HOOKER'S

## ICONES PLANTARUM.

THIRD SERIES.-VOL. X. @

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## ICONES PLANTARUM; <br> OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS, OF NEW AND RARE PLANTS,

GELECTED FROM THE

## KEW HERBARIUM.

THIRD SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY
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> VOL. X.

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OR VOL. XX. OF THE ENTIRE WORK
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WILLIAMS AND NORGATE,
14, henrietta street, covent garden, london and 20, SOUTH FREDERICK STREET, EDinburgh.
R. FRIEDLÄNDER UND SOHN, 11, CARLSTPASSE, BERLIN.


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THIRD SERIES.

EDITED BY
Sir JOSEPH DALTON HOOKER, K.C.S.I., C.B., M.D., F.R.S.
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VOL. X.,

OR VOL, XX OF THE ENTIRE WORK.

## WILLIAMS AND NORGATE,

 14, HENRIETTA STREET, COVENT GARDEN, LONDON ; and 20, SOUTH FREDERICK STREET, EDINBURGH.R. FRIEDLÄNDER UND SOHN, 11, CARLSTRASSE, BERLIN.
1890.


Caralluma lutea N.E. Br.

## Plate 1901.

## CARALLUMA LUTEA, N. E. Br.

## Asclepladacee. Tribe Stapeliee.

C. lutea, N. E. Br. (n. sp.) ; ramis glabris $2-4$ poll. longis, $\frac{1}{2}-\frac{3}{4}$ poll. crassis, tetragonis, angulis grosse dentatis; floribus fascicalatis, pedicellis $\frac{1}{3}-1$ poll. longis; corolla profunde quinquefida, $2-2 \frac{1}{2}$ poll. diam., lutea, tubo subnullo, lobis lanceolato-attenuatis, intus rugulosis, marginibus pilis clavatis purpureis ciliatis; corona exteriore cupulare, 5-loba, lobis latissimis ad medium connatis, apice truncatis denticulatis, recurvis, luteis; coronæ interioris segmentis bicornutis, postice coronæ exteriori adnatis, lateis.

Hab. Transvaal, Orange Free State, and Griqualand West; common throughout the Diamond Field region; Sanderson, Mrs. Barber, Tuck, MacOwan (No. 2240), Barkly (Nos. 7 and 40).

Stems branching at the base, 2-4 inches long, glabrous, 4 -angled, angles obtuse with stont teeth. Flowers numerous, in large clusters, arising from the middle or towards the base of the young stems; pedicels $\frac{1}{3}-1$ inch long, stout, glabrous. Calyx-lobes ovate or lanceolate acuminate, $2 \frac{1}{2}-3 \frac{1}{2}$ lines long. Corolla $2-2 \frac{1}{2}$ inches in diam., deeply 5 -parted, golden yellow, glabrous outside, rugulose within, tube almost wanting ; lobes narrow, lanceolate, attenuate, ciliate with vibratile, clavate, purple hairs. Outer corona cup-shaped, of five very broad lobes, connate for about halfway up, truncate, denticulate, and recurving at the apex, and mariked with about five ridges down the centre. Inner corona of five two-horned lobes, adnate to the back of the anthers and to the outer corona at the sinuses between the lobes; the horns are erect and subulate, the inner one twice as long as the outer, and recurving at the apex; both the outer and inner corona are of a rather darker yellow than the corolla. Pollen-masses ascending, somewhat oblong in outline, broader than long, truncate and pellucidmargined on the inner side.

This fine and rather showy plant seems to be somewhat intermediate in character between the genera Stapelia and Caralluma; the stems are similar to those of the section Orbea of Stapelia, but stouter than most of the species; the outer corona is essentially that of Caralluma, whilst the inner corona is something like that of Stapelia olivacea. This seems first to have been sent to England by Mr. Sanderson, the Kew specimen being thus labelled: 'From the Transvaal country,

[^0]brought by myself. This specimen flowered in the Agricultura Society's Garden, March 1854. John Sanderson.' Mrs. Barber states that 'it is the commonest of all the family up here (Kimberley), and occurs upon nearly every grassy ridge upon the flats, varying very much in appearance, and, although I have passed over acres of it, I have never yet met with a seed-pod; the plant blossoms profusely in autumn, producing large bunches of flowers, sometimes as many as 16 or 17 in a bunch, and yet I have found no seed upon it.' From this it would appear that it rarely produces frait; an outline of the fruit, howerer, is given on a drawing sent to Kew by Mrs. Barber, in which the follicles are represented as about $3 \frac{1}{2}$ inches long and moderately stout. The odour of the flowers is described by Sir Henry Barkly as 'very fetid, like that of putrid fish.'-N. E. Brown.

Fig. 1. Corona. 2. Portion of corona, to show the attachment of the back of the segments of the inner corona to the outer corona. 3. Pollinia. All enlarged.


## Plate 1902.

## CARALLUMA ARMATA, N. $E$. Br.

## Asclepiadacere. Tribe Stapeliee.

C. armata, N.E.Br. (n.sp.); ramis iis C. mammillaris similibus; corollæ tubo brevissime campanulato, lobis 4 lin. longis, lanceolatis acutis, marginibus replicatis, omnino glabris, atropurpureis vel fuscopurpureis, basi et tubo viridi-lateis, purpureo-punctatis; corona exteriore capulare, truncata, margivis partibus antheris oppositis minute erosis, partibus cum antheris alternis minute bidentatis; segmentis coronæ interioris oblongis emarginatis, arcte incambentibus.

Hab. Foot of the Kamiesberg, Little Namaqualand. Barkly (No. 47). $_{\text {(Nor }}$
Stems just like those of $C$. mammillaris, and flowers clustered in the same way. Pedicels stout, 2 lines long. Calyx-lobes lanceolate acuminate, $\frac{1}{8}$ inch long. Corolla with a very short campanalate tube, and somewhat spreading, lanceolate, acute lobes, 4 lines long, with replicate margins; outside glabrous, greenish-white ; inside glabrous, the lobes dark parple-brown, or blackish-purple, with their base and the tube greenish-yellow, dotted with purple. Outer corona cupshaped, and truncate, with those portions alternating with the anthers minutely bidentate, and blackish-purple in colour, and those portions opposite ihe anthers minutely erose, and of a lighter purple-brown colour. Segments of the inner corona oblong, emarginate at the apex, not produced beyond the anthers, on which they are closely incambent, purple-brown.

This species is very similar to $O$. mammillaris in its stems, but the flowers are smaller, on much longer pedicels, and have a very different corona.-N. E. Brown.
Fig. 1. Calyx and corona, with the corolla cut away. 2. Corona, front view. 3. Pollinia. All enlarged.
C. mammillaris, N. E. Br.-Stapelia mammillaris, Linn. Mant. p. 216 (1771). S. pulla, Ait. Hort. Kew. ed. 1, vol. 1, p. 310 (1789); Masson, Stap. p. 21, t. 31 . Bot. Mag. t. 1648. Piaranthus pullus, $R$. Br. in Mem. Wern. Soc. vol. 1, p. 23 (1811); P. mammilaris, Don, Gen. Syst. Gard. vol. 4, p. 114 (1837). Pectinaria mammiliaris, Sweet, Hort. Brit. ed. 2, p. 357 (1830). Boucerosia mammillaris, N. E. Br. in Journ. Linn. Soc. Bot. vol. 17, p. 165, t. 11, f. 5-13 (1878).
Hab. Kamiesberg, Little Namaqualand, Barkly (No. 30).-N. E. Brown.

