et Forrest.*  
leucopetalum, *Balf. f. et Forrest.*  
mannophorum, *Balf. f. et Forrest.*  
mesopolium, *Balf. f. et Forrest.*  
nebrites, *Balf. f. et Forrest.*

pilovittatum, *Balf. f. et Smith.*  
poliopeplum, *Balf. f. et Forrest.*  
roseotinctum, *Balf. f. et Forrest.*  
sanguineum, *Franch.*  
scyphocalyx, *Balf. f. et Forrest.*  
torquatum, *Balf. f. et Farrer.*  
trichophlebium, *Balf. f. et Forrest.*

### No. 29. *Ovatum* Series

australe, *Balf. f. et Forrest.*  
ellipticum, *Maxim.*  
? leiopodum, *Hayata.*  
leptothrium, *Balf. f. et Forrest.*  
ovatum, *Planchon.*  
? Tanakai, *Hayata.*  
Vialii, *Franch.*

### No. 30. *Ponticum* Series

baeticum, *Boiss. et Reut.*  
californicum, *Hook. f.*  
catawbiense, *Michaux.*  
maximum, *Linn.*  
ponticum, *Linn.*

### No. 31. *Saluenense* Series

amaurophyllum, *Balf. f. et Forrest.*  
calostrotum, *Balf. f. et Ward.*  
chameunum, *Balf. f. et Forrest.*  
charidotes, *Balf. f. et Farrer.*  
colobodes (undescribed).  
cosmetum, *Balf. f. et Forrest.*  
humicola (undescribed).  
humifusum (undescribed).  
keleticum, *Balf. f. et Forrest.*  
pamprotum (undescribed).  
prostratum, *Smith.*  
radicans, *Balf. f. et Forrest.*  
saluenense, *Franch.*  
sericocalyx (undescribed).

### No. 32. *Scabrifolium* Series

Duclouxii, *Levl.*  
fuchsiaeflorum, *Levl.*  
hemitrichotum, *Balf. f. et Forrest.*  
mollicomum, *Balf. f. et Smith.*



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pubescens, *Balf. f. et Forrest.*  
scabrifolium, *Franch.*  
scabriusculum, *Franch.*  
spiciferum, *Franch.*  
spinuliferum, *Franch.*  
suberosum, *Balf. f. et Forrest.*

## No. 33. Stamineum Series

Cavaleriei, *Levl.*  
Chaffanjonii, *Levl.*  
? Championae, *Hook. f.*  
Esquirolii, *Levl.*  
Feddei, *Levl.*  
Hancockii, *Hemsley.*  
Henryi, *Hance.*  
Latoucheae, *Franch.*  
Mackenzianum, *Forrest.*  
moulmeinense, *Hook. f.*  
nematocalyx, *Balf. f. et Smith.*  
oxyphyllum, *Franch.*  
pittosporaeifolium, *Hemsley.*  
siamense, *Diels.*  
stamineum, *Franch.*  
stenaulum, *Balf. f. et Smith.*  
Tutcheriae, *Hemsley et Wilson.*  
Westlandii, *Hemsley.*  
Wilsonae, *Hemsley et Wilson.*

## No. 34. Taliense Series

### Subseries Adenogynum

adenogynum, *Diels.*  
adenophorum, *Balf. f. et Smith.*  
alutaceum, *Balf. f. et Smith.*  
Balfourianum, *Diels.*  
? detonsum, *Balf. f. et Forrest.*  
? Faberi, *Hemsley.*  
? faberioides, *Balf. f.*  
? longesquamatum, *Schneider (Bret-  
tii, Hemsley et Wilson).*  
Prattii, *Franch.*

### Subseries Albertsenianum

Albertsenianum, *Forrest.*  
? calvescens, *Balf. f. et Forrest.*  
russotinctum, *Balf. f. et Forrest.*

### Subseries Detersile

detersile, *Franch.*  
? inopinum, *Balf. f. MSS.*  
? paradoxum, *Balf. f. MSS.*  
? Wiltonii, *Hemsley et Wilson.*

### Subseries Roxieanum

aischropeplum, *Balf. f. et Forrest.*  
bathyphyllum, *Balf. f. et Forrest.*  
coccinopeplum, *Balf. f. et Forrest.*  
comisteum, *Balf. f. et Forrest.*  
cucullatum, *Handy Mazz.*  
iodes, *Balf. f. et Forrest.*  
lampropeplum, *Balf. f. et Forrest.*  
oreonastes, *Balf. f.*  
perulatum, *Balf. f. et Forrest.*  
poecilodermum, *Balf. f. et Forrest.*  
proteoides, *Balf. f. et Smith.*  
recurvum, *Balf. f. et Forrest.*  
Roxieanum, *Forrest.*  
triplonaevium, *Balf. f. et Forrest.*  
tritifolium, *Balf. f. et Forrest.*

### Subseries Sphaeroblastum

Bureavii, *Franch.*  
bureavioides, *Balf. f.*  
cruentum, *Levl.*  
dictyotum (undescribed).  
globigerum, *Balf. f. et Forrest.*  
? kialense, *Franch.*  
porphyroblastum, *Balf. f. et Forrest.*  
sphaeroblastum, *Balf. f. et Forrest.*  
? Weldianum, *Rehder et Wilson.*  
wuense, *Balf. f.*

### Subseries Taliense

aganniphum, *Balf. f. et Ward.*  
Clementinae, *Forrest.*  
fissotectum, *Balf. f. et Forrest.*  
flavorufum, *Balf. f. et Forrest.*  
glaucopeplum, *Balf. f. et Forrest.*  
schizopeplum, *Balf. f. et Forrest.*  
taliense, *Franch.*

### Subseries Wasonii

rhododactylum, *Balf. f.* (unde-  
scribed).  
Wasonii, *Hemsley et Wilson.*

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## No. 35. Thomsoni Series

### Subseries *Campylocarpum*

- callimorphum, *Balf. f. et Smith.*
- caloxanthum, *Balf. f. et Farrer.*
- campylocarpum, *Hook. f.*
- cyclium, *Balf. f. et Forrest.*
- telopeoides (undescribed).
- telopeum, *Balf. f. et Forrest.*

### Subseries *Dasycladum*

- cymbomorphum, *Balf. f. et Forrest.*
- dasycladum, *Balf. f. et Smith.*
- manoepelum, *Balf. f. et Forrest.*
- Martinianum, *Balf. f. et Forrest.*
- truncatum, *Balf. f. et Forrest.*

### Subseries *Selense*

- beimaense, *Balf. f. et Forrest.*
- blandulum, *Balf. f. et Smith.*
- chalarocladum, *Balf. f. et Forrest.*
- docimum (undescribed).
- dolerum, *Balf. f. et Forrest.*
- duseimatum, *Balf. f. et Forrest.*
- erythrocalyx, *Balf. f. et Forrest.*
- hedythamnum, *Balf. f. et Forrest.*
- jucundum, *Balf. f. et Smith.*
- metrium, *Balf. f. et Forrest.*
- myiagram, *Balf. f. et Forrest.*
- nanothamnum, *Balf. f. et Forrest.*
- pagophilum, *Balf. f. et Ward.*
- panteumorphum, *Balf. f. et Smith.*
- probum, *Balf. f. et Forrest.*
- rhaibocarpum, *Balf. f. et Smith.*
- selense, *Franch.*
- setiferum, *Balf. f. et Forrest.*

### Subseries *Souliei*

- astrocalyx, *Balf. f. et Forrest.*
- axium, *Balf. f. et Forrest.*
- Bonvaloti, *Bureau et Franch.*
- cordatum, *Levl.*
- croceum, *Balf. f. et Smith.*
- esetulosum, *Balf. f. et Forrest.*
- eucallum, *Balf. f. et Forrest.*
- gloeoblastum, *Balf. f. et Forrest.*
- litiense, *Balf. f. et Forrest.*

- oresterum, *Balf. f. et Forrest.*
- prasinocalyx, *Balf. f. et Forrest.*
- puralbum, *Balf. f. et Smith.*
- Souliei, *Franch.*
- Wardii, *W. W. Sm.*
- Williamsianum, *Rehder et Wilson.*

### Subseries *Thomsonii*

- aiolosalpinx, *Balf. f. et Farrer.*
- brachyandrum, *Balf. f. et Forrest.*
- candelabrum, *Hook. f.*
- cyanocarpum, *Franch.*
- eclecteum, *Balf. f. et Forrest.*
- eriphyllum, *Balf. f. et Smith.*
- Hookeri, *Nutt.*
- Meddianum, *Forrest.*
- niphobolum, *Balf. f. et Farrer.*
- Stewartianum, *Diels.*
- Thomsonii, *Hook. f.*

## No. 36. Trichocladum Series

- brachystylum, *Balf. f. et Smith.*
- chloranthum, *Balf. f. et Farrer.*
- lepidostylum, *Balf. f. et Forrest.*
- lithophilum, *Balf. f. et Ward.*
- lophogynum (undescribed).
- mekongense, *Franch.*
- melinanthum, *Balf. f. et Ward.*
- oulotrichum, *Balf. f. et Forrest.*
- rubrolineatum, *Balf. f. et Forrest.*
- semilunatum, *Balf. f. et Forrest.*
- trichocladum, *Franch.*
- xanthinum, *Balf. f. et Smith.*

## No. 37. Triflorum Series

### Subseries *Hanceanum*

- afghanicum, *Aitch. et Hemsley.*
- Hanceanum, *Hemsley.*
- longistylum, *Rehder et Wilson.*

### Subseries *Oreotrephes*

- cardioeides, *Balf. f. et Forrest.*
- depile, *Balf. f. et Forrest.*



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hypotrichotum, *Balf. f. et Forrest.*  
oreotrepthes, *W. W. Sm.*  
oreotrepoides (undescribed).  
phaeochlorum, *Balf. f. et Forrest.*  
pubigerum, *Balf. f. et Forrest.*  
timeteum, *Balf. f. et Forrest.*  
trichopodum, *Balf. f. et Forrest.*

## Subseries Rigidum

artosquameum, *Balf. f. et Forrest.*  
rarosquameum, *Balf. f.*  
rigidum, *Franch.*  
sycnanthum, *Balf. f. et Smith.*

## Subseries Siderophyllum

bivelatum, *Balf. f.*  
ioanthum, *Balf. f.*  
obscurum, *Franch.*  
siderophyllum, *Franch.*  
stereophyllum, *Balf. f. et Smith.*

## Subseries Triflorum

aechmophyllum, *Balf. f. et Forrest.*  
ambiguum, *Hemsley.*  
Amesiae, *Rehder et Wilson.*  
apiculatum, *Rehder et Wilson.*  
Augustinii, *Hemsley.*  
bauhiniaeflorum, *Watt.*  
Bodinieri, *Franch.*  
charianthum, *Hutch.*  
chartophyllum, *Franch.*  
chasmanthoides, *Balf. f. et Forrest.*  
chasmanthum, *Diels.*  
concinnum, *Hemsley.*  
Davidsonianum, *Rehder et Wilson.*  
erianthum, *Levl.*  
erileucum, *Balf. f. et Forrest.*  
glaucophyllum (undescribed).  
hesperium, *Balf. f. et Forrest.*  
hirsuticostatum, *Hand. Mazz.*  
hormophorum, *Balf. f. et Forrest.*  
hypophaeum, *Balf. f. et Forrest.*  
Keiskii, *Miquel.*  
laetevirens (undescribed).

leilungense, *Balf. f. et Forrest.*  
lochmium, *Balf. f.*  
lutescens, *Franch.*  
pleistanthum (undescribed).  
polylepis, *Franch.*  
pseudo-yanthinum (undescribed).  
Searsiae, *Rehder et Wilson.*  
tatsienense, *Franch.*  
trichophorum, *Balf. f.*  
triflorum, *Hook. f.*  
villosum, *Hemsley et Wilson.*  
Vilmorinianum, *Balf. f.*  
Wongii, *Hemsley et Wilson.*  
yanthinum, *Bur. et Franch.*  
yunnanense, *Franch.*  
zaleucum, *Balf. f. et Smith.*

## No. 38. Vaccinioides Series

emarginatum, *Hemsley et Wilson.*  
euonymifolium, *Levl.*  
Kawakamii, *Hayata.*  
malingdanense, *Merrill.*  
Quadrasianum, *Vidal.*  
rosmarinifolium, *Vidal.*  
sinovaccinioides, *Balf. f. et Forrest.*  
vaccinioides, *Hook. f.*  
Vidalii, *Rolfe.*

## No. 39. Virgatum Series

oleifolium, *Franch.*  
racemosum, *Franch.*  
sinovirgatum (undescribed).  
virgatum, *Hook. f.*

## No. 40. Species unplaced

albiflorum, *Hook. f.*  
Griersonianum, *Balf. f. et Forrest.*  
hyperythrum, *Hayata.*  
micranthum, *Turcz.*  
Tashiroi, *Maxim.*  
Wallaceanum, *Millais MSS.*

## The Rhododendron Society Notes.

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### THE RHODODENDRONS OF THE BONIN AND LIUKIU ISLANDS AND OF FORMOSA.

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To the *Rhododendron Society Notes* of 1922 I contributed a paper on the Rhododendrons of North-Eastern Asia, and to the *Notes* of 1923 a similar paper on the Rhododendrons of the Hupeh Province, China. In continuation, it is proposed to deal here with another geographical area of Eastern Asia. A glance at a good map of the Far East shows strings of islands stretching southward like stepping-stones from Japan toward the Equator. They may be likened to a rope of unmatched pearls with, for the purpose of this paper, Formosa athwart the Tropic of Cancer forming the pendant. All these islands, some little more than mere rocks thrust above the ocean, others of fair size, are now an integral part of the Japanese Empire. They are little known to the Western world, and very few botanists other than Japanese have had opportunity of visiting them. More fortunate than many, it has been my privilege to tread their shores. Bonin and Liukiu I botanised in the spring of 1917; Formosa in the early spring and autumn of 1918. These island groups support a luxuriant vegetation, largely endemic, with a coastal fringe of widespread subtropical species. The islands enjoy a warm temperate or almost tropical climate, varying somewhat according to their latitudinal positions, but all are lapped by the waters of the warm Japan Gulf Stream. Formosa has a backbone of mountains whose higher peaks average over 10,000 feet in height, and in consequence boasts cool temperate regions. Only a few plants indigenous to these islands are in cultivation, but we are indebted to Liukiu for the well-known *CYCAS REVOLUTA* Linn. and the indispensable *LILIUM LONGIFLORUM* Thunb. which long ago reached us by way of Japan. General accounts of the floras I published in Vols. I. and II. of the *Arnold Arboretum Journal* (1919-20), so this may not detain us here.

From these different islands some twenty-two species of Rhododendrons are at present known, of which eighteen are endemic. The first known was *R. SCABRUM*, named by G. Don in 1834, native of the Liukiu, and long cultivated in South Japan, but how and where Don obtained his material we do not know. The last discovered was *R. BONINENSE* Nakai in 1920, and introduced into cultivation by means of seeds which I secured through Dr. Nakai's assistance in the late autumn of 1924. The first Formosan species discovered was *R. OLDHAMII* by Richard Oldham in 1864, after whom it was named by the Russian botanist, Maximowicz. It was introduced into cultivation in 1878 by Charles Maries, and reintroduced by myself in 1918, at which time I also introduced three other species from Formosa. The remaining endemic species are not yet in cultivation, though several are well worthy of the honour.

The history of each species is told in its proper place in this article, but a few general statements may be of interest here. Of the twenty-two recorded species twelve belong to the group recognised as Azaleas, and of these seven are fully dealt with in my *Monograph of the Azaleas of the Old World*.

From the Liukiu Archipelago and neighbouring Kawanabe Islands four



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species of *Rhododendron* are known. One species, the red-flowered *R. SCABRUM G. Don*, better known as *AZALEA SUBLANCEOLATA*, is endemic; so, too, is the variety *ERIOCARPUM Hayata*, of *R. SIMSII Planch.*, known only from the Kawanabe Islands. *R. TASHIROI Maxim.* is also common on Yakushima, and grows on Kirishima and elsewhere in Kyushu, Japan. The fourth species, *R. LEIOPODUM Hayata*, is common to Yaeyama, the northernmost of the Liukiu Islands, and to Formosa. On Okinawa *R. SCABRUM G. Don*, with large gorgeous red flowers, is locally fairly plentiful, but nowhere in the Liukiu Archipelago are Rhododendrons a prominent feature of the vegetation, neither can they be called common plants.

The Bonin species (*R. BONINENSE Nakai*) is known from one isolated locality only, and is the most eastern and remote representative of the Azalea group. With its white flowers it reminds one of *R. MUCRONULATUM G. Don*, better known as *AZALEA LEDIFOLIA*.

Three common East China Rhododendrons (*R. SIMSII*, *R. MARIENSIS*, and *R. OVATUM*) just find a foothold on Formosa, but all are rare plants there. This island, with its high mountains and magnificent forests, has so far yielded nineteen species of Rhododendron, of which fifteen are endemic. On the higher mountains *R. MORII Hayata* and *R. PSEUDOCRYSANTHUM Hayata* are abundant as undergrowth in the forests of fir, spruce, and juniper, growing socially and covering large areas. *R. PSEUDOCRYSANTHUM Hayata* extends well above the tree line, and as a low shrub with gnarled branches grows on the summit of Mount Morrison, 13,072 feet above sea-level. On rocky ridges and slopes between 11,000 and 13,000 feet it forms with *JUNIPERUS MORRISONICOLA Hayata* well-nigh impenetrable thickets. But it is only on the higher parts of this central range that one familiar with Rhododendrons in Western China and Japan would call them common in Formosa.

In the rich rain-forests on Arisan, between 6000 and 8600 feet altitude, the epiphytic *R. KAWAKAMII Hayata* is moderately plentiful. On open grass-clad deforested mountain slopes beyond Arisan and toward Mount Morrison, one Azalea (*R. RUBROPILOSUM Hayata*) grows socially in considerable numbers. Through forests of mixed trees *R. LEIOPODUM Hayata* is scattered over much of the island between 2000 and 8000 feet altitude. From sea-level up to 7500 feet altitude the red-flowered *R. OLDHAMII Maxim* is plentiful, being the low-level Azalea of the islands, and in this respect the homologue of *R. SIMSII Planch.* in China and *R. OBTUSUM Planch.* in Japan. The other Formosan species in the present state of our knowledge may be considered rare.

The discovery of these Rhododendrons is due mainly to the energy of Japanese botanists and collectors. The descriptions of the Formosan species we owe to Dr. B. Hayata, who has laboured so diligently in investigating and making known the flora of this rich and most interesting island. Among the twenty-two species the three subgenera, Anthodendron, Azaleastrum, and Eurhododendron, are represented. Anthodendron is in the lead with twelve species, eleven of which belong to the section Tsutsutsi, and one (*R. MARIENSIS Hemsl. and Wils.*) to *Sciadorhodium*; Azaleastrum is represented by three species, one (*R. OVATUM Planch.*) belonging to the section *Euazaleastrum* and two to the section *Choniastrum*; the other seven species belong to *Eurhododendron*, six of them to the

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section *Leiorhodium*, and one (*R. KAWAKAMII Hayata*), an anomalous plant, belongs to an unnamed section of the subgenus. Nine of the known species are in cultivation in Western gardens. An account, with full descriptions of all the species with their synonyms, is given in the *Journal of the Arnold Arboretum*, VI. No. 3, July 1925. Here I have thought it sufficient to quote the original reference and a figure when available. A key to the species is given, but keys for the subgenera and sections are unnecessary since they appear in my account of the "Rhododendrons of North-Eastern Asia" in Vol. II. No. 3, 1922, of the *Rhododendron Society Notes*. For convenience of reference, the species are arranged alphabetically as in previous articles.

## CLASSIFICATION.

### KEY TO THE SPECIES.

Leaves deciduous.

Leaves ovate to ovate-lanceolate, undersurface glabrous at maturity; corolla rose-purple..... *R. MARIESII*, p. 235.

Leaves persistent.

Shoot clothed with appressed, strigose, grey to shining brown hairs.

Stamens 5.

Corolla less than 2 cm. broad; filaments and style glabrous; anthers apiculate..... *R. BREVIPERULATUM*, p. 231.

Corolla more than 3 cm. broad; filaments and style villose; anthers not apiculate..... *R. SASAKII*, p. 238.

Stamens 7-10.

Bud-scales not viscid.

Style villose at the base.

Leaves narrow lanceolate to oblanceolate, crenate dentate

*R. KANEHIRAI*, p. 233.

Leaves conspicuously dimorphic, obovate to obovate-oblong, abruptly mucronate..... *R. LASIOSTYLUM*, p. 233.

Leaves not conspicuously dimorphic, elliptic-ovate to ovate-oblong or elliptic-oblong, acute..... *R. RUBROPILOSUM*, p. 238.

Style glabrous.

Flowers more than 2.5 cm. across.

Leaves elliptic to elliptic-oblong or oblong-obovate, from 2 to 5 cm. long..... *R. SIMSII*, p. 239.

Leaves oval to ovate-lanceolate, 1 to 2 cm. long

*R. LONGIPERULATUM*, p. 234.

Flowers less than 2.5 cm. across; leaves oblanceolate to oval, 1 cm. or less long..... *R. NAKAHARAI*, p. 236.

Bud-scales viscid on inner surface.

Corolla white; shoots and petioles clad with pilose, non-glandular hairs  
*R. BONINENSE*, p. 231.

Corolla red.

Shoot and petioles clad with pilose, often gland-tipped hairs; leaves not conspicuously dimorphic, entire.. *R. OLDHAMII*, p. 236.

Shoot and petioles not pilose nor glandular; leaves conspicuously dimorphic, subcrenulate..... *R. SCABRUM*, p. 239.



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Shoot not clothed with appressed, strigose, grey to shining brown hairs.

Flowers from clustered axillary buds, crowded at end of shoot.

Stamens 5 ; corolla rotate..... R. OVATUM, p. 237.

Stamens 10 or more ; corolla funnel-form campanulate.

Bud-scales pubescent ; calyx ciliate..... R. TANAKAI, p. 239.

Bud-scales glabrous ; calyx not ciliate..... R. LEIOPODUM, p. 234.

Flowers from terminal bud, umbellate or racemose.

Leaves not punctate or pustulate on lower surface.

Shoots and leaves clad with long appressed straight hairs, never floccose-tomentose..... R. TASHIROI, p. 240.

Shoots and leaves floccose-tomentose, often glabrescent.

Pedice and ovary glabrous..... R. NANKOTAISANENSE, p. 236.

Pedice and ovary glandular-pubescent.

Calyx glandular-ciliolate ; capsule not curved

R. PSEUDOCRYSANTHUM, p. 237.

Calyx not glandular, capsule curved..... R. MORII, p. 235.

Shoots glabrescent ; leaves encrusted with firm, pale grey indumentum on lower surface..... R. FORMOSANUM, p. 232.

Leaves punctate or pustulate on lower surface.

Leaves and shoots arranged in false verticils.... R. KAWAKAMII, p. 233.

Leaves and shoots scattered, not arranged in false verticils

R. HYPERYTHRUM, p. 232.

### ENUMERATION OF ALL THE KNOWN SPECIES AND VARIETIES.

#### RHODODENDRON BONINENSE *Nakai*.

[In *Tokyo Bot. Mag.* XXXIV. (324) (1920), name only ; in XXXV. 152 (1921).]

This is the Bonin Azalea, a well-marked endemic species, characterised by its large white flowers, by the long shaggy rufous grey hairs on the shoots and petioles, and by its crowded, scattered homomorphic leaves. It is evidently a very beautiful Azalea, and is related to *R. mucronatum* *G. Don* which, however, has a glandular-pubescent calyx and many gland-tipped hairs scattered on both surfaces of the leaf. The Bonin Azalea is known only from one mountain on the island of Chichishima, the largest of the Bonin group, where it was discovered in 1920 by Messrs. T. Nakai and H. Toyoshima. The habitat is said to be difficult of access, and only one group of plants was found. Through Dr. Nakai's assistance seeds were sent by Mr. H. Toyoshima to the Arnold Arboretum in the late autumn of 1924, and these have been distributed among friends in America and England. It should be perfectly hardy in a climate such as that of Cornwall, and ought to be a valuable addition to our gardens.

#### RHODODENDRON BREVIPERULATUM *Hayata*.

[*Icon. Pl. Formosan.* III. 129 (1913). Kanehira, *Formos. Trees*, 318, 319, fig. 16 (1917).]

This Azalea is distinguished from other Formosan species by its small flowers, each with 5 stamens, with glabrous or virtually glabrous filaments and anthers



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distinctly apiculate at the base. It is most closely related to *R. RUBROPILOSUM* Hayata, which has rather larger flowers, each with 7 or 8 stamens with villose filaments, non-apiculate anthers, and a markedly pilose style; the leaves, moreover, are thicker and the costa more densely clad with hairs in *R. RUBROPILOSUM*. When working on my *Monograph of Azaleas of the Old World* I had only the original description to guide me and confused *R. BREVIPERULATUM* with a much larger flowered plant, which I now consider a new and distinct species, and have named *R. SASAKII*. Hayata gives Mt. Pusasai in Nanto Prefecture as the type locality. Material kindly supplied by R. Kanehira from the Government herbarium of Formosa and marked "co-type" is localised as Mount Egiri, near Giran. U. Mori in April 1909 is given as the collector in both instances. On my visits to Formosa I did not see this Azalea; it is not in cultivation.

### RHODODENDRON FORMOSANUM Hemsley.

[In *Kew Bull. Misc. Inform.* 1895, 183. Kanehira, *Formos. Trees*, 319, fig. 3, 320 (1917).]

This broad-leaved, evergreen Rhododendron is characterised by the pale grey, encrusted undersurface of its leaves, and by its pubescent pedicels, calyx, and ovary. It is most closely related to *R. HYPOGLAUCUM* Hemsl., native of Central China, which has glandular and less strongly pubescent pedicels and calyx, and a glabrous, narrow-ovoid ovary. Living plants of these two species are quite different in appearance, though their morphological distinctions appear slight when written down.

In mixed forests, rich in species of evergreen Oaks and Laurels, at 5500 feet altitude near Tentana in Shinchiku Prefecture, Formosa, I found *R. FORMOSANUM* in full flower on 6th April 1918, but later in the year I could find no fruits. The plant is quite common in the above locality, and often of large size and tree-like in habit. The rounded flower-trusses are of good size, and the blossoms white or pink in colour. First discovered by Augustine Henry in the southern part of the island in 1894, this Rhododendron has since been found in several districts, and appears to extend along the central range from south to north. It is the most beautiful species of its section known to grow in Formosa; unfortunately it has not been introduced into gardens.

### RHODODENDRON HYPERYTHRUM Hayata.

[*Icon. Pl. Formosan.* III. 133 (1913). Kanehira, *Formos. Trees*, 319, fig. 5, 320 (1917).]

This is a very handsome Rhododendron, well distinguished by the multitude of red-brown minute pustules which dot the lower surface of its elliptic-oblong leaves. It obviously belongs to the section *LEIORHODIUM* and not to that of *LEPIPHERUM*, in spite of the presence of these pustulate leaf-glands. I know of no other species so anomalous. Unfortunately I did not see this Rhododendron growing in Formosa, and my knowledge of it is based on co-type herbarium specimens. The species was discovered in central Formosa by

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N. Konishi and is not in cultivation. On material collected by S. Sasaki in 1910 on Mt. Shichisei in Taihoku Prefecture Hayata has based another species (*R. RUBROPUNCTATUM*). I can find nothing to distinguish these supposed two species; both have the remarkable pustulate glands on the undersurface of the leaves.

### RHODODENDRON KANEHIRAI *Wilson*.

[In *Wilson & Rehder, Monog. Azal. 28* (1921).]

This *Azalea* is closely related to *R. INDICUM Sweet*, which is distinguished chiefly by its smaller leaves, rather larger, usually solitary flower, its 5 stamens with anthers from 2 to 3 mm. long, and by its stouter and glabrous style. The chief morphological difference is the number of stamens, and it may eventually prove that this new species is a decandrous variety of the old Linnæan plant. I saw it in a garden at Urai, Taihoku Prefecture, and was told that the plants had been brought from the higher slopes of the surrounding mountains. It is distinct from anything else I have seen, and apparently has nothing to do with any of the species described by Hayata. The flowers vary in colour from carmine-red to scarlet. It is a pleasing little Formosan *Azalea* well worthy of introduction into Western gardens.

### RHODODENDRON KAWAKAMII *Hayata*.

[In *Jour. Coll. Sci. Tokyo, XXX. art. 1, 171 (Mat. Fl. Formos.)* (1911).]

In Formosa, on and around Arisan, between 5000 and 8000 feet above sea-level, this is a very common epiphytic *Rhododendron*. It is particularly abundant in the forests of *Chamacyparis formosensis Matsum.*, growing high up in the forks and on the branches of these gigantic trees. But it is not confined to this conifer, being found epiphytical on any kind of tree in these rain-forests. It is a bushy plant, from 2 to 5 feet high and broad, with numerous subverticillate, often gnarled and lichen-clad branches. I saw a great many plants on Arisan, but none in bloom nor in fruit. As Hayata points out, this *Rhododendron* is related to *R. EMARGINATUM Hemsl. and Wils.*, a native of Southern Yunnan. These two species, with which must be associated *R. VIDALII Rolfe* and several other Philippine and Malaysian species with cuncate, spatulate to obovate, verticillate leaves, punctate on the undersurface, form a little group distinct from other sections of the vast genus. All are tropical and many of them epiphytic, the latter from necessity rather than choice.

RHODODENDRON KAWAKAMII was discovered in the neighbourhood of Arisan at an elevation of 7000 feet above the sea-level in 1906 by Messrs. T. Kawakami and U. Mori. It is not in cultivation.

### RHODODENDRON LASIOSTYLUM *Hayata*.

[*Icon. Pl. Formosan. III. 135* (1913).]

This is a pretty pink-flowered *Azalea*, native of Formosa, where it would appear to be rare. The branches are slender and twiggy, and with the leaves

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are clothed with flattened, appressed, chestnut-brown hairs, as is usual in its group. The spring leaves are lanceolate to ovate-lanceolate and pointed, the summer leaves oblong-obovate to oblanceolate, and rounded at the apex. The flowers are borne three or four together at the end of the shoot, each about one inch in diameter. During my travels in Formosa I saw but one plant, growing on the top of an isolated boulder at about 1200 feet above sea-level in the Nanto Prefecture. The bush was about 3 feet high and nearly as much through, and laden with delightful pink blossoms. At a later date I was sorry not to find fruits, for the plant is well worth introducing into our gardens.