M.S. lith
A. Caralluma linearis, N.E.Br.

## Plate 1903.

## A.-CARALLUMA LINEARIS, N. E. Br. B.-CARALLUMA DEPENDENS, N. E. Br.

## Asclepiadacee. Tribe Stapeliez.

A.-C linearis, N. E. $B r$. (n.sp.) ; ramis tetragonis glabris, angulis dentatis, dentibus parvis, brevissime indurato-apiculatis; pedicellis 1 lin. longis ; corolla $\frac{3}{4}$ poll. diam., tubo parvo campanulato, intus albido, quam lobis linearibus patentibus atropurpureis triplo breviore; segmentis coronæ exterioris sabquadratis, bifidis vel tridentatis, dente medio minato; segmentis coronæ interioris linearibus, erectis, apice obtusis recurvis ; follicalis $1 \frac{1}{2}$ poll. longis, anguste fusiformibus.

## Hab. Seven-weeks Poort, Zwartberg, Bain (No. 8), Barkly.

Stems glabrous, four-angled, angles shortly toothed, the teeth with a very short indarated point. Pedicels very short, about 1 line long, growing to about $\frac{1}{3}$ inch long in fruit, glabrous. Calyx-lobes ovate acute, $\frac{1}{10}$ inch long, glabrons. Corolla $\frac{3}{4}$ inch in diameter, quite glabrous, with a small campanulate tube, whitish inside, and spreading, linear, blackish-purple lobes, which are more or loss replicate, and about three times as long as the tube. Segments of the outer corona subquadrate, deeply bifid or three-toothed, the midille tooth minute. Segments of the inner corona much longer than the anthers, flat, linear, erect, with recurved obtuse apices, blackish-parple or dark purplebrown. Follicles narrow fusiform, about $1 \frac{1}{2}$ inch long; seeds narrow oblong, with a thick roll-like margin, and a rather short coma, the hairs being scarcely $\frac{1}{2}$ inch long.

Of this I have seen only a small piece of stem with follicles attached, and some loose flowers, dried and in spirits. The stem gives me the impression that it may be a dwarf plant only an inch or two high, but it may be that the piece at Kew is ouly a short shoot broken off from a larger plant; the teeth on the angles of the stem are very much less prononnced than is the other Surath African species that have distinctly toothed stems, and their iudurated tips are very small and blunt, not spine-like. I am nnable to state the colour of the onter eoronal segments, but in the dried flower thev are pallid, and may have been yellowish. The drawing is made from flowers preserved in spirits of wive, and the imer coronal segments are probably not so sprcading

[^1]in the living state as shown in the drawing; more probably they are connivent.-N. E. Brown.
A.-C. lisearis. Fig. 1. Flower, natural size. 2. Flower, side view. 3 and 4. Corona, front and side views. 5. Pollinia. Figures 2 to 5 enlarged.
B.-C. dependens, N. E. Br. (n.sp.) ; erecta, ramosa, pedalis; ramis tetragonis, glabris, angulis spinoso-dentatis; floribus binis vel ternis, e sulcis inter angulos ortis, breviter pedicellatis, abrupte deflexis; corolla rotata, 5 lin. diam., lobis anguste oblongis, subobtusis, 4 reflexis, I ad caulem adpresso, glabris, ciliatis, apice fusco-purpureis, basi luteoviridibus, fusco-purpureo transversim lineatis; segmentis coronæ exterioris profunde bilobis, lobis subulatis, arcuato-diparicatis; segmentis coronæ interioris acuminatis, arete incumbentibus.

Hab $_{\text {ab }}$ From a farm 20 miles west of Clanwilliam, Barkly (No. 78).
Plant bushy, ahout a foot high; stems erect, glabrous, $\frac{1}{2}-\frac{3}{4}$ inch thick, 4-angled, angles rounded, with stout spine-like teeth, greyish or purclish green. Flowers 2-3, together, arranged along the grooves between the angles of the stem; pedicels $1-1 \frac{1}{2}$ line long, abruptly curred downwards; full-grown buds oblong, obtase, pendulous, and closely applied to the stem. Culyc-lubes scarcely one line long. Corolla rotate, very deeply 5 -lobed, 5 lines in diameter; four of the lobes reflexed, the fifth (the lower one) pressed flat against the stem, all narrow-oblong, subobtuse, glabrous on both sides, ciliate with long, soft, curly, purple hairs : apical half dark purple-brown, basal half light yellow-green, marked with transverse purple-brown lines. Segments of the outer corona deeply divided into two subulate, arching-divaricate lobes, prople-black with a jellowish base. Seyments of the inner corona simple, acuminate, not longer than the anthers on which they are closely incumbent, purple-black. Fruiting pedicels $\frac{1}{2}$ inch or more long, and erect; fruit not seen.

A remarkable plant, resembling that figured by Masson as Stapelin pruinosa in general habit. but the stems hare much longer and stonter spine-teeth. The curinus way in which the lower lobe of the pendulous flowers is pressel flat against the stem, whilst the other fonr are reflexed, is different from that of any other species of the whole tribe known to me. The same crmes appear to produce flowers for two or more years, so that at length a sort of peduncle is developed; on the old stems of the plant, introduced to Kew by Sir Henry Barkly, some of these peduncles were nearly half an inch long, and all were more or less curved uprards. Whether the position of the corolla, and the reflexion of its lobes, would be the same on these older cymes as it is in the young cymes which I have described, I am unable to say, as I hare seen no flowers on the older cymes; but there was the remainder of a fruiting pedicel on one of them, from which the follicles had been broken off, which showed that the pedicels elongate rery
considerably during the growth of the fruit, and become erect. The corona is exactly the same as in the typical Indian species of Caralluma.

There is a specimon of this plant in the Berlin Herbarium, labelled as having been collected at Olifants River, and flowered in the garden of Mr. Hesse, but no date is mentioned on the label.-N. E. Brown.
B.-C. dependens. Fig. 6. Flower. 7. Corona. 8 and 9. Segments of the inner corona, with anther, front and side views. 10. Pollinia. All enlarged.
C. hottentotorum, N. E. Br.-Quaqua hottentotorum, N. E. Br. in Gard. Chron. 1879, vol. 12, pp. 8 and 9, f. 1.

Hab. Ookeep and Klipfontein, Little Namaqualand, Barkly (Nos. 27, 50, and 50 bis).

The Ookeep plant (No. 27) differs from that from Klipfontein in being destitute of an outer corona, and the inner corona less developed, but in every other respect is so perfectly identical with that plant that 1 cannot regard them as distinct from one another, and believe them to be merely local forms of one species. It may not be out of place to say that some difference will be observed between the corona as figured by me in the 'Gardeners' Chronicle' and that of specimens which have been dried or preserved in spirits, as in these latter a considerable amount of shrinking takes place, and the sides of the lobes of the onter corona are not folded in quite the same manner as when alive; my drawing represents the corona faithfully as seen when alive, under a compond microscope, and magnified about 30 dia-meters.-N. E. Brown.


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Caralluma rmosa, N. Br

## Plate 1904.

CARALIUMA RAMOSA, N. E. Br.