### RHODODENDRON LEIOPODUM Hayata.

[*Icon. Pl. Formosan.* III. 136, t. 24 (1913). Makino, *Icon. Pl. Jap.* I. pt. 3, 15, t. 9 (1906), as *R. ELLIPTICUM*. Komatsu in Matsumura, *Icon. Pl. Koisikav.* II. 93, t. 131 (1915), as *R. leptanthum*.]

This Rhododendron is distinguished from the closely related *R. TANAKAI Hayata* by its glabrous winter-buds and calyx, and by its rather smaller flowers. The species, however, are very near kin. In Formosa *R. LEIOPODUM* is found scattered through the mixed hardwood forests from a few hundred feet above sea-level in the north to an altitude of 8000 feet in the south. On Arisan, in the central part of the island, it grows in rocky places in the *Chamaecyparis* and *Tsuga* forests. Though widespread it is nowhere common. A large bush, or even small tree, it has long rigid branches and a rather open habit. I saw it growing in many places, but neither in flower nor fruit, and my knowledge of its flowers is from specimens collected by my friend S. Sasaki. The variation in size of the calyx is marked, but this phenomenon is found among other members of its class, and also in other species widely removed. Hayata emphasises the pallid undersurface of the leaves, but I find this inconstant.

This species was discovered on Yacyama, the southernmost large island of the Liukiu Archipelago, by Y. Tashiro in 1887. Maximowicz had some of the material, and considered it the same species as one from western Fokien. On this mixed material is based *R. ELLIPTICUM Maxim.*, but the description, mainly at least, is based on the Chinese plant which, unfortunately, I have not seen. It may be that Maximowicz was correct in his view, but the floras of Formosa and Eastern China are not closely related, the affinity being with the western part of China. On this ground I think it safe to accept Hayata's name for the insular species. It is a handsome Rhododendron not yet brought into cultivation.

Hayata based his *R. LEIOPODUM* on material collected on Bahozan in Bioritzu Prefecture by Messrs. T. Kawakami and U. Mori in 1906. On the mountains of Ako Prefecture, in the South of Formosa, T. Kawakami in 1907 collected other material. On this Hayata based his *R. LEPTOSANTHUM*, which he distinguishes by its having smaller flowers and ovate-oblong leaves. I have before me a specimen of this plant named by Hayata, and can find no difference between it and material I have of typical *R. LEIOPODUM*.



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### RHODODENDRON LONGIPERULATUM Hayata.

[*Icon. Pl. Formosan.* III. 138 (1913). Kanehira, *Formos. Trees*, 319, fig. 13, 323 (1917).]

This red-flowered Azalea is most closely related to *R. KANEHIRAI* Wils., which is distinguished by its subverticillate branches, its more crowded, much longer, more membranaceous leaves, and by its larger flowers with exserted style markedly villose in the lower half. In my *Monograph of the Azaleas of the Old World* I wrongly referred *R. LONGIPERULATUM* to *R. OLDHAMII* Maxim. as a synonym. With this plant I now find it has nothing to do. Indeed, Hayata's species with its neat, scattered, nearly oval, subcoriaceous leaves, pallid on the undersurface, is quite distinct from all others of the group. Discovered on Mt. Daiton in 1910 by Y. Shimada, *R. LONGIPERULATUM* is not yet in cultivation.

### RHODODENDRON MARIESII Hemsley and Wilson.

[In *Kew Bull. Misc. Inform.* (1907), 244. Hutchinson in *Bot. Mag.* CXXXIV. t. 8206 (1908).]

This Azalea, common and widespread in Eastern China from the coast westward to Hupeh, has managed to find a foothold in Formosa. In 1905 Messrs. T. Kawakami and U. Mori collected material at Shojo, in Nanto Prefecture, which Hayata made the type of a new species which he called *R. SHOJOENSE*. Had he known *R. MARIESII* he would at once have seen that the plants were conspecific. A fuller account of this Azalea appears in the *Rhododendron Society Notes* for 1923, page 170.

### RHODODENDRON MORII Hayata.

[In *Jour. Coll. Sci. Tokyo*, XXX. art. 1, 173 (*Mat. Fl. Formos.*) (1911). Kanehira, *Formos. Trees*, 319, fig. 1, 324 (1917).]

This is the common Rhododendron of the Formosan forests above the elevation of 6500 feet, and it grows to a large size. Very often it is a wide-spreading shrub from 20 to 25 feet high, occasionally as much as 30 feet, with a trunk 3 feet in girth. Around Arisan and on the ranges beyond it is plentiful, but clings to the edge of the forests of mixed broad-leaf trees and conifers. I did not see it in bloom, but judging from herbarium specimens it is much less showy than many other east Asiatic species. The flowers are white, spotted with brown-purple, numerous, sometimes as many as twenty, in a rounded truss, but they are small for such a large and vigorous plant. It is most closely related to *R. PACHYTRICHUM* Franch. of western Szechuan, which, though similar in appearance of flower and foliage, has usually densely hairy shoots, and differs in other characters. Hayata distinguishes another species (*R. PACHYSANTHUM*) by its leaves being densely tomentose below, less reticulate on the upper surface, and the style glabrous. I do not find these characters so marked, neither are they constant; the tomentum on the undersurface of the leaves is floccose, and may disappear partially or wholly and early or late as is the case with other Rhododendrons having this type of pubescence.

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RHODODENDRON MORII was founded on material collected in 1908 on Mt. Randai by U. Mori, but appears to have been first discovered in the year previous by T. Kawakami on Mt. Morrison, and wrongly referred to *R. BRACHYCARPUM* G. Don by Hayata. It has since been found on many mountains of the central range. On 31st October 1918, I gathered ripe seeds on the summit of Arisan, and sent them to the Arnold Arboretum, who distributed them among friends in Europe and America. It is now growing in several British gardens, but I have not heard that it has flowered in cultivation.

### RHODODENDRON NAKAHARAI Hayata.

[In *Jour. Coll. Sci. Tokyo*, XXV. art. 19, 153 (*Fl. Mont. Formos.*) (1908).  
Kanehira, *Formos. Trees*, 319, fig. 15, 325 (1917).]

This is a low-growing, densely branched Formosan Azalea, with rigid, twiggy shoots, very small, oval to oblanceolate leaves and dark red flowers less than an inch across, each with ten stamens. When working on my *Monograph of Azaleas* I had seen only the type material preserved in the Tokyo Herbarium, and accepted Hayata's view that this plant was most closely related to *R. SERPYLLIFOLIUM* Miquel. I am now in possession of a specimen collected in the type locality by S. Sasaki in May 1924, and it is obvious that the plant is nearest to *R. OBTUSUM* Planch., and more especially to the form *JAPONICUM* Wils. This, however, is easily distinguished by its dimorphic leaves and its 5-stamened flowers. *R. NAKAHARAI* was discovered on Mt. Shichisei, in Taihoku Prefecture, in July 1905, by G. Nakahara; it is not in cultivation.

### RHODODENDRON NANKOTAISANENSE Hayata.

[*Icon. Pl. Formosan.* IX. 66 (1920).]

This Rhododendron is characterised by its glabrous, oblong-lanceolate leaves, its relatively small campanulate flowers with glabrous pedicels and pistil. It is a critical species, closely related to *R. MORII* Hayata, and may, indeed, be a glabrous condition of that species which is larger in all its parts with the petiole and often the undersurface of the leaves, sometimes floccose-tomentulose, the pedicels short stipitate-glandular, and the ovary clothed with short red-brown hispid pubescence. I did not see *R. NANKOTAISANENSE* in Formosa, and the material I have consists of a fragmentary co-type specimen in which I find the filaments densely villose at the base and not glabrous as described by Hayata. It was discovered on 29th April 1917 by S. Sasaki on Mt. Nankotaisan, and does not appear to have been re-collected or found elsewhere. It is not in cultivation.

### RHODODENDRON OLDHAMII Maximowicz.

[In *Mém. Acad. Sci. St. Petersbourg*, ser. 7, XVI. No. 9, 34 (*Rhodod. As. Or.*) (1870). Komatsu in Matsumura, *Icon. Pl. Koisikav.* II. 69, t. 119 (1914).]

This is the common red-flowered Azalea of Formosa, where it is endemic and widely spread from sea-level up to 8500 feet altitude, but is more abundant in the north than elsewhere. On volcanic Mt. Daiton, not far from the capital city

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of Taihoku, it is a feature on the wind-swept upper slopes. On sandstone cliffs east of Taihoku it is common, and in thickets round Lake Candidius in central Formosa it is a conspicuous shrub. On the grass-clad highlands beyond Musha and beyond Arisan it is plentiful. I did not see it in the extreme south, which is of coral formation. The species is very glandular and very hairy, the leaves, shoots, pedicels, and calyx being covered with a soft pubescence, much of which is long, villose, and reddish in colour, but on wind-swept mountains in winter the pubescence may be bleached pale grey and the plant shaggy in appearance.

It is a much branched shrub from 4 to 10 feet tall, bushy in habit with twiggy branchlets, elliptic to elliptic-ovate leaves, each from 1 to 3 inches long, and flowers clustered at the end of the shoot, from 1½ to 2 inches across. It varies considerably in size of the leaves and calyx-lobes and somewhat in degree of hairiness and glandulosity, but is well marked and easily recognised among all the species of its section. At its altitudinal limits and on bleak mountain slopes the leaves, which are scattered on the free shoots and clustered at the end of the branchlets, are tinted blackish purple. It was discovered by Richard Oldham round Tamsui in 1864, and introduced to gardens by Charles Maries who sent seeds to Messrs. Veitch in 1878. Plants raised from these seeds were exhibited in London in the spring of 1882. Whether plants of this origin are still in cultivation I do not know. In 1918 I sent seeds to the Arnold Arboretum which were distributed in America and Europe. As a greenhouse plant Oldham's Azalea is worth cultivating.

### RHODODENDRON OVATUM *Planchon.*

[In *Rev. Hort.* (1854), 43. Hooker in *Bol. Mag.* LXXXIV. t. 5064 (1858), as *Azalea ovata*.]

This is a Chinese Rhododendron which occurs in Formosa, but as a rare plant only. In August 1908 Messrs. B. Hayata and U. Mori collected on Mt. Randai specimens in fruit. These Hayata described as a new species under the name of *R. LAMPROPHYLLUM*, stating that the fruit was ovoid-ellipsoid, 8 mm. long and 5.5 mm. broad. I have a fragment of Hayata's type, and except that the fruit is a fraction larger than is usual, I can see no difference between it and Planchon's species.

An account of this pretty little Rhododendron is given in the *Rhododendron Society Notes* for 1923, page 171.

### RHODODENDRON PSEUDOCHRYSANTHUM *Hayata.*

[In *Jour. Coll. Sci. Tokyo*, XXV. art. 19, 154, t. 26 (*Fl. Mont. Formos.*) (1908).]

On the higher peaks of the central range in Formosa this Rhododendron grows gregariously, and covers large areas in impenetrable thickets. At most it does not exceed 10 feet in height, and is commonly from 3 to 5 feet tall, with gnarled, twisted, lichen-clad stems. On the summit of Mt. Morrison, where it grows associated with dwarf alpine Willows and Junipers, it is less than a foot high. It prefers open, rocky, wind-swept situations, and these it struggles hard to dominate.



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I did not see this plant in bloom, but gathered seeds and ripe fruiting material in late October 1918. It is a well-marked species related to *R. WASONII* Hemsl. and Wils., native of extreme western Szechuan. It also has affinity with *R. PRZEWALSKII* Maxim., the most alpine member of the section LEIORHODION known from western Szechuan. In all three species the rufus floccose tomentum on shoots and leaves varies greatly in quantity and in persistency.

To me *R. PSEUDOCRYSANTHUM* will always be associated with a struggle across the central range to the summit of Mt. Morrison. After having been storm-bound under some overhanging rocks at 11,000 feet above sea-level for sixty hours, we essayed the ascent of the peak, and in a bitterly cold storm of wind and sleet at length stood athwart the Tropic of Cancer on the crumbling summit of Mt. Morrison, 13,072 feet above sea-level, the highest mountain in the Japanese Empire, and the loftiest peak between the Sierra Nevadas of western North America and the snow-clad ranges of the Chino-Tibetan borderland. As a souvenir of the conquest I gathered seeds of this Rhododendron on the peak of Mt. Morrison (I could have collected them lower down) which were sent to the Arnold Arboretum and distributed. This species is now growing in gardens in the British Isles and elsewhere, but I have not heard that it has flowered. It was discovered prior to 1900 on Mt. Morrison by a Japanese named Yamashita, and wrongly referred by Matsumura to *R. CHRYSANTHUM Pallas*, a species with which it has very little in common. It was rediscovered in the same locality by Messrs. T. Kawakami and U. Mori in November 1906, and later described as a new species by Hayata.

### RHODODENDRON RUBROPILOSUM Hayata.

[In *Jour. Coll. Sci. Tokyo*, XXX. art. 1, 173 (*Mat. Fl. Formos.*) (1911).  
Kanchira, *Formos. Trees*, 319, fig. 11, 326 (1917).]

East of Arisan in Formosa this Azalea is common on the grass-clad mountain slopes between altitudes of 7000 and 10,000 feet, but I did not see it elsewhere. It is a narrow shrub, from 3 to 10 feet, tall, with twiggy, rigid, ascending branches which when young are clothed with appressed, flattened, grey to red-brown hairs. The leaves are oblong to elliptic-lanceolate, from one-half to two inches long, pointed, and the flowers are of medium size, pink spotted with rose, each from one-half to an inch across, and borne several together at the end of the shoots. In late October 1918 I found many plants in full bloom, and apparently it is precocious in its season of flowering. I collected seeds and plants of this pretty Azalea, which are now growing in several gardens in England and America. In favoured climates like that of Cornwall it should prove hardy.

### RHODODENDRON SASAKII Wilson.

[In *Jour. Arnold Arb.* VI. No. 3, July 1925.]

This new Formosan Azalea is easily recognised by its relatively large 5-stamened flowers with villose filaments and pilose style. It is most closely related to *R. SIMSII* Planch., which has from 8 to 10 stamens. In my *Monograph of Azaleas*, with only the description to guide me, I confused it with the small-

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flowered *R. BREVIPERULATUM* Hayata. The material on which this species is based I collected in December 1918 from a plant growing in a garden at Horisha in Nanto Prefecture, which was said to have come from neighbouring mountains.