## Asclepiadacere. Tribe Stapelier.

C. ramosa, N. E. Br.-Stapelia ramosa, Mrass m, Stap. p. 21, t. 32 (1796). Piaranthus ramosus, S'ueet, Hort. Brit. ed. 2, p. 359 (18:50).

Hab. Groot Funtein, and near Vlak Kraal, on the Karoo ; Barkly (Nos. 62 and 63).

As the flowers of this plant have never been properly described, I give the following particulars concerning them from Sir Henry Barkly's specimen. Pedicels very short, about 1 line long. ('alyxlobes ovate-lanceolate, acute, as long as the pedicels. Corolla with a short campanulate tube, glabrous nutside, minutely pubessent within, and lanceolate, acute, replicate lobes, $0 \frac{1}{2}-3$ lines long, with a rather acute ridge down their face, caused by being longitudinally fulded, glabrons on both sides, not ciliate. Outer rorund of five, very short, bitid lobes. Inner corinal lobes oblong, obtase, clusely incumbent on the back of the anthers, and scarcely or not at all exceeding them in length.-N. E. Brown.
Fig. 1. Flower, side riew. 2 and 3. Corona, front and side views. All enlarged.

A. Caralluma aperta, N.E.Br.

## Plate 1905.

## A.-CARALLUMA APERTA, N. E Br. B.-HUERNIA HUMILIS, Haw.

Asclepiadaceer. Tribe Stapeliee.

A.-C. aperta, N.E.Br. ; ramis glabris, glaucis, $2-2 \frac{1}{2}$ poll. longis, obtuse tetragonis, augulis vix dentatis; pedicellis $2 \frac{1}{2}-3$ poll. longis, adscendentibus vel erectis; corolla $1-1 \frac{1}{4}$ poll. diam., glabra, tubo came panulato, lubis oblongis, obtusis, patentibus, marginibus reflexis, intus rugulosis, quam tubo duplo longioribus; corona exteriore cyathiforme, intus septis 5 antheris oppositis tubo staminco connexa, 10 -crenata, crenis antheris oppositis majoribus, obtuse rotandatis, papillosis, crenis alternis minoribus, subacutis, brevissime et arete lacerato-fimbriatis; coronæ interioris segmentis simplicibus, ad apicem in cornu erectum vel recurvam clavatam $\frac{1}{8}$ poll. longum productis.-Stapelia aperta, Masson, Stap. p. 23, t. 37 (1796). Caruncularia aperta, Sweet, Hurt. Brit. ed. 2, p. 359 (1830).

Hab. Little Namaqualand, Barkly (No. 19).
Stems 2-2 $\frac{1}{2}$ inches long, obtusely tetragonal, glaucous, scarcely toothed. Pedicels $2 \frac{1}{2}-3$ inches long, ascending or erect. Calyc-lubes ovate, acate. Corolla $1-1 \frac{1}{4}$ inch in diameter, quite glabrons, with a campanulate tube about half as long as the spreading, oblong, obtuse lubes, which have reflexed margins, and are rugulose inside. Outer curuna cup-shaped, with septa connecting it to the staminal tube and base of the segments of the inner corona, very shortly 10 -crenate, the crenations opposite the anthers obtusely rounded, thick and papillate, the alternate oues smaller, subacute, somewhat folded, and papillatefimbriate on the margin. Segments of the inner corona simple, pro. duced at the apex into erect, clavate horns, $\frac{1}{8}$ inch long.

The structure of this plant has not previously been described; in habit it closely resembles Stapelia pedunculuta, and has been previously associated with that species in the section Caruncularia, bat the structure of the outer corona is so modified that it appears to be best to consider it as generically distinct from Stapelia, as otherwise the generic characters of that genus would have to be so modified that other genera having the segments of the outer coroma more or less
united into one piece would have to be included in it: I therefore propose to place it as an aberrant species of Caralluma.-N. E. Brown.
A.-C. aperta. Fig. 1. Corona, side view. 2. Pollinia. Both enlarged.

Besides those species of Caralluma enumerated above, Sir Henry Barkly sent three others apparently belonging to this genus, but without flowers, so that I am unable to determine them with certainty; they are-

No. 29, from Kamiesberg, Little Namaqualand, possibly the same as No. 47, C. armata.

No. 46 , without locality, is probably $C$. mammillaris
No, XCII., 'growing in large clumps in the rocks at a place called the Draai, division of W orcester.' A new species.-N. E. Brows.
B.-Huernia humilis, Haw. Synop. Plant. Succ. p. 30 (1812).Stapelia humilis, Masson, Stap. p. 10, t. 5 (1796).

Hab. Collected in the Nieawveld Mountains by Mr. Bain, and sent home by Sir H. Barkly as "Buin X." I have not seen the living plant.-N. E. Brown.
13.- HI. hemilis. Fig. 3. Section through the annulus of the corolla. 4. Curons. 5. Pollinia, All enlarged.

## TRICHOCAULON, N. E. Br.

T. cactiformis, N.E.Br.-Stapelia cactiformis, Hook. But. Mag.t. 4127.

Hab. Little Namaqualand. Barkly (No. 37).
Althongh differing from the other species of Trichocaulon in the want of the setre which terminate the tubercles on the stem, I can finid no structural character in the flowers to justify its separation from that genus. The plant is a very peculiar one, and cannot be mistaken for any other described species. So far as I have seen, it is the only member of the whole group of Stapetiece that exhibits no tendency to branch. It was figured without a specific name as long ago as 1790 hy Paterson, in his Narrative of four Journies into the country of the Hinttentots and Caffiaria; the plate of Stapelia following that of Mermannia at p. 60.
T. flavum, N. E. Br. in Journ. Linn. Soc. vol. 17, p. 165, pl. 11, f. 2-4, 1878.

Hab. Karoo, Bain; Barkly (drawing No. 15).
A fine plant from the Vaal River, of what I believe to have been this species, was sent to Kew by Sir H. Barkly in 1877, but it died
without flowering, and may possibly have been T. piliferum. Both species are called " Guaap" by the natives. - N. E. Brown.

## HOODIA, Sweet.

H. Barklyi, Dyer in Journ. Linn. Soc. Bot. vol. 15, p. 25̊, pl. 5, f. 3 (1876).

Hab. Brought from the Karoo by Mr. Lycett to the Cape Botanic Garden in 1873, Barkly (No. 5).
H. Bainii, Dyer in Bot. Mag. t. 6348 (1878).

Hab. From Dwyka River and Uitkyk (Gamka River?), both on the Gouph Plateau, Bain (No. 11). I do not feel sure that the locality Uitkyk is the one marked on the map by the Gamka River, as Sir Herry Barkly informs me that it is a common name, meaning 'outlook,' and there may be a locality of that name on the Dwyka River, whence the plant was stated to have come when Sir Henry Barkly first sent it.
H. Gordoni, Sweet, Hort. Brit. ed. 2, p. 359 (1830); Dyer in Journ. Limn. Soc. Bot. vol. 15, p. 252, pl. 5, f. 1; and in Bot. Mag. t. 6228; N. E. Br. in Gard. Chron. 1875, vol. 4, p. 452. Stapelia Gordoni, Masson, Stap. p. 24, t. 40 (1796). Monothylaceum Gordoni, G. Don, Gen. Syst. Gard. vol. 4, p. 116 (1837). Scytanthus Gordoni, Murk. Icon. Plant. vol. 7, t. 625 (1844).