### RHODODENDRON SCABRUM *G. Don.*

[*Gen. Syst.* III. 846 (1834). Craib in *Bot. Mag.* CXXXIX. t. 8478 (1913), as *R. sublanceolatum.*]

This Azalea is endemic in the Liukiu Islands, where it is confined to the middle, or Okinawa group, and to Takuno-shima. It grows among shrubs, coarse grasses, and under *PINUS LUCHUENSIS* Mayr, and when in bloom is very conspicuous. It is a common plant in gardens in the south of Japan, having long ago been introduced from Liukiu. The leaves, flowers, and fruit are larger than those of other species of its group. The leaves are also more persistent and more coriaceous; the flowers are usually an intense scarlet, but they vary to rose-red. The calyx-lobes are often very unequal in size on the same flower or flower-cluster, and they vary, too, in degree of pubescence. The habit is more vigorous but less compact than that of other Azaleas. In books it has been referred to as the "Chinese Azalea," but there does not seem to be any real authority for this name since the plant itself is unknown in China. In Japan it is known as the "Liukiu Azalea," but around Kurume, in Kyushu, it is called "Hiwoqe-yodogawa." Maximowicz states that it was introduced into Petograd in 1864. In England this Liukiu species does not appear to have been properly known before 1911, when Mr. R. C. Notcutt of Woodbridge exhibited it at the Royal Horticultural Society's Temple Show in London. In 1915 I brought plants from Japan to the Arnold Arboretum. Of all the red-flowered Azaleas of eastern Asia, except the Formosan *R. OLDHAMII* Maxim., it is the least hardy. In Massachusetts it is a greenhouse plant and blossoms sparsely.

### RHODODENDRON SIMSII *Planchon.*

[In *Fl. des Serr.* IX. 78 (1854). Sims in *Bot. Mag.* XXXVI. t. 1480 (1812), as *Azalea indica.*]

This, the common red-flowered Azalea of China, has found a slight foothold in the southern end of Formosa, where, however, it is a rare plant. In my *Monograph of the Azaleas of the Old World* a full account of this important plant is given; mention will also be found in the *Rhododendron Society Notes* for 1923, page 172.

A variety (*ERIOCARPUM* Wils.) is endemic on the Kawanabe Islands. This has white, pink, or rose-coloured flowers, and may ultimately prove to be a distinct species. It was discovered in 1910, but is not in cultivation.

### RHODODENDRON TANAKAI *Hayata.*

[*Icon. Pl. Formosan.* IV. 15 (1914).]

On cliffs and among rocks this Rhododendron is fairly common in the forested regions on and around Arisan in central Formosa, but so far has not been found

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elsewhere. From its neighbour *R. LEIPODUM Hayata* it is distinguished by its pubescent winter-buds, and by its pectinate-ciliate calyx. On the occasion of my visit to Arisan I saw several bushes, and gathered specimens bearing old fruits, but none in blossom, and my knowledge of the flowers is from a co-type specimen. It is a large bush of open habit, with polished green leaves crowded at the ends of the branches. I think its position as a species rests more on the pubescent winter-buds than on the characters adduced by Hayata. Messrs. Hayata, Kanehira, and Tanaka discovered this plant in April 1914; it is not in cultivation.

### RHODODENDRON TASHIROI *Maximowicz.*

[In *Bull. Acad. Sci. St. Petersburg*, ser. 3, XXXI. 64 (in *Mel. Biol.* XII. 489) (1887). Komatsu in Matsumura, *Icon. Pl. Koisikav.* III. 115, t. 203 (1917).]

This is the only *Rhododendron* common to Liukiu and Southern Japan. It is a much branched, very twiggy plant, well characterised by the brown villose pubescence on its winter-buds, by its pilose shoots, pedicels, and ovary, by the appressed, straight hairs on the leaves, and by its glabrous filaments. It is very free-flowering, and the rosy-purple blossoms, each from 1 to 1½ inches across, are quite attractive.

In mixed woods and thickets on Okinawa Island I found this pretty plant to be quite common. I have material gathered on the Kawanabe Islands by H. Ushio, and when in Yakushima in 1914 I found it growing in plenty in the *Cryptomeria* forests, usually as an epiphyte. In southern Kyushu it has been found, but is rare. On Okinawa it is a compact though rather narrow shrub, from 6 to 10 feet tall, but on Yakushima it is often twice that height but much more sparingly branched. *R. TASHIROI* was discovered about 1880 on Oshima by Dr. L. Deoderlein, and on Tanegashima by Y. Tashiro, for whom it was named by Maximowicz. When dealing with the *Rhododendrons* of North-Eastern Asia in the *Rhododendron Society Notes* for 1922 I overlooked this species.

E. H. WILSON.

March 6, 1925.



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THE FOLLOWING NOTES HAVE BEEN CONTRIBUTED BY MR. H. F  
TAGG, F.L.S., OF THE ROYAL BOTANIC GARDEN, EDINBURGH.

## NUMERICAL INDEX TO COLLECTORS' FIELD NUMBERS OF THE BURMA-CHINESE RHODODENDRONS OF THE GRANDE SERIES.

### ABBAY, CAPT.

Field Number.	Species Name.	Date when gathered.	
5	Rh. sidereum	1912	1st Type No

### FARRER, REGINALD.

872	Rh. sidereum	1919
959	sinogrande	1919
1519	"	1919
1559	sidereum	1920
1631	protistum ?	1920

### FORREST, GEORGE.

9021	Rh. sinogrande	1912	1st Type No.
9369	"	1912	2nd Type No.
11875	"	1913	3rd Type No.
13023	praestans	1914	Type No.
14209	"	1917	
14233	semnum	1917	Type No.
15659	sinogrande	1917	
15967	semnum	1917	
16043	sinogrande	1917	
16351	protistum	1918	Type No.
16561	coryphaeum	1918	1st Type No.
16565	semnum	1918	
17406	sinogrande	1918	
17413	semnum	1918	
17420	coryphaeum	1918	2nd Type No.
17860	sidereum	1919	2nd Type No.
17904	sinogrande	1919	
17905	protistum ?	1919	
18054	sidereum	1919	3rd Type No.
18078	sinogrande	1919	
18272	sidereum	1919	
18393	protistum ?	1919	
18394	"	1919	
18399	sinogrande	1919	

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Field Number.	Species Name.	Date when gathered.	
18458	<i>giganteum</i>	1919	2nd Type No.
18548	<i>protistum</i> ?	1919	
18601	<i>sidereum</i>	1919	
18624	<i>coryphaeum</i>	1919	
18664	<i>semnum</i>	1919	
18678	"	1919	
18811	<i>giganteum</i>	1919	3rd Type No.
18837	<i>sidereum</i> ?	1919	
18914	<i>semnum</i>	1919	
19177	"	1919	
19335	<i>giganteum</i>	1921	1st Type No.
19338	{ <i>giganteum</i> <i>var. seminudum</i> }	1921	
19633	<i>semnum</i>	1921	
19746	"	1921	
20106	<i>protistum</i>	1921	
20357	<i>sinogrande</i>	1921	
20382	"	1921	
20387	"	1921	
20819	"	1921	
20863	<i>protistum</i> ?	1921	
21705	{ <i>sinogrande</i> <i>var. boreale</i> }	1922	
21705A	{ <i>sinogrande</i> <i>var. boreale</i> }	1922	
21719	<i>protistum</i> ?	1922	
21870	<i>semnoides</i>	1922	1st Type No.
22738	"	1922	2nd Type No.
22761	<i>sinogrande</i>	1922	

## WARD, F. KINGDON.

3061	Rh. <i>sidereum</i>	1919
5418	<i>sinogrande</i>	1922
5485	<i>sidereum</i>	1922

## WILSON, E. H.

1206	Rh. <i>Watsonii</i>	1908
4244	"	1910
4259	"	1910
4251	"	1910

## WILSON, E. H., VEITCH EXPED.

3964	Rh. <i>Watsonii</i>	1904	Type
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Rock, J. F.

Field Number.	Species Name.	Date when gathered.
6249	Rh. sinogrande	1922
7381	"	1922
8086	"	1923
8827	{praestans ? =seed number 59048}	1923
8828	praestans ?	1923
8829	semnum	1923
8830	{praestans =seed number 59052}	1923
9095	{praestans =seed number 59085}	1923
9097	semnum	1923
9138	"	1923
9361	coryphaeum ?	1923
10060	{semnum =seed number 59079}	1923
10135	sinogrande	1923
10957	semnum	1923
10995	{semnum =seed number 59079}	1923
11007	{semnum =seed number 59480}	1923
11013	{praestans ? =seed number 59085}	1923
11173	{sinogrande var. boreale}	1923
11239	{sinogrande var. boreale}	1923
11348	{sinogrande =seed number 59234}	1923
11503	semnum	1923
11634	praestans ?	1923

Some of the determinations are marked with a ?. A note about these may be helpful.

1. All determinations that are queried are in foliage, or foliage and fruit only.
2. Where R. PROTISTUM is given with a ?, the specimen has a leaf-shape likeness to R. GIGANTEUM, but lacks the indumentum characters of the adult R. GIGANTEUM. These specimens may be juvenile forms of R. GIGANTEUM.
3. I have to confess that I fail to find good foliage or fruit characters by which R. PRAESTANS, R. SEMNUM, and R. CORYPHAENUM may be distinguished from one another. Where R. PRAESTANS is queried there is a possibility that the specimen may be R. SEMNUM, and similarly where R. SEMNUM is queried the



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specimen may be *R. PRAESTANS*. *R. CORYPHEUM* may possibly have to be made a synonym of either *R. PRAESTANS* or *R. SEMNUM*. In the meantime I name *R. CORYPHEUM* or *R. CORYPHEUM*?, those specimens which in general appearance are more like the type *R. CORYPHEUM* than they are like the types of the other two species.

## IDENTIFIED SPECIMENS OF THE SCABRIFOLIUM SERIES IN THE HERBARIUM OF THE ROYAL BOTANIC GARDEN, EDINBURGH.

### *R. DUCLouxII*, *Levl.*

Bodinier	Without No.	E. Yunnan
Ducloux	61	E. Yunnan-sen

### *R. FUCHSIÆFLORUM*, *Levl.*

Maire	Without No.	Motsou
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### *R. HEMITRICHOTUM*, *Balf. f. et Forrest.*

Forrest	16250	Muli mts., Valley of the Litang River	1918
"	20491	Mts. around Muli	1921
"	21339	Mts. N.E. of Muli	1922
"	22066	Mts. S.E. of Yungning	1922
"	22092	Mts. S.E. of Muli	1922
"	22953	Mts. S.E. of Muli	1922
Ward	4050	Muli	1921
"	4973	Muli	1921
"	4994	Yungning	1921
"	5066	Yungning	1922

### *R. MOLLIComUM*, *Balf. f. et W. W. Sm.*

Forrest	10347	Mts. N.E. of Yangtze bend	1913
"	11490	Mts. N.E. of Yangtze bend	1913
"	12402	Mts. of the Chungtien plateau	1914
"	12619	Mts. of the Chungtien plateau	1914
"	15203	Lei-lung Shan	1917
"	15646	No locality. Postal packet of sunk collection.	
"	20525	Bey-ti Shan	1921
"	21216	Western flank of the Lichiang Range	1922
"	22052	Mts. between Yung-peh and Yungning	1922
Rock	3945	Yangtze watershed, Eastern slopes of Lichiang snow range	1922
"	3960	Yangtze watershed, Eastern slopes of Lichiang snow range	1922
Ward	3952A	E. of Yangtze bend	1921

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## R. MOLLIKOMUM, *Balf. f. et W. W. Sm.*, var. ROCKII, *Tagg.*

Rock	8551	Western slope of Likiang snow range	.	.	1923
"	8554	Western slope of Likiang snow range	.	.	1923

## R. PUBESCENS, *Balf. f. et Forrest.*

Forrest	16812	Muli Mts.	.	.	1918
"	22049	Mts. S.E. of Yungning	.	.	1922
Schneider	1662	Yungning. (A narrow-leaved form.)	.	.	1921
Ward	3953	E. of Yangtze bend. (A form less setose than Forrest's type.)	.	.	1921

## R. SCABRIFOLIUM, *Franch.*

Delavay	Without No.	Tapintze	.	.	1887
"	Without No.	Mo-che-tchin, Yunnan	.	.	1887
"	Without No.	Mo-che-tchin, Yunnan	.	.	1887
"	297	Hee-chee-men	.	.	1887
Forrest	11031	Yungpeh Mts.	.	.	1913
"	11072	Chungtien	.	.	1913
"	12406	Yungpeh	.	.	1914
"	13527	Chi Shan	.	.	1914
"	13732	Chi Shan	.	.	1917
"	15103	Chungtien, E. of	.	.	1917
"	15503	Sample of sunk specimen	.	.	
"	15504	Sample of sunk specimen	.	.	
"	16829	Yungpeh Mts.	.	.	1918
"	21135	Hills N. of Yungpeh	.	.	1922
"	21181	Hills N. of Yungpeh	.	.	1921
Maire	Without No.	Yunnan, Ta Kiao	.	.	
"	Without No.	Yunnan, Mong-kou	.	.	
"	Without No.	Yunnan	.	.	
Rock	4057	Mts. S. of Lichiang	.	.	1922
"	6291	Between Lichiang and Talifu	.	.	1923
"	8243	Yangtze watershed	.	.	1923-4
"	8246	Yangtze watershed	.	.	1923-4
"	8266	Mts. S. of Lichiang	.	.	1923
"	9614	Yangtze watershed	.	.	1923-4
"	11713	Lichiangfu-Yunnanfu	.	.	1923
Simeon Ten	304	Pe yen tsin	.	.	1916
Ward	Without No.	Yunnan	.	.	1914
"	3887	Yung-peh	.	.	1921
"	5004	Yung-peh-ting	.	.	1921

## R. SCABRIFOLIUM, var. PAUCIFLORA, *Franch.*

Bodinier and	75	Yunnan-sen	.	.	1897
Ducloux			.	.	
Maire	Without No.	Ta Kiao	.	.	No date

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Rock	11742	Between Lichiangfu and Yunnanfu . . . . .	1924
"	11745	Between Lichiangfu and Yunnanfu . . . . .	1924

### R. SPICIFERUM, *Franch.*

Bodinier	125	Yunnan-sen . . . . .	1897
Bodinier and Ducloux	124	Yunnan-sen . . . . .	1897
Bodinier and Ducloux	124 bis	Mitsoa . . . . .	1897
Cavalerie	3891	Yunnan-sen . . . . .	1910
"	8181	Yunnan-sen . . . . .	1900-1920
Delavay	Without No.	Yunnan-sen . . . . .	1891
"	Without No.	Yunnan-sen . . . . .	1891
Ducloux	121	Yunnan . . . . .	No date
Forrest	512	Yunnanfu . . . . .	1905
Henry, A.	9369	Mengtsz, Yunnan . . . . .	No date
"	9369 <sup>B</sup>	Yunnan . . . . .	No date
Hosie	33	No locality . . . . .	No date
Maire	1381	Yunnan-sen . . . . .	No date
"	1939	Yunnan-sen . . . . .	No date
"	2480	Yunnan-sen . . . . .	No date
"	2481	Yunnan-sen . . . . .	No date
"	2695	Yunnan-sen . . . . .	No date

### R. SPINULIFERUM, *Franch.*

Bodinier and Ducloux	115	Yunnan-sen . . . . .	1897
Cavalerie	4624	Yunnan-sen . . . . .	1922
Delavay	4883	Tong-hay . . . . .	No date
Ducloux	152	Yunnan . . . . .	No date
Forrest	509	Yunnanfu . . . . .	No date
Henry	10572 <sup>A</sup>	Mengtsz . . . . .	No date
"	10572 <sup>B</sup>		No date
"	10572		No date
Maire	138/1913	Yunnan-sen . . . . .	No date
"	254		No date
"	1333		No date
"	1940		No date
"	1941		No date
"	1948		No date
"	1949		No date
"	2105		No date
"	2481		No date
"	2697		No date
Rock	11728	Between Lichiangfu and Yunnanfu . . . . .	1924
"	11730	Between Lichiangfu and Yunnanfu . . . . .	1924





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poorly at Edinburgh in 1916, but Sir Isaac received from Sir John in 1922 "fine trusses of the species." Sir Isaac places it in the phylum *R. WILTONII*, but says, "A nearer ally than *R. WILTONII* is *R. PARADOXUM*, *Balf. f.*"

*R. MOLLIKOMUM*, *Balf. f. et W. W. Sm.*, var. *ROCKII*, *Tagg*, Rock Nos. 8551 and 8554.

A very fine form of the species, with flowers much larger than those of the type and deeper in colour. Forrest's 21216 gathered in the same area may be this form, but the specimen is without flowers.

*R. PARADOXUM*, *Balf. f. in MSS.*

This was raised from Wilson's seed presented to the Royal Botanic Garden, Edinburgh, by Sir John Stirling-Maxwell, Bart. In his description of it Sir Isaac Bayley Balfour says, "Though different in appearance from *R. WILTONII* [it] has been grown under the name because of its number 1353 being that assigned in *Pl. Wilsonianae* to *R. WILTONII*. The plant is now some metre and a half high and has not flowered until this year (1922), and this event leads to its identification as a new species of the phylum of *R. WILTONII* out of doubt, but more nearly allied in that phylum to *R. INOPINUM* than to *R. WILTONII* itself . . . it has large white flowers with basal blotch and spots, and the inflorescence axis is bright red—a conspicuous feature."

*R. SEMNOIDES*, *Tagg et Forrest*, Forrest Nos. 21870 and 22738.

This is one of the Grande series, allied to *R. SEMNUM*, but differing markedly from that species in the felty buff indumentum of the leaf undersurface. Mr. Forrest's comment in his field notes is: "Very fine! pale flushed flowers. White flushed rose."

*R. SINOGRANDE*, *Balf. f. et Forrest*, var. *BOREALE*, *Tagg*, Forrest Nos. 21705, 21705A, 22761; Rock Nos. 11173, 11239.

Some of the northern forms of *R. SINOGRANDE* differ so much from the southern type that varietal distinction seems justified. The gatherings quoted above are the most distinct. Of these Forrest's 21705 and 21705A are in flower, and these show that the flowers are a better colour than those of the southern type. Of 21705 Forrest says, "Flowers soft yellow throughout." "A grand species, but leaning towards coarseness. Flowers a shade lighter than the best forms of *R. LACTEUM*," and of 21705A, "Flowers clear pale yellow, with a crimson blotch at base." "Flowers of a clearer yellow than No. 21705."

A NOTE ON RHODODENDRON CALOPHYTUM, *Franch.*

Sir Isaac Bayley Balfour placed this species along with *R. SUTCHUENENSE* in a series grouped around *R. FORTUNEI*. In a general way *R. CALOPHYTUM* has been associated with *R. SUTCHUENENSE*, but this relationship has been often

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questioned, and I find a contributor to *The Garden* (Vol. LXXXVII, 1923, p. 160), under the initials S. W. P., says: "Some authorities say these two species (CALOPHYTUM and SUTCHUENENSE) are closely related, but as a practical grower and a novice at botany I fail to see where the relationship comes in."

The feature which at first sight seems to divorce R. CALOPHYTUM from R. SUTCHUENENSE is, of course, the shape of the flower. In place of the more or less regular funnel-shaped corolla of R. SUTCHUENENSE we have in R. CALOPHYTUM a corolla that is a widely open bell more or less pouched. The result is a simulation of the mortar-shaped corolla characteristic of R. GRANDE and its allies, a likeness to which is increased by the stout curved style and large discoid stigma.

From the R. GRANDE alliance it appears to be excluded by the glabrous or glabrescent foliage. It is true that along the sides of the mid-rib and scattered over the leaf undersurface are minute flecks of colourless hairs, but the construction of these is more like the type of hair on those forms of R. SUTCHUENENSE with a floccose mid-rib than that of the hairs forming the indumentum of R. GRANDE; moreover, the features of the leaf anatomy recall those of R. SUTCHUENENSE and not those of R. GRANDE.

If R. CALOPHYTUM is not closely related to R. SUTCHUENENSE, I think its allies must be looked for outside the R. GRANDE alliance in spite of the likeness of the flower shape to that of R. GRANDE.

### A NOTE ON RHODODENDRON BODINIERI,

*Franch.*, in *Journ. de Bot.* XII. (1898), p. 257.

Franchet, in his short description of this species, says: "Diffère de toutes les espèces appartenant au groupe du R. FORTUNEI par ses petites feuilles aiguës et son mode d'inflorescence."

This hint of its relationship, entirely negative, has led to the assumption that R. BODINIERI is related to R. FORTUNEI. A character given in Franchet's description, however, makes such a relationship impossible. I refer to the description of the ovary as "lépidote."

I have recently found in the herbarium of the late M. Lévillé a specimen of a plant gathered by Bodinier, the label of which in Bodinier's handwriting runs: "Em. Bodinier, 1519, 4th April 1897. Yunnan, Mont de Mâ Kày avant la ville de Sē-tchong-hien. Grand arbuste. Fleurs rosies." Bodinier's 1519 is the type number of Franchet's R. BODINIERI, and the date and locality on Bodinier's label agree with those quoted by Franchet. There can be no doubt that the specimen is a duplicate of Franchet's type. It is named R. BODINIERI, not, however, in Franchet's hand, but in Bodinier's. It is without doubt one of the R. TRIFLORUM alliance.

It is not easy to understand why Franchet went out of his way to emphasise an unlikeness between this species and R. FORTUNEI. If R. FORTUNEI as we know it in cultivation is in any way like the plant found by Robert Fortune,



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then *R. BODINIERI* belongs to an altogether different section of the genus. *R. BODINIERI* is distinctly one of the typical lepidote members of the genus.

In the Herb. Léveillé specimen the peltate scales on the leaf upper surface, on the shoots, and on the flower pedicels are very few. The epidermal surfaces of these parts are more or less pitted, and the appearance under magnification is one that suggests that peltate scales have been washed or worn off. On the leaf undersurface scales are more numerous, but they are spaced fairly widely apart. On the foliage buds the peltate scales are conspicuous. They are sparingly present on the calyx, and sparingly also on the outside of the corolla. On the ovary they are contiguous and overlapping, and form a covering to the ovary typically like that common to members of the *R. TRIFLORUM* alliance. Franchet's description fits quite well the Herb. Léveillé specimen, but the presence of peltate scales on the leaf underside, on the foliage buds, and on the corolla is overlooked by him. On the leaf underside, as I have said, the scales are widely spaced, and in the dry state they are the same tint as the under epidermal surface. They are not conspicuous to the eye, and their apparent absence may have misled Franchet as to the relationship of the plant he was describing.

H. F. TAGG.

EDINBURGH, 1925.

# The Rhododendron Society Notes.

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## NOTES FROM BORDE HILL.

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It was suggested at the last meeting of our Society that, if each of its members would give an account of the injuries received by his rhododendrons during the winter 1923-24, the combined reports would give information that should be of value.

As I was away from England from mid-November to mid-April I am only able to give a summary of the damage done, and am unable to give any data as to temperature; nor can I make any suggestion as to why so much damage was received by the rhododendrons when even tender veronicas were unhurt.

Killed outright:—R. SINO-VIRGATUM, R. TRIFLORUM×AUREUM.

Some killed, others severely injured:—R. GIGANTEUM, R. KYAWI, R. VIRGATUM, R. VIRGATUM×INDICUM.

All severely cut:—R. AUREUM, R. BULLATUM (in a cold frame), R. CRASSUM (one form or species marked so, but I am not sure if it be labelled correctly), R. DIAPREPES, R. ERIOGYNUM, R. NEMATOCALYX, R. PROPHANTUM, R. SUB-LANCEOLATUM.

Some damage to shoots or bark:—R. ARBOREUM NIGRESCENS, R. DECORUM CYANOCARPUM, R. EUANTHUM (one plant), R. GRANDE (one plant only), R. MADDENII CALOPHYLLUM, R. SPINULIFERUM, R. ZEYLANICUM; R. FRAGRANTISSIMUM, R. NERIIFLORUM×ARBOREUM BLOODRED, R. SESTERIANUM. R. ELSÆ and R. FALCONERI lost their flower buds.

STEPHENSON R. CLARKE.

*December 1924.*

# The Rhododendron Society Notes.

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ANTHONY WATERER.

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The death of Anthony Waterer of Knaphill, which occurred at Home Bush, Horsell, Woking, on July 24, 1924, at the age of seventy-three, should not pass without record in the *Notes of the Rhododendron Society*.

All who knew him will agree that he was a man of very remarkable qualities, of varied interests, and of sufficiently independent means to work through life in his own peculiar way. He was, in fact, what is usually termed a "character." He cared very little for what people thought of him, and remaining a bachelor all his life he had no "encumbrances" whose convenience had to be consulted.

Somewhat rough perhaps in manner though kind of heart, he ruled his famous nursery autocratically for nearly thirty years and not only maintained but increased its reputation. A keen business man and absolutely incapable of a mean or ungenerous act, he was a good master and most of his men had been with him many years.

The Knaphill and Bagshot Nurseries had been established at the beginning of the last century by Michael Waterer, and the firm was at one time known as Godfrey & Waterer. Subsequently, the two nurseries became separated, and Knaphill passed to Michael's nephew, Anthony, the father of the subject of the present note.

The late Anthony Waterer was very fastidious in his tastes and nothing but the best really satisfied him. The result was that many plants of exceptional merit were sent out at different times from Knaphill, such as *Spiraea* "Anthony Waterer" (a variety of *S. japonica* with deep red flowers), *Prunus Padus Watereri* (with long, handsome racemes), *Picea pungens glauca*, *Quercus coccinea* (Waterer's variety), *Laburnum Watereri*, and many more. But the fame of the nursery rests more on Rhododendrons and Azaleas, especially hybrids, than upon anything else.

It is not the purpose of this brief note to attempt an enumeration of the many hybrids raised at Knaphill, but mention must be made of one, the origin of which is often attributed elsewhere, namely *R. NOBLEANUM*—a cross between *R. ARBOREUM* and *R. CAUCASICUM*. This cross, though frequently made since, both ways, was first made at Knaphill about 1832. (See *Bot. Reg.*, t. 1820; and Bean's *Trees and Shrubs*, Vol. II., page 369.) The older Anthony used to tell the story of how one day when he was a boy J. C. Loudon and a Mr. Noble were paying his uncle a visit, he was sent from the lunch table for a truss of a hybrid Rhododendron just then in flower for the first time. It was there and then named *R. NOBLEANUM* after Mr. Noble, but whether this gentleman was connected with the firm of Standish & Noble is not known.

It was at Knaphill, too, that the fine azalea crosses with the Californian species (*occidentale*) were made. By many considered the finest of their class.

The catawbiense strain, too, was frequently blended with other species,



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presumably to secure hardiness. There was a fine example of this species at Knaphill.

This work was carried on with great discrimination and skill. It won the admiration of James Mangles, who worked so assiduously on similar lines and frequently visited Knaphill.

It is impossible here to give a full list of the hybrids which at different times have been raised at Knaphill, but the following are a few of the more famous : *Album elegans*, *C. S. Sargent*, *Everestianum*, *Lady Clementine Milford*, *Mrs. R. S. Holford*, and *Sappho*.

A visit to the nurseries was a pleasure not easily forgotten. It was indeed not merely a pleasure, it was also an edification administered with a strong mixture of pungent humour, sage advice, and tantalising mystery, for it was generally rather difficult to extract from him all one wanted to know. Often when he had whetted one's cupidity to the utmost, he would point-blank refuse to part with a single plant. Sometimes, however, he could be cajoled by a little judicious flattery to let his particular friends have a few of his most cherished things.

One trait he shared with his father, nothing would induce him to grow things he considered tender. Long ago, in the winter of 1860-61, perhaps the most severe ever known since reliable records have been preserved, no less than 60,000 young plants of *Araucaria imbricata* succumbed at Knaphill, a disaster which nowadays, when the tree is unfashionable, would perhaps be borne with more equanimity, was possibly the cause of this determination. At any rate one need never ask whether anything sent out from Knaphill was perfectly hardy, nothing else was allowed.

He made very little effort to advertise his plants, and entertained a positive abhorrence to shows, which may partly be attributed to a certain shyness in his character.

With a twinkle in his eye, Anthony was fond of pointing casually, in passing, to a luxuriant mass of that wayward North American plant, *Epigea repens*, some twenty yards in length, along the foot of a hedge. He knew quite well that it was an unusually fine piece, but he liked to pretend that it was nothing out of the ordinary for Knaphill.

He had a wide connection with the United States, where his brother settled and founded a nursery.

In 1876, on the occasion of the Centenary Exhibition at Philadelphia, his father took over some 1500 plants in eighty varieties, and this had probably much to do with stimulating the taste for Rhododendrons which has since so greatly developed in that country. It is interesting, too, to record that the grounds of the Capitol at Washington were laid out by the Knaphill firm.

Anthony Waterer was a keen farmer. Some of his friends have gone so far as to say that in later years he took more interest in his farm than in his nursery, but however this may be, he certainly enjoyed the pursuit and carried it on with a certain amount of success.

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He also took an interest in racing, or perhaps it would be more correct to say, in horses, for while he was not a very regular frequenter of the race-course, he possessed a wide knowledge of the Turf. He always warned his friends that he would not be found at home during Ascot week—an event which he, his father, and great-uncle with their families had attended for so many years that it became an established tradition. The same may be said of cricket, about which he was very fond of chatting, and, as a member of the Surrey County Cricket Club, was often to be seen at the Oval.

It causes a pang to think that this famous seminary of plants, established over a century and a quarter ago, is in danger of being dispersed. It is understood that after disposing of the bulk of his fortune to charities, he left the nursery to his brother who, having an establishment of his own in America, will probably not care to keep it up. If so, Knaphill will know itself no more, but its fame will endure as long as gardeners exist who care for choice plants.

G. W. E. LODER.

*November 1924.*

# The Rhododendron Society Notes.

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## NOTES FROM LOGAN, 1924.

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During the past two years a number of young Chinese rhododendrons have been planted out here. These seedlings have spent two summers in frames and were ready to go out. To accommodate so many plants a good deal of space was necessary. This meant the looking for places where sufficient room could be found to plant some of each species together.

Four sites were chosen. The next thing was to mark off and prepare circular beds in each division, trench the soil before planting, taking it just as it was found without any making up. In each border were planted rhododendrons 2 to 3 feet apart, where they will remain until they begin to grow into each other. All that will be necessary is to keep weeds from choking the young plants. Each group has a different aspect and varied conditions to contend with. It should be interesting to note how they compare with the others in a few years' time under their different conditions.

- No. 1. North exposure, steeply sloping ground, moist woodland, loamy soil, sheltered.
- No. 2. South-east exposure, full sunshine, stony soil, poor shelter.
- No. 3. South exposure, sloping ground, woodland, good loam, sheltered.
- No. 4. East exposure, some shade, soil full of iron, light in colour, moderate shelter.

The soil in No. 4 when newly turned up did not look promising. So full of iron was it that while being dug, the strong smell could be detected some distance away.