Hab. Henkries, 12 miles south of the Orange River, Little Namaqualand; a dried flower, and a living plant sent to Kew by Sir $H$. Barkly in 1874.
H. Currori, Dene. in DC. Prod. vol. 8, p. 665 (1844) ; Dyer in Jowin. Linn. Soc. vol. 15, p. 251, pl. 5, f. 2. Scytanthus Currori, Hook. Icon. Plunt. vol. 7, t. 605-606, and mentioned as $S$. Burkei by an error under t. 625 (1844).

Hab. Damaraland, Pulgrave, a dried flower and photograph communicated by Sir H. Barkly; Angola, Curror, Monteiro.-N. E. Bruwn.

## DECABELONE, Done.

D. Barklyi, Dyer in Bot. Mag. t. 6203 (1875) ; and in Journ. Lian. Soc. vol. 15, pp. 249-250, pl. 5, f. 4.

Hab. Discovered by Lichtenstein in 1805, on the Karoo, near the Orange River, and refound by Sir 11. Barkly in 1871 , and by $\operatorname{Dr}$. Shaw in 1874, in the same locality.

The interior corona of this remarkable plant is described as com-
posed 'of ten dissimilar processes, five slender and adnate to the anthers, upon which they are incumbent as in $D$. elegans, five alternating with these and one-third as long, broadly deltoid and bifid.' These bifid processes do not belong to the corona, but are formed by the edges of the stigmatic cavity, which at this part are sharply turned back. They are stated in the Journal of the Linnean Society to be absent in D. elegans; this statement was founded on the supposition that the drawing of the corona of $D$. elegans on pl .6115 , tig. 4, of the 'Botanical Magazine' was correct; this, however, is not the case : the stigma-processes should have been represented as they are on the plate of D. Barklyi, fig. 1, being alike in both species.

There are stems of this remarkable plant in the Berlin and Kew Herbaria labelled 'From the Gariep July 1805, Lichtenstein No. 184.'N. E. Brown.


## Plate 1906.

## HUERNIA PRIMULINA, N.E.Br.

## Asclepiadaces. Tribe Stapelief.

H. primulina, $N . E . B r .(n . s p$.$) ; ramis 1-21.$ poll. longis, $\frac{1}{2}-\frac{5}{8}$ poll. diam., glaucis, acute $4-5$-angulatis, angulis grosse dentatis, cymis plurifloris, pedicellis $\frac{1}{2}-1 \frac{1}{2}$ poll. longis ; corolla $\frac{3}{4}-1 \frac{1}{4}$ poll. diam., pallide lutea, glabra, tubo subgluboso, limbn acute 5 -fido sinubus dentiformibus; corona exteriore 5-loba, lobis bifidis intense atropurpureis, basi tabercalatis; coronæ interioris segmentis subulatis, conniventibus, purpareis.

Hab. Dry stony places near Hell Poort, Cawood's Hole, and other places in the vicinity of Grahamstown, MacOwan (No. 910), Burkly (No. 13). Queenstown district, Mr. Bowker, Baikly (No. 13 bis).

Glabrous in all parts, cæspitose. Stems $1-2 \frac{1}{2}$ in. high, $5-8$ lines thick, pale glaucous-gr en, 4-rarely 5 -angled, angles acute, sharply tonthed. Cymes several-flowered; pedicels $\frac{1}{2}-1 \frac{1}{2}$ in. long. Culye-lubes lancenlate acaminate, 2-3 lines long. Budsacutely puinted, or obtuse. Corolla $\frac{3}{4}-1 \frac{1}{4} \mathrm{in}$. in diameter ; tube suby'obose, slightly constricted at the mouth; limb spreading, the deltoid acuminate or acute lobes a little recurving, convex at the base, due to the tonth-like base of the sinuses being much depressed, the margins with an inflexed acute edge, and the back of the lubes with a strougly raised mid-rib; outside smooth, pale yellow, tinged with purple where exposed to the sun; inside smooth, or papillate-rugulose on the limb, varying from pale lemon-yellow to a somewhat golden primrose-yellow quite spotless. Outer corma velvety purple-black, deeply 5-lubed; the lobes oblong, with a prominent tubercle at the base, bifid at the apex, with upturned teeth. Segments of the inner corona subulate, connivent, purple. Odour none.

This well-marked species is very variable in the form of the bads, the acumination of the corolla lobes, and in the surface and colour. At first I was disposed to think that two closely allied species could be distingaished, but, having observed several living plants for several seasons, I find that the forms with obtuse and acute buds, respectively, exhibit all the variations of surface and colour in nearly the same derree, and there remains nothing but the shape of the buds, and consequent degree of acumination of the corolla lobes, to distinguish them; in all probability, if a more extensive series of plants than I
have had access to were examined, intermediate degrees of acamination of the bud and corolla lobes would be found.-N. E. Brown.

Figs. 1 and 2. Corona, front and side views. 3 and 4. Segment of the inner crrona, with anther, front and side views. 5. Pollinia. 6. Flower, with rugulose corolla. Figures 1 to 5 enlarged.
H. reticulata, Haw. Synop. Plant. Succ. p. 28 (1812).-Stapelia reticulata, Masson, Stap. p. 9, t. 2 (1796) ; Bot. Mug. t. 1662 ; Jacq. Stap. t. 8 \& 9 .

HAB. Sir H. Barkly forwarded living plants of this to Kew, which were sent to him from the Clanwilliam district by Mr. Bishop, but unaccompanied by preserved specimens or drawing.-N. E. Brown.


Stapelia horizont

## Plate 1907.

## STAPELIA HORIZONTALIS, N. E. Br.

## Asclepiadacere. Tribe Stapeliee.

S. horizontalis, N.E. Br. (n.sp.) ; ramis fere at in S. variegata; pedicellis subsolitariis $1 \frac{1}{2}-2 \frac{1}{2}$ poll. longis; corolla $2 \frac{1}{2}-3$ poll. diam., intus rugosissima, lobis ovatis acutis viridi-lateis apice maculatis basique transverse fuscoparpureo lineatis, annulo pentagono depressoconvexo, quam lobis pallidiore, fuscopurparen maculato; coronw exterioris segmentis oblongis, bifidis, pallide luteis apice fuscopurpureo punctatis basique macula quadrata fuscopurpurea notatis; coronæ interioris segmentis bipartitis, pallide luteis fuscopurpureo punctatis, parte exteriore subulata, apice subclavato fere horizontaliter patente, parte interiore erecta apice recurvo-clavato granuloso.

## Hab.? Barkly (No. 4).

Very similar to $S$. variegata in the stems, but the angles a little more acately toothed. Peilicels usually solitary, $1 \frac{1}{2}-2 \frac{1}{2}$ inches long. Calyp-lobes $2 \frac{1}{2}$ lines long, broadly ovate, acute. Curolla $2 \frac{1}{2}$ to 3 inches in diameter, the lobes broadly ovate, acute, flat or recurving, anuulus pentagonal, flattish-convex; the whole of the face is very rugrose, the lobes rather dall greenish-yellow, marked with small spots and often a central line on the apical half, irregular transverse lines on the hasal half, and a series of contiguons spots around the margin, all of a dark purple-brown; annulus much paler, with numerous small round spots, and slender lines between the rugosities, of a dark purple-brown. Segments of the outer corona oblong, bifid to about $\frac{1}{3}$ the way down, lemon-yellow with some dots on the apical half, the central ones of which are continued down towards a quadrate spot at the base, of the same dark purple-brown, and there is a small, suffused, paler pateh on tach side of the central spots. Segments of the inner corom with two subulate arms, the outer arm almost horizontally spreading, slightly clavate, the inner arm erect, with a recurved, clavate, minutely tuberculate apex; the colour is lemon-yellow, dotted all over with purple-brown, and with a larger spot of the same colour on each side the shoulder at the base of the arms.