Rhododendrons planted in this soil two years ago have done well and are growing strongly, of good colour and looking very happy. The plants of all species have taken hold of this soil quickly and seemingly have made more roots here than in any of the other places. There is iron more or less in all the soil here, as is shown by the deep blue colour which *Hydrangea Hortensis* flowers always assume at once, changing from pink to blue in one year after being planted out. In the garden, where the soil has been worked for generations, hydrangeas do not lose their pink colour. There are but few young rhododendrons in the garden, where they certainly do not grow so well as elsewhere.

KENNETH McDOUALL.

LOGAN, 1924.



## The Rhododendron Society Notes.

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### WILSON'S RHODODENDRONS AS GARDEN PLANTS.

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It was with considerable hesitation that I accepted an invitation to write of the rhododendrons introduced by E. H. Wilson, for I know them in one garden only and I know them only as a gardener, not as a botanist. I recognise that to write of them at all adequately one requires to have seen them growing in different soils and situations, and, above all, to have studied them critically and scientifically and to have compared the growing plants with the herbarium specimens on which the names are founded. In writing, therefore, of a few of the less commonly known species I do so under these limitations.

Planted at Bodnant originally as an insurance against the risk of losing the more tender Himalayans, they have so far not quite rivalled the latter in the beauty of their flowers, but they have surpassed them in their variety, in their hardiness, and in the length of their flowering season. Few who have planted them can have regretted it, even although not all their plants have yet flowered and only a small proportion have reached the stage of flowering freely.

R. FARGESII (1250 W.) I would on the whole put first in merit amongst the Wilson Rhododendrons; it is of good habit, and it has charming leaves gracefully undulated.

It is so tolerant of evil conditions that one plant grows, the picture of health, in a bed of stiff wet clay from which every other rhododendron (except the equally accommodating R. RIRIET) has long been removed *in extremis*.

It flowers early in its life and early in the year—even the last I deem to its credit. It flowers abundantly and without ill effects; and its flowers are strikingly beautiful. One cannot judge the beauty of the flowers when the loose trusses are gathered; on the show bench tight trusses of arboreum type are far more effective, but on the plant the tight trusses appear as bright spots, while the loose hanging flowers of R. FARGESII seem to join up to one another and give an effect of horizontal lines or layers of bloom—an arrangement of wonderful beauty. Two criticisms only can be laid against it, that the pink of its bloom has a touch of blue in it as the flowers age, and that in frosty weather it is one of the worst of leaf curlers. The first fault is common to nearly all pink flowers when the colour is on a white and not on a yellow ground.

It is good news that the botanist is prepared to stretch a point and to forgive or forget the hairs on the ovary which used to place R. FARGESII in the Selense series, and that he now allows it instead to lead the Davidii series, of which from an horticultural point of view it should be a member. In the garden it is R. OREODOXA with a broader leaf, a bigger flower, a denser growth, and a better constitution, but with no fundamental difference.

R. HAEMATOCHEILUM (1769 W.) is exactly half-way between the two; even the leaf of R. HAEMATOCHEILUM has a little of that graceful twist which R. FARGESII has and R. OREODOXA has not, and the roots have some (but not all) of that tolerance of clay which R. FARGESII has and R. OREODOXA emphatically has not.

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Lastly, let those who think that they have *R. FARGESII* beware lest they have only *R. HAEMATOCHEILUM*.

A plant of *R. ORBICULARE* raised from Wilson's seed (sent under name, not number) seems to be suited by the climate of North Wales. It remains where it was first planted in 1909 in a fairly open situation, with big shrubs to the east and west but nothing overhead.

The bed is dry and robbed by roots, and the *R. ORBICULARE* is about the only rhododendron that has done really well there; neither spring nor winter frost has injured it. It is now a spreading bush 3 feet high with a flat top 6 feet across. It first flowered in 1914, and of recent years has borne between 50 and 100 trusses.

Its flowers are very lovely, held well above the plant, in the form of graceful drooping bells of a clear rose pink colour.

*R. VERNICOSUM* (1777 W.) is quite unmistakable with its leaf like a more rounded form of *R. OREODOXA*—indeed both the pointed shoot buds and the round flower buds are very similar to those of *R. OREODOXA*, though the pale pink flowers themselves are smaller and have that triangular shape that characterises the poorer forms of *R. HYPOGLAUCUM*; the flowers make up to some extent in quantity for what they lack in quality, but it has not proved at Bodnant perhaps as ornamental a shrub as Forrest thought it.

Botanically it may doubtless be in the *Fortunei* series, but from a garden point of view it is certainly nearer to that of *Davidii*.

*R. RIRIEI* (1808 W.), although described in Messrs. Veitch's MS. list (probably a copy of Wilson's field notes) as having white flowers, is remarkable for blooms of a unique and attractive shade of purple—difficult to describe, but more of a grey purple than a brilliant purple. It appears to be a somewhat shy flowerer, but flowers very early in the season at the same time as *R. LUTESCENS*—a pleasing colour combination where these grow together. It is a stout, slow-growing, dense bush, now nearly 6 feet high and as much through, with leaves white on the back like those of *R. ARGYROPHYLLUM*, although they are somewhat larger and more rounded. It bears with equanimity any soil and situation in which one cares to plant it. It is a good garden plant for those who are willing to judge each shade of purple on its merits.

*R. WASONII* is described as of the *Taliense* series and as having rose pink or white flowers. Three plants of 1866 W. were purchased from Messrs. James Veitch—all different, all proving yellow or yellowish in flower, one of them according to the late Sir Isaac Bayley Balfour being *R. WASONII*. It is to be noted that in a MS. list in the hands of Messrs. Veitch the flower of seed No. 1866 W. was given as yellow. The yellow *WASONII* is a good yellow—the flower identical in size and colour with a good *R. LANATUM*, but with a dark blotch instead of spots. The plant is hardy, a good doer, slow and compact growing (now 5 feet across and 30 inches high), with very ornamental leaves (again rather like those of *R. LANATUM* only more pointed), and is a first-class plant in every way.

Other plants of *R. WASONII* grow at Bodnant but none have flowered but this, although a second is now in bud.

Perhaps the later No. 4249 W. may prove to be the pink-flowered plant.

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The other two plants sent under No. 1866 W. are of a different species from *R. WASONII*, but are probably themselves two varieties of one species, both named *R. MACULIFERUM* AFF. by Sir Isaac. Their leaves somewhat resemble those of *R. PACHYTRICHUM* and their flowers are straw coloured and spotted, perhaps more interesting than beautiful. They are low-growing, spreading shrubs.

*R. RHODODACTYLUM* was sent to Bodnant by Messrs. James Veitch under the style 1876 W. Edgari—from seed of Wilson's first expedition. *R. EDGARIANUM* is, however, a Lapponicum (1319 W.), a plant of which a number came to Bodnant from the Arnold Arboretum. *R. RHODODACTYLUM* is conspicuous by the very shiny upper surface of its leaves, which are of the colour and brilliance of those of the common laurel; except for their brilliance the leaves are very much like *R. WASONII*, with thick tomentum on the under side.

The plant is a slow and not very vigorous grower, and has made an upright and loose but picturesque bush of tree-like habit some 4 feet high and as much in spread.

The flower is quite a good one; white marked with lines of pink on the outside giving a striped effect.

Messrs. Veitch's MS. list gives the colour of the flower of this seed number as pink. When it first flowered some years ago a bloom was sent to Sir Isaac Bayley Balfour, who named it *R. RHODODACTYLUM*. I rather suspect some confusion between this and *R. WASONII*, and I suggest that this may be the pink-flowered *R. WASONII*.

*R. BODNANTENSE*. This came as 1777 W. (obviously an error), and it was therefore labelled "rogue from 1777"; when it flowered it was sent to Sir Isaac Bayley Balfour who said it was unknown to him, and it was consequently labelled "species unknown to Sir Isaac Bayley Balfour." This nomenclature did not seem ideal, and as no better name was forthcoming it was then provisionally christened "*R. BODNANTENSE*." It is a stout shrub now some 6 feet high and as much through, with largish pale green leathery leaves with broad midribs somewhat resembling those of *R. WATSONII*. It has a good blush white flower freely produced, campanulate, somewhat resembling the flower of *R. FICTOLACTEUM*. It grows in an open, draughty place and has never looked sick or sorry. Altogether this is a good plant. It may, of course, be a variety of or a hybrid from *WATSONII*, but if so it has successfully cast off the stunted prostrate habit and any trace of the delicacy that characterises that species.

*R. PACHYTRICHUM* and *R. MONOSEMATUM* seem to run together into a host of intermediate forms of slow growth and uninteresting habit, with small, poor coloured flowers, most of them only worthy of the bonfire; but there is one good form of the first. The good *R. PACHYTRICHUM* is a loose, quick-growing shrub which has reached 10 feet in height, free and very early flowering, the flower buds bright pink, the flowers fading into a blue pink shade; the same thing reached here both under Nos. 1435 W. and 1521 W.

*R. STRIGILLOSUM* in its typical form is a very good thing; although a slow grower it has formed a stout bush now 5 feet high and 6 feet through, with good dark leaves, long and narrow. It is not free-flowering, but the flowers are a fine



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brilliant red with no trace of blue and are almost identical with those of the hybrid *R. HARRISII*.

This form received an Award of Merit from the R.H.S., and is quite one of the best of the Wilson rhododendrons.

It reached me under the number 1521 W. (and I believe also under the number 1341 W.). It is probable, however, that there was considerable confusion in the seedlings of *R. PACHYTRICHUM*, *R. MONOSEMATUM*, and *R. STRIGILLOSUM*, and it is difficult to be quite sure what one is getting.

All this group, good and bad alike, appear extremely easy to grow.

*R. LONGESQUAMATUM* is a shy flowering, slow growing, dense rounded bush of ornamental habit, now some 4 feet high and 6 feet through. It has proved a good doer and hardy, although the young shoots have on one or two occasions been caught by a spring frost.

The flowers are purplish pink and not especially good; while most of them are terminal a small proportion are axillary—an unusual occurrence in a large-leaved rhododendron.

*R. SARGENTIANUM* forms a very compact bush now 3 feet across by 15 inches high, thriving well in a cool place on the north side of a large rock; its flowers, which are not borne quite as freely as in the case of other alpine rhododendrons, are of a very pale yellow.

It has never looked sick or sorry, nor do the branches die off as in the case of *Lapponicum*s of like age. It is a most excellent plant for the rock garden.

*R. ADENOPODUM* came without a number, but is, I understand, 505 W. from Wilson's first expedition. It has a good leaf but rather a shapeless habit; it is a fairly free flowerer, but the flowers have too much blue in their pink to be very good. It is not a specially vigorous grower and has reached about 3 feet 6 inches in height at Bodnant, and is 4 feet 6 inches through. It seems to be a somewhat scarce plant in cultivation, but those who do not have it need not greatly regret that fact from a purely garden point of view.

*R. INSIGNE*, obtained from the Arnold Arboretum under Wilson's No. 1339, proved for many years a slow grower of quite prostrate habit, but after a time it grew more erect and now makes rapid progress—the tallest plants being about 4 feet high; plants that seem identical with the others were also purchased under Nos. 828 Purdom and 6777 Forrest, though from a trade source, where full play is given to the imagination when the time for labelling comes round.

The flowers are white with deep pink markings that give an unusual striped effect. The back of the leaf is perhaps more beautiful than that of any other rhododendron—giving the effect of a bright silver ground washed over with a transparent golden varnish, just like a piece of "fake" Italian silvered woodwork.

*R. INSIGNE* appears quite hardy and tolerant of sun or shade; it flowers freely when it reaches flowering age; but flowering age is long delayed, for at Bodnant it is only three out of nine plants that have yet flowered, though they must now be eighteen years from seed.

HENRY D. McLAREN.

BODNANT, December 1924.

# The Rhododendron Society Notes.

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## NOTES FROM LAMELLEN, 1924.

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This season has been the most unsatisfactory I ever remember. The summer of 1923, with its lack of sun and deficient rainfall, resulted in the formation of but few flower buds, and on top of this we had continuous frost all through the early spring. Following on a very wet winter there was an extraordinary and most lamentable scarcity of bloom. Very many rhododendrons had no flower at all, and of those which had, the inflorescence was very often poor and had apparently been half frosted in the bud.

Drought, frost, and possibly an unlucky moment chosen for planting out wrought havoc with the seedlings of *R. FACETUM* and *R. GIGANTEUM*, some of which were killed outright and others cut to the ground.

The first event of any interest was the flowering of Farrer's 1047, a near ally of *R. RUPICOLUM*, but of an even darker colour, and distinguished from it by a most conspicuous dotting of glands on the exterior of the corolla. The leaves are larger than those of *R. RUPICOLUM*, and the glands beneath browner and more prominent. I sent the flower to Professor Wright Smith, who said that Sir Isaac Bayley Balfour had provisionally named it *R. PROPINQUUM*, but probably thought it a form of *R. RUPICOLUM*, which has 8 to 10 stamens, whereas this has but 5. And he complicated matters for me by adding that Forrest's plant (5865), which I had always known as *R. RUPICOLUM*, was not that species.

With regard to this, however, it is possible that the bit of 5865 F. I sent for comparison may not have been from the original seed, and if this be so, my plants may be natural hybrids with *R. FASTIGIATUM*.

During the first week of May in a cold frame flowered my only plant of *R. "BRACHBOOTH"* (*BRACHYANTHUM* × *BOOTHII*). Nine flowers to the truss, campanulate, butter yellow, of rather a green tinge with a few darker spots:  $1 \times 1\frac{1}{8}$  inches, lobes rather deeply cut and narrowing to a triangular point, the curved style of *R. BOOTHII* and its allies, 5-lobed, style and filaments the same colour as corolla, stigma green, anthers bright brown.

Leaves ovate lanceolate up to 5 inches long, and young foliage glandular and of a beautiful red brown. Pedicels over an inch long, calyx prominent and triangular like the lobes of the corolla, both glandular.

About the same time several plants of *R. "LINDBULL"* (*LINDLEYI* × *BULLATUM*) blossomed. Flowers up to 5 in a truss,  $3\frac{1}{8} \times 4$  inches, white, sweet-scented, yellow at base of corolla. Leaves intermediate. A nice flower.

Also *R. CARNEUM*, 3 or 4 in a truss, very pale pink,  $2 \times 2\frac{1}{2}$  inches, rather deeply cut lobes. Unfortunately a tender plant, those planted out being all killed, whilst the one which flowered was in a cold frame.

Soon after this *R. "SOULKING"* (*SOULIEI* × *KINGIANUM*) made its initial effort. Ten flowers in a well-shaped truss of a luminous shade of crimson pink, 5-lobed, campanulate,  $1\frac{1}{8} \times 2\frac{1}{2}$  inches, filaments and style paler than corolla, anther dark

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brown, stigma dark red. This hybrid has striking foliage, leaves thick dark green, ovate acuminate  $5 \times 2\frac{1}{2}$  inches, very deeply veined, midrib often tinged pink. A satisfactory hybrid.

About the same time came R. 17920 F., one of the HELIOLEPIS section. Flowers in groups of 4 or 5 at the end of the shoots, there being sometimes 4 or 5 groups. Widely campanulate with deeply cut lobes, 5-lobed, violet-rose,  $1\frac{1}{7} \times 2\frac{1}{2}$  inches, filaments paler than corolla, stamens 10, dark brown, style reddish especially at the base, stigma paler. Not a particularly attractive flower.

The summer which followed was very wet in the west country, with the result that it was possible to plant out seedlings almost the whole time; but to counter-balance this advantage the growth of weeds was appalling, so that one had enough to do to prevent them being smothered. During the first week in October there was a first flower on my one plant of R. PROSTRATUM  $\times$  R. SALUENENSE. This was almost identical with that of the pollen-parent, but a trifle darker, and without the spotting which distinguishes that species. At the same time R. LUTESCENS began to flower, and I noticed two blooms on R. THOMSONII, with promise of more to follow in the near future.

E. J. P. MAGOR.



# The Rhododendron Society Notes.

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## NOTES FROM MONREITH.

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### RHODODENDRON GLISCHRUM.

The late Sir Isaac Balfour in his description of this species (Ed. Bot. Gard. Notes, pp. 229-30) says that there is no record of colour of the flowers, Mr. Forrest's specimens having only withered flowers. In Mr. E. H. Wilding's most useful handbook the flowers are noted as "magenta pink." One of our plants bore a couple of trusses in June 1923, and in May 1924 two others, about 4 feet high, flowered. In every case the flowers were cherry red in bud, opening to pale pink and white with no trace of magenta, and having a rich crimson blotch and spots in the throat of the corolla. The anthers are dark maroon, filaments white. This rhododendron bids fair to prove a most desirable species; the foliage is very handsome, growth starts late, and the fact that it has flowered when still quite small encourages the hope that it will bear abundance of handsome trusses when of greater stature. The general effect of the flowers may be described as "apple blossom."

Many of us await with some anxiety the test of a hard winter upon the newer species of rhododendron; meanwhile the experience we have had here of a peculiarly trying spring in 1924, followed by a cold, wet summer and a sharp frost in the early days of November, may be noted for what it is worth. The severity of the trial did not consist in very low temperature; both in May and November the mercury only fell to 25° Fahr.—seven degrees of frost; but the mischief was aggravated on both occasions by the cold snap coming when everything was saturated.

In April we planted out a number of rhododendrons from 6 to 20 inches high, the smaller in nursery beds, the larger in permanent situations in the woods. We ought to have known better; but the frames were congested, and we decided not to wait another month as we ought to have done.

Two species of the *Irroratum* series, both from nearly the same altitude in Burma—*R. FACETUM* and *R. PROPHANTUM*—behaved very differently. *R. FACETUM* suffered seriously, some plants losing all their leaves, while others had them more or less cut by the November frost. They may recover; but this is evidently a more tender species than *R. PROPHANTUM* which never turned a hair, grew vigorously in summer, and now, at Christmas, its fine foliage betokens perfect health. *R. GIGANTEUM* had its young growth nipped in May, but has quite recovered and should prove hardy when clear of the ground frost line.

Among these nursling plants the following suffered badly, and it is doubtful whether they will recover:—

*R. AGGLUTINATUM.*  
*R. CHASMANTHOIDES.*

*R. FARRER 848.*  
*R. BULLIATUM.*

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The following escaped unhurt :—

R. AURICULATUM.	R. ERITIMUM.
R. ARIZELUM.	R. NIPHARGUM.
R. CALOXANTHUM.	R. DETONSUM.
R. SULFUREUM.	R. DOLERUM.
R. GYMNANTHUM.	R. ÆMULORUM.
R. CORIACEUM.	R. SIDEREUM.
R. PHÆNICODUM.	R. FARRER 875.
R. AIOLOSALPINX.	R. UNGERNI.
R. TANASTYLUM.	R. PLEBEIUM.
R. SPHÆROBLASTUM.	R. FARRER 918.
R. SCYPHOCALYX.	R. FARRER 891.
R. ÆCHMOPHYLLUM.	R. TALIENSE.

Among older plants in permanent situations much difference of behaviour may be noted in *R. SINO-GRANDE* owing, I think, entirely to situation. The plants, from 3 to 5 feet high, have never suffered on well-drained but not over-dry slopes among trees, and their foliage is magnificent ; but in moist hollows some of the primary growth buds have been destroyed by frost, with the result this year that the leaves produced from secondary buds were still tender and were scorched by the November frost.

One strong plant of *R. CALOPHYTUM*, 5 feet high, had the edges of its young leaves browned by the May frost ; others of this species escaping unhurt. March frost destroyed all bloom on *R. BARBATUM* and *R. FULGENS*, and May frost killed the flower buds on *R. CRASSUM*. *R. EDGEWORTHII* flowered well without injury ; three plants of *R. MEGACALYX* on north exposure were not hurt, but have not yet flowered ; *R. SCOTTIANUM*, a single plant which flowered well in 1922, was badly cut. Among the dwarf species *R. CALOSTROTUM* is conspicuous for its fine flowers, freely produced, and has proved quite hardy.

HERBERT MAXWELL.

MONREITH.

# The Rhododendron Society Notes.

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## GROUPING FOR EFFECT.

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When dealing with so vast and diversified a genus as that of *Rhododendron*, the question of arrangement and general "lay-out" of the ground at disposal necessarily provides a subject for serious consideration if the best and most effective results are to be obtained.

At the outset a due appreciation of the possibilities of the position from the point of view of soil, climate, and aspect is as essential as a thorough knowledge of the plants to be dealt with, their chief characteristics and varying requirements.

Few genera, if any, embody species so great in number, so diverse in form and character, and it is clear that in a field ranging from *R. REPENS* to *R. GIGANTEUM* and from *R. SERPYLLIFOLIUM* to *R. SINO-GRANDE*, in hill-side sun or forest shade, there must of necessity be found ample scope for variety of treatment at the hands of the discriminating cultivator.

Miscellaneous massing in beds, the provision of a place for a plant instead of a plant for a place, may satisfy the requirements of the mere collector who reckons his species by numbers. But if the individuality of plants and the full scope of the ground itself are to receive the consideration which they rightly deserve, then something more deliberate than a comparatively haphazard arrangement is called for.

Appropriate grouping, as distinguished from mere massing, is an essential element in all good gardening, and the keen eye of the observant plantsman readily discerns the associations which conduce to effective arrangement. Personal taste must ever prove a vital factor in all such matters. No two gardens will ever be any more alike than the people who control them, and there will necessarily be wide differences in their respective opportunities. No hard-and-fast procedure, no infallible prescription, can be laid down, but within the limits of a brief review of the situation certain general ideas suggest themselves for dealing with a selection of the species and varieties of rhododendron which have already become established in our gardens.

Just as there are species which seem to lay a peculiar claim to close association with their kindred, so there are others of outstanding individuality which call for comparative isolation. As an example of the latter the majestic *R. FALCONERI* at once suggests itself, a single mature specimen of which, luxuriating in a cool and shaded situation, bears a distinction all its own and is seen to best advantage in solitary state. Similarly *R. HODGSONII*, *R. EXIMEUM*, and *R. GRANDE* stand out more strikingly alone, or at most in groups of three, and, irrespective of flower, must take high rank amongst the choicest evergreens for woodland decoration. The wonderful *R. SINO-GRANDE*, the beautiful *R. FICTOLACTEUM* and *R. FULVUM* await a later date.

There is much to favour the system of grouping rhododendrons by series, ensuring, as it does, uniformity of treatment and the association of plants in natural affinity. Moreover, it affords a ready means of contrasting the various



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species, and becoming familiar with their distinguishing features. But a too rigid adherence to such a system, by excluding from a definite group species which would otherwise distinctly enhance its effectiveness, would result in a restriction of opportunity from the decorative point of view, and should consequently be avoided. In the Fortunei series, however, a group of species is happily available which needs no embellishment from outside its aristocratic ranks. With *R. auriculatum*, *R. calophyllum*, *R. decorum*, *R. discolor*, *R. houlstonii*, *R. sutchuenense* and *R. fortunei* itself—in its finest forms—to draw upon, a whole woodland may be permanently beautified by bold, free-growing plants, striking of foliage, free and even fragrant of flower, lending themselves admirably to irregular, widely-spaced groups, where the individual form of each species can be clearly displayed. Here no bedding-out is called for. The wildings of the wood, the fern, anemone, and primrose, provide the only groundwork that is needed. The members of the Triflorum and Lapponicum series seem peculiarly suited to mutual association. They provide a large number of desirable species, the two sections blend naturally together, and their cultural requirements are very similar. They stand miles apart from the broad-leaved, shade-loving species, and are best adapted to and most effectively displayed on the more exposed and sunny stretches of the garden, where their true character as light-wooded, free-flowering bushes can be seen to best advantage. Wherever undulating ground is available the natural slopes can be admirably decorated by the taller growers, while the level foreground, irregular in outline, will provide effective positions for the dwarf and prostrate-growing species. A bold bank, gently sloping to the south or west, backed by pines, broken here and there by a natural outcrop of rock, and ending in a well-tilled border at the base, provides what may be considered the ideal situation. The planter will do well to avoid too varied a collection on such a site, and to rely for his effect upon a critical selection of appropriate species, forming groups in due proportion to the dimensions of the area available, irregular in outline, yet blending naturally the one with the other. Such species as *R. augustinii*, *R. charianthum*, *R. chartophyllum praecox*, *R. davidsonianum*, *R. lutescens*, *R. villosum*, *R. yanthinum*, and *R. yunnanense*—or selections from them—will admirably adorn the main slope, while here and there, as taste dictates, a groundwork may be added in natural drifts of *Erica carnea* and Kurume Azaleas, interspersed with a scattering of the lighter daffodils, the wild primrose, and the Dog's-tooth violet, with a few hedgerow ferns to give a natural touch amongst the rocks. The foreground border, irregularly divided and edged with stone, could be effectively grouped with such as *R. chryseum*, *R. fastigiatum*, *R. hippophaeoides*, *R. intricatum*, *R. ledoides*, and the dwarf form of *R. racemosum*. With such an arrangement as is here outlined, a wealth of delicate colouring would be obtainable throughout the spring months, and, where desired, the period and variety of bloom could be attractively extended by the introduction of *R. praecox*, *R. ciliatum*, *R. ferrugineum*, *R. hirsutum*, and select varieties of *R. amoenum* and *R. indicum*, with summer- and autumn-flowering heaths.

In the cool and shaded positions of the woodland, in carefully cultivated ground by the walk-side, in the shelter of moss-grown rocks, one will look for representatives of the series *R. campylocarpum*, *R. campylogyllum*, *R. neri-*

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FLORUM, and *R. SALUENENSE*. Amongst the dwarfier species, here will be found the gems of the genus, whose quality of flower and brilliancy of colouring it would be difficult to exaggerate. But they need, as they richly deserve, the utmost skill and care in cultivation, and the comparatively casual cultivator will look elsewhere for his best results. These species will be found to group themselves admirably in their respective series, or may be intermixed according to character of growth and colour of flower. Many, such as *R. APODECTUM*, *R. CALOSTROTUM*, *R. HAEMATODES*, *R. MYRTILLOIDES*, *R. SALUENENSE*, *R. SANGUINEUM*, and *R. WILLIAMSIANUM*, are admirably adapted for shady beds and hollows in the rock garden in association with the lesser *Primulas* and *Meconopsis*; some, *R. CAMPYLOGYNUM*, *R. EUCHROUM*, *R. HAEMALEUM*, and *R. REPENS*, may be tested in the deep, cool crevices of rocks or in depressions at their bases, while *R. CAMPYLOCARPUM*, *R. CALLIMORPHUM*, *R. CROCEUM*, *R. BRACHYANTHUM*, *R. DICHROANTHUM*, *R. SOULIEI*, and *R. WARDII* are fitting associates for bolder grouping in the open woodland. For *R. NERIFLORUM* a special position should be reserved, and few more striking effects will be obtained throughout the season than that from an isolated bed of this brilliant species.

With whatever group we may be dealing the first principles remain the same; adjudge correctly the possibilities of the place, cultivate sympathy with plants, appreciate their individuality, shun mere collecting with its consequential dumping, pick the best species, group them appropriately, and beware of the vulgarising effect of over-massing. With such safeguards, personal taste and initiative may well be allowed free scope in dealing with perhaps the most inspiring genus in the whole kingdom of plants.

H. ARMYTAGE MOORE.

*December 1924.*

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## RHODODENDRON EUCHROUM.

The following information was gathered together through the kindness of Professor Wright Smith, M.A., and Mr. H. F. Tagg, F.L.S., at Edinburgh, who took a lot of trouble over the matter.

As far as can be traced, no seed has ever been sent home of *R. EUCHROUM*. Ward collected this rhododendron in 1914 under Field No. 1778 and its description was published by Sir Isaac Bayley Balfour in 1916. Ward has since sent this plant again under No. 3267, and the herbarium specimen appears to be *R. EUCHROUM*; the seeds sent home under this number which have germinated have all proved to be *R. SCYPHOCALYX*. On examination of *R. EUCHROUM* and *R. SCYPHOCALYX* there is no difficulty in distinguishing these, *R. EUCHROUM* being of the *Haematodes* series and *R. SCYPHOCALYX* being of the *Sanguineum* series. Ward's No. 1778 is described on the field ticket as having "flowers bright brick red," and Ward's No. 3267 as having "flowers fleshy brick red to flaming orange."

An examination of the herbarium sheets at Edinburgh shows that *R. EUCHROUM* bears a superficial resemblance to *R. SPERABILE* and, except that the flowers have a slightly more yellow tinge, the resemblance to a lay mind is great.

In 1919 Farrer sent home to this country *R. SPERABILE* and what he described as *R. EUCHROUM*, but which has since been proved, both in the herbarium and upon germination of seeds, to be *R. SCYPHOCALYX*. Farrer described this plant as having "flowers bright orange and also deep bronze."

Ward's No. 1689 has been matched by Sir Isaac Bayley Balfour with Farrer's type *R. SPERABILE*.

As it is clear that both *R. SPERABILE* and *R. SCYPHOCALYX* grow in fairly close proximity, and as it seems also probable that *R. EUCHROUM* is to be found near, it seemed to me that there were really not three species but only two. This has been entirely disproved by Mr. Tagg, and he has contributed a paper on the difference between *R. EUCHROUM* and *R. SPERABILE* which, with his kind permission, is printed in full at the end of these notes.

Efforts are now being made, I believe, to collect seeds of the true *R. EUCHROUM*. Until this is done the matter will never be settled, and it may be, after all, that the plant sent home as *R. EUCHROUM* is but a stray hybrid and that the descriptions given by both Ward and Farrer of what they believe to be *R. EUCHROUM* they meant for *R. SCYPHOCALYX*. This daring suggestion, by one who is not a botanist, is only made with the idea of trying to elucidate why so beautiful a plant as *R. EUCHROUM* appears somehow to be missing from our gardens.

LIONEL DE ROTHSCHILD.

EXBURY, 1924.



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NOTES BY MR. TAGG.

Since Mr. Rothschild (when he recently visited Edinburgh) raised the question as to whether *R. SPERABILE* as represented by Farrer's 888 is specifically distinct from the plant collected earlier by Ward (Ward 1778) and named by Sir Isaac Bayley Balfour *R. EUCHROUM*, I have examined the two gatherings more critically than was possible at the time the question was raised.