This is a very marked species, differing from all the others of this group by the peculiar flattened appearance of the annulus, and the nearly horizontally spreading (not ascending) outer arm of the inner coronal segments. It is difficult to describe the distinctive character

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of the annulas in words, although easily recognised by the eye: the best indication I can give of it is that in the living flower it has a broader and flatter look, and a more finely rugose surface than in S. variegata. The only other described species with which it can bo confused is S. rugnse, Jacq., in which the outer coronal segments are three-toothed at the apex, and the outer arms of the segments of the inner corona are erect, not horizontal as in this.-N. E. Brown.

Fig. 1. Section through the centre of the flower. 2. Segment of the outer corone, upper side. 3. Segment of the inner curona. 4. Pollinia. Figures 2 to 4 enlarged.
S. variegata, Linn. Sp. Plant. ed. 1, vol. 1, p. 217 (1753).-Orbea variegata, Haw. Synop. Plant. Succ. p. 40 (1812).

Hab. Lion Mountain, near Cape Town, Barkly (No. 3).
According to Sir H. Barkly, this is the only Stapelia foand in the vicinity of Cape Town.

Var. bufonia, N. E. Br. - Stapelia bufonia, Jucq. Stap. t. 35 \& 64, f. 5 (1806?) ; not of Bot. Mag. t. 1676. Orbea bufonia, Haw. Synop. Plant. Succ. p. 40 (1812).

## Hab.? Barkly (Nos. 45, 60, \& 61).

This appears to me only distingaishable from typical S. variegata by the darker colour of the flowers, the spots being larger and moro crowded towards the centre; and by the segments of the outer corona having the lobes at their apex parallel, not spreading, and a little differently coloured. The plant figured by Jacquin on t. :3n, as S. bufiniee varietas, is no douldt only another form of this plant, but it is also, I believe, the same plant which was named S. bisulca by J. Donn.

Var. pallida, N. E. Br.; floribus pallidioribus, maculis minoribus.
Hab. Eastern Province. Barkly (No. 2).
Flowers paler, and the spots smaller than in typical S. variegata; the lobes of the outer corona are sometimes simply bifid, sometimes with a tooth at the base of the notch at the apex. This is probably only a local form of S. variegata, although the flowers have rather a different look, owing to their paler colour, but I cannot otherwise distinguishit. Sir Henry Barkly thus speaks of it:-'A curious pale yellow var. of the $S$. vuriegretur group. It is scarcely distinguishable by any strongly marked specific character, but is much smaller, less piatent, and its spurious orbicle is more distinetly pentagonal than in the S. variegutir of Thmberg. It was given me at the Botanic Garden, Port Elizaheth, in 1872, and they only knew that it came from somewhere in the Eastern province. It is indeed the eastern representative of the Table Mountais $S$. variegata. I have seen specimens of the latter nearly as light in ectour.'

This plant has been cultivated in England for many years.

Var. Curtisii, N. E. Br.-S. variegata, Curtis, Bot. Mug. t. 26.
S. Curtisii, Roem. and Schult. Syst. v. 6, p. 38 (1820).

Orbea Curtisii, Haw. Synop. Plant. Succ. p. 40 (1812).
O. inodora, Haw. Suppl. Plunt. Succ. p. 12 (1819)?

## Hab. Near Simons Town. Barkly (57 and 57 bis).

In the 'Botanical Magazine' the segments of the outer corona are represented as entire, and are coloured green : the colour is undoubtedly an error; and, although the toothing at the apex is sometimes very imperfectly or unequally developed, yet they are never, so far as I have seen, as entire as represented in that plate. Lady Barkly's drawings show them to be emarginate or unequally bifid, and the specimens sent by Sir N. Barkly prove that, whilst there is considerable variation in the extent of their toothing, they are not quite entire. Besides the paler colour of the flower, the only character by which I can distinguish this variety from typical S.variegata is that the lobes of the outer corona are a little narrowed at the apex and less deeply bifid, whereas in the type they are as broad at the apex as at the base, or slightly broader from the spreading of the lobes.

After a study of many years' duration of the allied forms of that group of species of which S. variegata (on which the genus Stapelia was founded) is the type, I am unable to find any decided character, except colour, by which several of those which have been described as species can be specifically distinguished from each other. The stems of most of them are very much alike, and, with few exceptions, no character that can be expressed by words can be derived from them. The characters to be derived from the flowers are-1st, size ; 2nd, form and general character of the annulus; 3rd, the outer corona; 4th, the inner corona. Of these in many cases the size of the corolla is of no use as a distinguishing character. The annulus is a very distinctive character to a certain extent, but varies somewhat in outline, from nearly circular to pentagonal, in different individuals of the same form. The coronal characters, I fear, are not very constant; so far as the notching at the apex of the outer coronal segments is concerned, little dependence can be placed upon it as a distinctive character: sometimes there is mere emargination, sometimes the apex is distinctly bifid, and sometimes more or less trifid, from the presence of a tooth at the base of the notch, in what I take to be slight varieties of the same species; and occasionally a similar amount of variation will occur in different years on flowers off the same plant. As an extreme case of variation in this respect, I may cite S. namaquensis, where the outer coronal segments in most forms are quite entire and acute, whilst in another form, unquestionably belonging to the same species, they are distinctly trifid at the apex! Of the inner coronal segments the characters I rely on for distinction are the presence and direction, or absence, of the outer arm, or aler of Jacquin; their length and coloration is certainly variable. The markings of the corolla alone I cannot regard as a specific character, for not only have I had plants produce differently marked flowers in different seasons, but I have made a drawing of one case in which two fluwers from the same cyme were very differently coloured.

There seems, however, to be a distinctive character in the form of the bnds, not in a young state, but when nearly full grown, which should always be noted.

On the above grounds I am inclined to refer several forms, hitherto considered as species, which only differ from each other in colour and slight differences of the outer corona, as varieties of a few species; for when preserved in spirits and the colour gone, or when preserved as herbarium specimens, unless very carefully dried and the markings retained, they cannot be specifically distinguished by any character that is invariable.-N. E. Brown.
S. picta, J. Donn, Hort. Cantab. ed. 3, p. 43 (1804), name only; Bot. Mag. t. 1169.-S. anguinea, Jacq. Stap. t. 37 ; $^{1}$ Lodd. Bot. Cab. t. 828.

Orbea anguinea, IIaw., O. picta, Haw., and O. Woodfordiana, Haw. (?), Synop. Plant. Succ. pp. 41-42 (1812).

## Hab.? Barkly (Nos. 23 and 59 ?).

Sir Henry Barkly found this cultirated in the Botanic Garden at Cape Town; its native habitat is unknown. O. Woodfordiana is not described by Haworth, but I refer it here on account of a MS. note in a copy of the synopsis given by Haworth to Sir W. J. Hooker, which states that it is quite the same as $O$. picta, but it is not the plant cultivated as $O$. Woodfordiana, as known to me. The outer coronal segments are either bifid or 3 -toothed at their apex, and vary in colour.
S. trisulca, J. Donn, Hort. Cantab. ed. 3, p. 43 (1804); Jacq. Stap. t. 33.

## Hab. Breede River. Barlily, 'F. Bain.'

I refer this specimen to $S$. trisulua with some little doubt, as I have seen neither drawing nor buds of it, the form of the latter being the chief charaeter that distinguishes it from some varieties of S. varieguth, being flat in S. trisulca and pointed in $S$. variegata. The annulus atid corona, however, very closely resemble those of S. trisulca, under which I at present place it.-N. E. Brown.

[^2]

## Plate 1908.

## STAPELIA NAMAQUENSIS, N. E. Br.

Asclepiadacee. Tribe Stapeliee.
S. namaquensis, N. E. Brown in Gard. Chron. 1882, vol. 18, p. 648, including var. minor, N.E. Br.

Hab. Namaqualand, Barkly (Nos. 6, 64, and 64 bis).
Var. ciliolata, N. E. Br. in Gard. Chron. 1882, vol. 18, p. 648.
Hab. Namaqualand. Barkly (No. 38).
Var. tridentata, N. E. Br. in Gard. Chron. 1882, vol. 18, p. 648.
Hab. Namaqualand. Rev. Mr. Morris (No. 7), Barkly.
This species and its varieties are well distinguished from all other known species by the very thick solid-looking annulns, the margin of which is so strongly revolute as to be nearly circular in cross section, and by the absence of a dorsal horn or crest to the segments of the inner corona. Living plants of var. trilentata were sent to Kew by Sir H. Barkly, together with some dried flowers. bat no drawing.

Sir H. Barkly also sent a drawing labelled 'No 18, Namaqualand,' which appears to me to represent, either a new species allied to $\mathcal{S}$. namaquensis, or a very small-flowered form of that plant, but no specimen accompanied the drawing, which is not sufficiently accurate to describe from.-N. E. Brown.
A.-S. namaquensis, type. Fig. 7. Corona. 8. Segment of inner corona. with anther. 9. Pollinia. B.-Var. ciliolata. C.-Var. tridentata: 1. Section through annulus. 2. Papillate surface of corolla. 3. Hairs from around the corona. 4. Under, and 5. upper side of a segment of the outer corona. 6. Segment of inner corona, with anther. Figures 2 to 8 enlarged.


## Plate 1909.

## STAPELIA BARKLYI, N. E. Br.

## Asclepiadacee. Tribe Stapeliee.

S. Barklyi, N. E. Brown (n.sp.) ; ramis plaribus, crassis, puberulis, tetragonis, angulis valide dentatis; pedicellis 3-4 poll. longis, validis, minutissime puberulis; corolla magna, $5-6$ poll. diam., lobis oratis acutis, glabris, leviter rugosis, longe ciliatis, fusco-purpureis rugis transversalibus luteis, apice toto fuscopurpureo, disco et annulo solido villoso, annulo pallide fuscopurpureo luteo lineato; coronæ exterioris segmentis lineari-oblongis, acuminatis, canaliculatis; coronæ interioris segmentis bipartitis, parte interiore subulata apice recurvo, parte exteriore alæformi deltoideo-acuminata, integra vel dentata.

Hab. Ookeep, Little Namaqualand, Barkly (No. 31).
Stems numerous, 3-4 in. high, branching at the base, stout, about $\frac{3}{4}$ inch in diameter, puberulous, 4 -angled, the angles with stont spreading teeth. Flowers 1 to 2 together from the basal part of the stems: pedicels stout, $3-4 \mathrm{in}$. long, glabrous to the eye, but with a rery minate and rather sparse pubescence as seen under a lens. Calyp-lobes lanceolate acute, $\frac{3}{8}$ inch long. Corolla $5-6$ inches in diameter, glabrous outside; the lobes are ovate acute, $1 \frac{3}{4}-2 \mathrm{in}$. long, about $1 \frac{1}{2} \mathrm{in}$. broad, glabrous, slightly rugose, ciliate with long purple hairs; annulus stout, solid, with 5 broad cremations formed by 5 shalluw grooves radiating from the centre: the annulus and the disk around it is loosely villose with long purple hairs; the colour is dark purple-brown, marked with numerous pale yellow transverse lines, except at the apex of the lobes, which is entirely purple-brown ; the annulus has a paler groundcolour with yellowish lines. Segments of the outer corona linear-oblong, acuminate, channelled down the face, jellow, dotted with purplebrown. Segments of the inner corona two-parted, purple-brown, inner part subulate, recurving from about the middle, outer part compressed, wing-like, narrow deltoid-acuminate, entire or toothed behind or at the apex.

This fine species completely connects the sections to which S. variegata and S. grandiflora respectively belong, having the annulus of the former group combined with the colour, ciliation, and coronal structure of the latter group; the stems are also intermediate between those two groups, having the stouter teeth of the S. variegata group combined
with the pubescence characteristic of the group to which S. grandiflora belongs. I believe this species to have originated by natural hybridisation between two members of these respective groups. It was discovered in Little Namaqualand by the Rev. Mr. Morris, who sent it to Sir H. Barkly.-N. E. Brown.

Fig. 1. Piece of stem, to show pubescence. 2. Corona. 3 and 4. Segments of inner corona, with anthers. 5. Pollinia. All enlarged.

Besides the above, Sir H. Barkly sent three others belonging to the section Orbea, respectively numbered 18,69 , and 76 , which may, perhaps, be distinct species, but of No. 18 only a drawing was sent, and the other two seem to be so near to some of the others that, without a knowledge of them in the living state, I refrain from describing them.
S. pedunculata, Masson, Stap. p. 17, t. 21 (1796); Jacq. Stap. t. 60 to 6:3; But. Mag. t. 7!3.-Caruncularia pedunculata, Huw. Symop. Plant. Succ. p. 333. C. Simsii, C. Massoni, C. Jacquini, and C. penduliflura, S'weet, Hurt. Brit. ed. 2, pp. 358, 359 (1830).

Hab. Spectakal, Ookeep, and the neighbourhood of the Kamiesberg, Little Namaqualand; Burkly (Nos. 1 and 75).

The lobes of the corolla vary in colour from brownish to pale olivegreen or yellowish-green. I believe the red-coloured lobes of the figure in the 'Botanical Magazine' t. 793 to be a misrepresentation. The cuter coronal segments also vary, being usually emarginate, but sometimes acute with some tuberculation on each side just below the apex. I have had several plants of this in cultivation, no two of which were exactly alike, but none showed any tendency to have pendulous fowers as represented in the 'Botanical Magazine' and Jarcquin, and I doubt if they are ever sn in a natnral state, though they might perhaps lie along the ground.-N. E. Beown.

A.Stapelia intermedia, N.E.Br.
B.

## Plate 1910.

A.-STAPELIA INTERMEDIA, N.E. Br.
B.-STAPELIA VIRESCENS, N.E.Br.

## Asclepladacee. Tribe Stapeliee.

A.-S. intermedia, N.E.Br. (n.sp.) ; ramis erectis $5-6$ poll. longis, tetragonis, angulis grosse dentatis; pedicellis 1 poll. longis; corolla 1 poll. diam., plana, lobis ovato-deltoideis acutis, pilis clavatis ciliatis; coronæ exterioris segmentis tridentatis, dente medio ceteris multo majore, deltoideo, integro crenulato vel bitido; coronæ interioris segmentis ovato-attenuatis, arcte incumbentibus.