After this examination I cannot bring myself to regard them as specifically the same. It is true the two are alike in general appearance, but there are points of difference in flower and foliage which would be considered by most systematists sufficient to justify specific differentiation. That these differences are not accidental or individualistic is brought out by the fact that Ward's second collecting of *R. EUCHROUM* (Ward 3267) agrees in all essentials with his No. 1778 and differs from *R. SPERABILE* in exactly the same way as his 1778 does. We have nothing collected by Farrer that matches Ward's *R. EUCHROUM*, but Ward's 1689 matches the type *R. SPERABILE* (Farrer 888) and differs from Ward's 1778 in exactly the same features as Farrer's 888 differs.

Thus whatever concept of specific distinction is adopted we have to recognise two sets of plants :—

A. Ward's 1778 and his 3267 agreeing with Sir Isaac Bayley Balfour's concept of *R. EUCHROUM*.

B. Farrer's 888 and Ward's 1689 constituting his concept of *R. SPERABILE*.

I give below distinguishing characters of the two sets :—

The leaf-shape difference mentioned by Sir Isaac Bayley Balfour, although a slight one, is constant in the specimens examined. All the leaves on Ward's 1778 and on his 3267 specimens are oblanceolate, with the broadest part of the lamina distinctly above the middle distance of the lamina length. From the broadest part the leaves taper to an acutely cuneate base or they are gradually rounded downwards from the broadest part to a *narrow* rounded base.

The leaves of Farrer's 888 and of Ward's 1689 are lanceolate or oblong-elliptic, with the broadest part at the middle of the lamina or not infrequently nearer the lamina base. From the broadest part they are rounded off to an obtuse or *broadly* rounded base.

More important foliar differences are found in the leaf anatomy and in the indumentum of the leaf undersurface.

The epidermal cells of the lower epidermis of *R. SPERABILE* are prolonged as thin wax-coated papillae, recalling in appearance the epidermal papillae of *R. NERIIFLORUM* and *R. FLOCCIGERUM*.

The lower epidermis of *R. EUCHROUM* is quite smooth, the epidermal cells are flat, papillae are absent, and there is no wax coating of the cells.

The indumentum of *R. SPERABILE* is a uniform one consisting of one type of hair forming a single layer. The hairs have long stalks, are freely branched and the branches are long, curved, and tortuous, becoming at their extremities very thin and tendrillar. The branches of adjacent hairs are intertwined and form a woolly indumentum surface similar to that occurring on the leaves of many of

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the species of the Haematodes and Roxieanum series. The removal of the hairs brings to view the whitish glaucous epidermis with its wax-covered papillae.

The indumentum hairs of *R. EUCHROUM* are of two kinds, disposed in two distinct layers. Those of the dominant upper stratum have long, sinuous stems with relatively short side branches and longer terminal branches of relatively short cells. These branch cells are not thin and tendrillar as in *R. SPERABILE*, but are relatively thick and vesicular. They have dark brown contents and in the dry state have the appearance of deflated sausage-like bladders. When the leaf surface is illuminated with a strong sidelight under the microscope the hair branches glisten with prismatic scintillations. (The tendrillar surface branches of the indumentum of *R. SPERABILE* do not scintillate.)

The removal of the upper-stratum hairs reveals below a thin grey under-stratum. This is made up of very shortly stalked rosette hairs—a type of under-stratum hair occurring in many phyla of the genus. The short stalks are crowned at the top with short vesicular branches which radiate horizontally. The hairs are set close together and the radiating branches of adjacent hairs interlace and are flattened and agglutinate, thus forming a continuous covering over the smooth epidermis.

Coming to the flowers, those of *R. SPERABILE* are larger in all parts than those of *R. EUCHROUM*. The important differences in size are tabulated below :—

	R. EUCHROUM.	R. SPERABILE.
Stamens—		
Longest	2·5 cm.	3·3 cm.
Shortest	1·8 cm.	2·4 cm.
Filaments	All distinctly puberulous at base.	All quite glabrous at base.
Ovary	Blunt conoid. Clothed with stalked glands and branched floccose hairs.	Pointed conoid. Clothed with long, stalked glands and fewer fasciately branched hairs.
Style	2·2 cm. long, 1 mm. or more in diameter.	3·3 cm. long, thinner than in <i>R. EUCHROUM</i> , less than 1 mm. in diameter.

The chief structural difference in the flower is that pointed out by Sir Isaac Bayley Balfour in his description of *R. SPERABILE*, viz. the quite glabrous stamens of *R. SPERABILE* and the distinctly puberulous stamens of *R. EUCHROUM*. This distinction between the two is not very evident when the flowers are dry, but after they have been soaked and the staminal hairs of *R. EUCHROUM* have regained their turgescence the difference is a conspicuous one.

What importance should be attached to this difference is debatable—indeed what degree of divergence of one form from another justifies specific distinction must remain in the meantime largely a matter of opinion, but in this instance we have to consider the cumulative value of a number of differing features in flower and foliage. It is the consideration of the differences collectively, and in particular the differences in indumentum, that leads me to regard *R. SPERABILE* as specifically distinct from *R. EUCHROUM*.

HARRY F. TAGG.

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## EXPERIMENTS IN RHODODENDRON CULTURE.

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Rhododendrons and other ericaceous plants thrive in peat and sand mixture because its chemical reaction is acid, and they die in ordinary fertile garden soil because its reaction is neutral or slightly alkaline.

In non-acid soils ericaceous plants often subsist for a year or two on their old root ball of peat, but when this is used up they sicken and die if the surrounding soil is neutral or slightly alkaline. In nature, acid nourishment is provided by the accumulation, on the surface of the ground, of a layer of half-rotted leaves, twigs, and rootlets. Such an accumulation is called peat.

On limestone soils, or on soils having alkaline chemical reaction, peat does not form, the reason being that the lime and other alkaline substances in the soil hasten decomposition to such an extent that each year's leaf-fall is decomposed, much of it passing in liquid form into the underlying soil.

Fully decomposed leaves form a true leaf mould, black in colour and neutral or slightly alkaline in reaction, in which ericaceous plants will not grow.

The continuation of acidity in peat is due to the arrest of decomposition before it has progressed to the alkaline stage, the chief factor being the lack of lime in the underlying soil, and when a peat mat is once established, its own acidity is fatal to the life of the organisms that, as agents of rapid decay, would destroy that acidity.

A sharp distinction should be made between half-rotted oak leaves and the ordinary compost of leaves with garden soil and garden trash. Such a compost is neutral or slightly alkaline in reaction and should not be used on acid-soil plants.

Maple, elm, and lime leaves rot rapidly and soon reach the alkaline stage, so are not desirable for application to an acid-soil planting. Oak leaves rot slowly, and in two or three years make a good substitute for peat. No manure, lime, or wood ashes should be applied to rhododendrons or other plants that require an acid soil, for all these substances tend to neutralise the necessary acidity.

From numerous experiments it has been shown that the application of aluminium sulphate is the best method of rectifying the want of soil acidity. Even in the case of sickly rhododendrons—plants that had remained stationary in their pots for a twelvemonth—the application of aluminium sulphate produced healthy growth within a month.

That the aluminium sulphate had no direct fertilising effect is evidenced by an earlier experiment in which, when it was added to a soil composed of peat and sand, rhododendron seedlings showed no greater growth than in untreated peat and sand.

The fundamental action of the aluminium sulphate appears to be the replacement of the lime in the soil by aluminium, and the leaching away of the released lime in the form of calcium sulphate.



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The change in the soil reaction from neutrality or alkalinity to acidity is doubtless due at first to the acidity of the aluminium sulphate itself, but the continuation of the acid reaction is due apparently to the fact that the calcium and other substances that could neutralise soil acidity have been removed by the treatment.

Limestone water, which is alkaline in reaction, will ultimately injure an acid soil planting.

Rain-water or other water that is neutral or even acid in reaction should be used.

If only alkaline water is available, it can be made neutral or slightly acid by dissolving in it a suitable amount of aluminium sulphate.

The proper amount can be determined by adding to a sample of treated water a drop of the dye "Bromthymol Blue."

If the water is neutral the colour will become green.

"	"	acid	"	"	"	yellow.
"	"	alkaline	"	"	"	blue.

For pot work—one part of aluminium crystals to 200 parts of soil, by bulk, may be taken as a standard experimental mixture.

Experiments have not been extended to large rhododendron plants, but if this should be tried, an amount of half a pound of aluminium sulphate to the square yard may be applied advantageously and safely if the soil is of the ordinary fertile type, the application being repeated if the soil is not made acid by the first application.

For an ideal rhododendron soil aluminium sulphate is unnecessary and useless.

To summarise the matter, the application of aluminium sulphate may be regarded as an effective and inexpensive means of changing the reaction of a soil from neutral or alkaline to acid.

The above note is not original but consists of extracts from the publication of Frederick V. Corville, Botanist to the U.S.A. Department of Agriculture.

E. H. WILDING.

WEXHAM PLACE, *November 1924.*

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## SOME PROMISING DWARF RHODODENDRONS.

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Most of us are glad to have had provided for those interested in rhododendrons the excellent book lately published by Mr. Cox,\* bringing up to date what the ordinary gardener had formerly found in some measure in Mr. Watson's book, now some ten or twelve years old.

The book Mr. Cox has given us is full of very valuable information, but restrictions of space have obliged him to compress his detail a good deal, preventing him mentioning very many plants of any one series.

This is so in the case of *Saluenense* series, where he only mentions *R. CALOSTROTUM* introduced in 1919, but members of this series have been in our gardens since 1911, and from time to time several have flowered. One of the first to do so was *R. PROSTRATUM*, which comes from about 16,000 feet, about as high as the rhododendron family reaches, I believe. It is a remarkable plant anywhere when in flower, and this contrasts well with the leaf; it is a good deal troubled by a night-feeding caterpillar, whilst the plant would seem to have come from the shady side of the mountain, as it resents much sun in my experience, though probably would resent drip and lack of air also.

*R. CHAMEUNUM* has been flowering for some time, and in some instances has a dark, strongly coloured, rose-purple flower, a pleasant colour on its own foliage, but, like most of this family, better for being away from some other colours. If 12934 of Forrest is *R. SALUENENSE*, it seems to be not very far off *R. CHAMEUNUM* 12988, and both come from the Kari Pass.

But the most remarkable plants of this series by far, as I have seen the specimens and the living flowers, are the *R. RADICANS* lot under numbers 19919, 20235, 20255, 21757, all under 10 inches in height, giving flower in some instances before they are a quarter of an inch high, having quite the smallest leaves of any mountain form I have seen, with a relatively large flower between the size of a shilling and a florin. This plant seems to be better adapted to the wants of those who grow rock plants than any rhododendron except perhaps *R. REPENS*, and though I have only had it a short time, it is apparently easier to satisfy as regards soil than some are.

*R. AMAUROPHYLLUM*, a plant up to 2 feet high, would seem by the specimens, and what Mr. Forrest says of it, to be a more striking flower, but so far it has not flowered here.

I can believe that growers before long will settle down to a few groups which suit their gardens, a far saner thing than the plants which suit their fancy.

This applied to rhododendrons will mean that the shrubs under 4 feet high will be in far greater demand than the larger things, and that few will battle for

\* *Rhododendrons for Amateurs*, by E. H. M. Cox, Demy 8vo., with coloured wrapper and 15 illustrations, 128 pp., Price 5s. Published by Country Life Ltd., 20 Tavistock Street, Covent Garden, London.

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long with the large foliage section in particular, unless they have ample ground and very complete shelter from the wind.

At any rate, the very small things I have been discussing will, I am confident, become popular in small gardens, and there are other families giving us a great variety of colour under 2 feet in height. The most notable of these are the smaller SANGUINEUMS, where they run down into the REPENS-FORRESTII lot. There are of these now in cultivation, in several gardens, over twenty different kinds, nor should it be hard to increase them by cuttings very quickly, when once they have started growing. I see the colours run in the Field Notes Mr. Forrest gives—pale yellow margined pink, deep crimson almost black, bright pink, rose crimson, creamy white, pale yellow striped and margined rose crimson, greenish yellow flushed and margined deep rose, crimson on an orange base, bright yellow no markings, etc. Once we master the needs of these plants they should be capable of giving a great deal of satisfaction, and should require but a reasonable amount of attention, nor have they as much to fear from rabbits and slugs, etc., as many things have.

J. C. WILLIAMS.

CAERHAYS CASTLE, *December 1924.*



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## THE KNAP HILL AZALEAS.

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Anthony Waterer the younger died in July 1924. He and his father had for more than fifty years produced at Knap Hill hybrid azaleas of a standard that as yet has not been surpassed. Father and son alike were intensely proud of these plants, and did not allow them to pass into the hands of the trade, distributing only a few plants to privileged customers. The elder Anthony relied principally on hybridisation, while the younger usually preferred to breed by selection. They both had a shrewd instinctive knowledge of a good breeder, and stuck to their judgment with marked success. They were always closely in touch with America, and at Knap Hill there are probably some of the oldest plants of the American species that exist in this country.

The Knap Hill strain was based on crossing the best forms of *A. CALENDULACEA* with *sinensis*. From 1830 to 1870 azalea species were far more closely examined for good forms than is the case to-day. If one looks at the old trade catalogues of that period, one finds that many forms of the prominent species are listed. For instance, Peter Lawson, of London and Edinburgh, offered in 1858 14 forms of *A. CALENDULACEA*, 24 forms of *A. NUDIFLORA*, and 28 forms of *A. PONTICA*. Mr. Waterer was an unusually fine judge of a shrub from every point of view, and we may be quite sure that he would only breed from the best forms.

It was in the early 'seventies that he got a break which showed greater substance, symmetry, and size than had been known at that time. It was on this break that he worked. The size came from *sinensis*, the substance from the American species. He was careful not to use *sinensis* too freely, as he considered it was very liable to burn. The colours have always been remarkable: the crimson deep and solid, the scarlets brilliant as a new hunting coat, the yellows attaining the colour of rich Guernsey butter, the oranges bright with crimson filaments to the anthers, and of course there were beautiful pinks and whites. Bronze foliage, which harmonises so well in azaleas, was also carefully developed. Among other types at Knap Hill there was a fine race of double or hose-in-hose azaleas, which have been curiously neglected by growers, although they are undoubtedly good garden plants, being far more durable as flowers than the singles. There were also two distinct types bred from *A. OCCIDENTALIS*—one was somewhat fastigate and very late flowering (late June). These have a strong honeysuckle scent to the white or nearly white flowers. The Waterers kept no notes on parentage, and the younger Mr. Waterer did not know how they were bred beyond that *A. OCCIDENTALIS* was one parent. Raisers often do not realise that accurate records can be of the greatest service to themselves and their successors. The other was a fine race, being full of vigour, with immense trusses of white or nearly white flowers with pink or yellow buds and tubes. They flower in late May, and the type had a First-Class Certificate R.H.S., 1894, as "*A. ALBICANS. SINENSIS*×*OCCIDENTALIS*." Young Anthony was disappointed in these, as he found that in the cold Knap Hill gardens the flower buds were very liable to be frosted, but I believe the present wonderful strain of Knap Hill whites could be traced

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to these plants. The same cross has been raised at Boskoop of latter years, but they are yellower, and I do not consider these plants show the quality of the Knap Hill strain. Some azaleodendrons were raised, the best of which is "Gallop Light."

In conclusion, I will say that those who are fortunate enough to have the best of the Knap Hill azaleas may rest assured that they have the best azaleas.

LANARTH, *December 1924.*

P. D. WILLIAMS.