Hab. Olifants River, Clanwilliam district; Barkly (No. 8).
Stems erect, 5-6 inches high, 4-angled, the angles with stout spreading teeth. Flowers arising from along the grooves between the angles; pedicels about an inch long. Calyx-lobes broadly ovate-acuminate. 'icrulla an inch in diameter, nearly flat, withont a tube, but slightly concave on the disk, the ovate-deltoid lobes ciliate, with vibratile, clavate, parple hairs,* otherwise glabrous, the face rugulose, green, spotted with purple-brown. Segments of the muter corona about as broad as long, three-toothed, the middle tooth deltoid, entire, slightly crenulate, or bifid, much longer and 3 to 4 times as broad as the linear side tecth. Segments of the inner corona ovate-attenuate, closely incumbent on the back of the anthers, not produced at the apex into erect points.

This plant was sent to Sir Henry Barkly by Mr. Reynolds of Namaqualand. I have only seen some dried flowers and a drawing of the plant mado by Miss Barkly, from which latter I deseribe the stem and colour of the flowers. In its flower it is quite intermediate in character between the sections Tridentea and Porlanthes, the corolla haring quite the surface, colour, and ciliation of the former, whilst the corona is that of the section Podanthes, although the rather decply 3 -tnothed outer coronal segments show some connection with the section Tridentea. Usually the segments of the outer corona are free to the base, but sometinies, though perhaps abnormally, they are connate up to the point of origin of the lateral teeth, forming an annular corona with 5 large teeth and 5 pairs of minnte teeth alternating with them, when the corona is like that of Caralluma. The

[^3]stems too, according to Miss Barkly's drawing, are much more like those of a Caralluma than they are to any species of Stapelia known to me; so that this plant is altogether a very anomalous one.-N. E. Brown.
A.-S. intermedia. Figs. 1 and 2. Coronas from two different flowers. 3. Segment of outer corona from another flower. 4. Pollinia. All enlarged.
B.-S. virescens, N.E.Br. (n.sp.); ramis erectis, tetragonis, glabris, dentatis, dentibus folia parva subulata gerentibus; cymis plurifloris, pedicellis $1-1 \frac{1}{2}$ poll. longis, erectis ; corolla $\frac{3}{4}-1$ poll. diam., flavovirente, lobis ovatis acutis, intus ragoso-tuberculatis, marginibus replicatis; coronm exterioris segmentis trifidis, lobo medio ceteris multo latiore et subduplolongiore, denticulato; coronæ interioris segmentis bipartitis, parte interiore subulata valde recurva, quam exteriore compressa anguste deltoidea subtriplo longiore.

Hab. 'Brought by Mr. Dickson from the Karoo, on the road to the Diamond Fields.' Burkly (No. 35). Mrs. Barber, without locality.

Stems erect, $2-3 \mathrm{in}$. high, glabrous, obtusely 4 -anglect, the angles toothed, teeth with subulate leares $\frac{1}{6}-\frac{1}{4}$ in. long. Cymes sereral. flowered ; pedicels $1-1 \frac{1}{2} \mathrm{in}$. long, erect, glabrous. Calyx-lubes lanceulate, acute. Corolla $\frac{3}{4}-1 \mathrm{in}$. in diameter, deeply 5 -lobed, and without a distinct tube, smooth, and of a whitish-green colour, shaded with pink on the back, strongly rugose-tuberculate, and of a light-green or yellowish. green on the face, quite glabrous; the margins of the lobes are strongly reflexed, and not ciliate. Segments of the outer corona yellow, trifid, with the middle lobe much the broadest, lanceolate or oblong, entire or denticulate at the apex, channelled down the face, and usually with an angle or slight tooth on each side at the base: the lateral lobes are subulate and about half as long as the middle lobe. Seyments of the inner corona jellow, two-horned, outer horn compressed, narrowly deltoid, about one-third the length of the inner subulate recursed horn.

I have not seen this alive, and describe the colour from Ladr Barkly's drawing. The scent is stated to be disgusting.-N. E. Bruwn.
B. -s. nirrscens. Fig. 5. Cornna. 6 and 7. Two segments of outer ceruna. 8. Segment of inner corona, with anther. 9. Pollinia. All enlarged.
S. hircosa, Jacq. Stap. t. 25 ; Willd. En. Pl. Hort. Bernl. p. QSi (1809).-S. moschata, J. Domn (?) Hort. Cantab. ed. 3, p. 43 (18(94), name only; Lodd. Bot. Cuh. t. 1U5l; Tridentea moschata, Huw. Symp. Mant. Suce. p. 3.5 (1812), name only.

Hus.? Barkly (No. 79).

Var. densa, N. E. Br.; corolla viridi-lutea, creberrime fusen-purpureo-panctata; coronis carneo-albis, vel interiore lutea, utrisque fuscopurpureo-punctatis.

Hab. Between Marraysberg and Richmond, and Orange River. Burkly (No. 10), MacOwan (No. 2263).

The variety densa only differs from the type in the paler colour of the corona, the much smaller and more numerous spots on the corolla, and in having the middle lobe of the outer segments of the corona a little narrower and rather less angulate at the base, but this character seems variable in different individuals. I am inclined to believe that both these are local forms of S. gemmiflora. I retain Jacquin's name in preference to that of Donn, as neither Donn nor Haworth give a description of the plant, although the latter in his 'Supplementum Plant. Succ.' p. 10 refers S. hireosa as a synonym of Tridentea moschata, and gives a brief description, probably compiled from that of Jacquin. But, as there has always been much confusion of the names of the Stapelice in gardens, it by no means follows that Haworth's plant was certainly the same as that to which Donn had years before given the name of S. moschata.-N. E. Brown.
S. gemmiflora, Masson, Stap. p. 14, t. 15 (1796) ; Jacq. Stap. t. 24 ; But. MLag. t. 1839.

Hab, Sundass River, Zwartruggens, district of Graaff Reinet, Minc(uran. (No. 2243). Barkly (No. 48). Near Graaff Reinet, Bolus (No. 817). District of Albert, Cooper (No.671).

This seems only distinguishable from $S$. hircosa by having the flowers of an uniform very dark purple-brown, not spotted as in that species.-N. E. Brown.


MS lith

## Plate 1911.

## STAPELIA VILLOSA, N. E. Br.

## Asclepiadacet. Tribe Stapelies.

S. villosa, N. E. Br. (n. sp) ; ramis iis S. hirsutæ similibus; alabastris globosis, sub apice sacculis ${ }^{2}$ instructis; corolla $4-5$ poll. diam., lobis ovato-lanceolatis reflexis, longe ciliatis, disco dense et longe villoso; coronæ exterioris segmentis lineari-oblongis concavis, apice recurvis obtusis, emarginatis, apiculatis; coronæ interioris segmentis inæqualiter bitidis, parte exteriore alæformi, subacuta integra vel denticulata, ad partem interiorem triquetrem recurvo-patentem usque medio adnata.

Hab. Namaqualand, Barkly (No. 28 bis).
Stems similar to those of S. hirsuta, 5-8 in. high. Pedicels stout, pubescent, $2-2 \frac{1}{2} \mathrm{in}$. long. Buds globose, shortly pointed, with five depressions below the point. Corolla $4-5 \mathrm{in}$. in diameter, with reflexed or revolute, orate-lanceolate lobes, ciliate with long purple hairs, the disk and base of the lobes densely covered with long, soft, purple hairs; the back is pubescent, and the face transversely wrinkled on the lobes, parple-brown, marked with transverse jellowish lines on the basal part of the lobes. Segments of the outer corona linear-oblong, concave down the face, recurved at the apex, which is obtnse and emarginate with a prolonged central apiculus. Seqments of the iuner corona recurved-spreading, unequally bitid, the dorsal or outer part wing-like, bluntly pointed, entire or denticulate on the inner edge, adnate to the middle or beyond of the inner triquetrous part. 'Corona entirely of a blackish-brown.'

Allied to $S$. pultinata, but the corolla-lobes are not so broad in proportion to their length, and not gibbous near their tips like those of S. pulvinatu; the cushion of hairs on the disk is not so thick, nor the disk so broad; the onter coronal segments are not so narrow and less concare, the inner coronal segments are not so stout, and their dorsal wing is not adnate to so great an extent.- N. E. Brown.
Fig. 1. Corona. 2. Segment of outer corona. 3. Pollinia. 4. Bud. Figures 1 to 3 enlarged.
S. pulvinata, Masson, Stap. p. 13, t. 13 (1796); Bot. Mag. t. 1240; Lodd. Bot. Cab. t. 20 fí ; Reichenb. F'. Erot. vol. 5, p. 11, t. 303.

Har. Kamiesberg, Little Namaqualand, Barkly (No. 28).-N. E. Brown.


## Plate 1912.

## STAPELIA AFPINIS, N.E.Br.

## Asclepiadacem. Tribe Stapeliem.

S. affinis, N.E.Br. (n.sp.) : S. hirsutæ similis, sed differt corollæ disco villosiori, et coronæ interioris segmentis distincte bipartitis, parte exteriore compressa, lineari-oblonga, subhorizontaliter patente, parte interiore robusta, triquetra, a basi supra exteriorem arcte reflexa.

## Hab.? Barkly (No. 16).

Stems and corolla similar to S. Firsuta, Jacq. Stap. t. 51, but the disk of the corolla is more densely villons, with long purple hairs, and the inner corona entirely different. The segments of the inner corona are distinctly bipartite to the base, and radiately spreading, not erect; the outer part is flattened and wing-like, linear-oblong, a little tapering towards the apex, entire or nearly so, nearly horizontally spreading; * the inner part is stout, triquetrous, and reflexed from the base closely over the outer part. The colour of the corolla is dark brown-purple with transserse cream-coloured lines on the basal half of the lobes, which are ciliate with long purple hairs.-N. E. Brown.

Fig. 1. Portion of stem to show pubescence. 2. Transrerse section of stem. 3. Cornna, 4. Segment of outer corona. 5 and 6. Segments of inner corona, with anthers. Figure 2 natural size, the rest enluryed.

* They are represented too erect in the plate.


MS Itth.

Stapelia fuscomarpurea, NEBr

## Plate 1913.

## STAPELIA FUSCOPURPUREA, N. E. Br.

## Asclepiadacere. Tribe Stapeliece.

S. fuscopurpurea, N.E. Br. (n.sp.) ; ramis 6-8 poll. longis, erectis, puberulis, tetraquetris; pedicellis $\frac{3}{4}-1$ poll. longis, puberulis; corolla 3!-4 poll. diam., concolori, fuscopurpurea, lobis ovato-lanceolat is longe ciliatis, disco longe villoso; coronæ exterioris segmentis angaste linearioblongis, canaliculatis, apice recurvo, obtaso, minute apiculato ; coronæ interioris segmentis erecto-patentibus, parte dorsali tota adnata, late alæformi truncata, apice denticulato, parte interiori longiori triquetra apice recurvo.

## Hab.? Barkly (No.55).

Stems erect, an inch in diameter, downy, 4-angled, the angles compressed, dentate. Pedicels short, $\frac{3}{4}-1$ inch long, stout, pubescent. Culyn-lobes lanceolate acate. Corolla $3 \frac{1}{2}-4$ inches in diameter, puberulous on the back; the face is of an uuiform dark purple-brown, villous with long, soft, dark purple hairs on the disk, glabrous and slightly ragose on the ovate-lanceolate lobes, which are ciliate with long parple hairs, and more or less reflexed with revolute margins. Outer coronal segments ascending, narrow linear-oblong, obtuse with a minate apiculus at the recurved apex, channelled down the face, dark purple-brown. Inner coronal segments erect with recarved tips, with the dorsal or outer part broad and wing-like, truncate and denticulate at the apex, and entirely adnate to, and about one-third shorter than, the inner triquetrous recurved tip, dark purple brown.

This is more nearly allied to S. grandiflora than to any of the other described species, but the flowers are very much smaller and the coronal structure different. I have not seen this species alire, in which condition the outer coronal segments may be more spreading, and their margins less inrolled, than in the only flower preserved in spirits of wine which I have seen.-N. E. Brown.

[^4]
M.S.lith.

Stapelia patula. Jacq. var. longirostris, N. E. B?

## Plate 1914.

## STAPELIA PATULA, Willd. var. LONGIROSTRIS, N. E. Br.

## Asclefiadacee. Tribe Stapeliem.

S. patula, Willd. Enum. Plant. Hort. Berol. p. 281 (1809).-S. sororia, Jacq. Stap. t. 56 and 57 , not of Masson.
$H_{A B}$. Mitchell's Pass. Barkly (Nos. 36, 68, and 54 partly). MacOwan (No. 2244).
Var. depressa, N. E. Br.-S. depressa, Jacq. Stap. t. 55.

## Hab. $?$ Barkly (No. 54, partly).

Var. longirostris, N.E. Br.; lobis calycinis corollw sinubus extensis; coronæ interioris segmentis bipartitis, parte interiore longissime valde arcuata.

## Hab.? Barkly (No. 54 partly, and No. 56).

Calyx-lobes reaching nearly or quite to the sinuses of the corolla, often reflexed at their tips. Segments of the outer corona contracted at the apex into a rather long subulate point. Segments of the imner coronn bipartite, the inner part twice as long as the narrow, spreadiag, outer part, and very strongly recurving from the base.

This plant appears to me one of considerable variahility. Sir Henry Barkly collected at Mitchell's Pass, Fiex River, and Darling Bridge a series of plants which are all alike, so far as their stems and the coloration of their flowers is concerned, but exhibit several differences in the form of the bads, the manner in which the corolla-lobes are refiexed, and in the coronal structure. Several plants are also in cultivation which bear a very close general resemblance to Sir H. Barkly's plants, but differ from them in the same varying characters, so as to form a large series that graduate into one another in such a way as to make it almost impossible to decide what characters should be taken as speeific ones; and uutil we know more about the constancy of the above-mentioned characters, by raising a good series from seeds, I think it is unadvisable to distinguish the numerous variations by specific names, although some of them have been so distinguished. I should place in this series my $S$. unguipetala, pablished in the ' Gardeners' Chronicle' 1877 , vol. 8, p. 334, f. 54 ; S. comata, Jacq. Stap. t. 49 ; and S. depressa, Jacq. Stap. t. 55 ; though whether they are
varieties or local races of one species, or really distinct species, must hereafter be decided by a fuller knowledge of them than we have at present. But, from the fact that Sir Henry Barkly obtained at least two forms from Mitchell's Pass, I incline to believe them to be varieties merely. The Darling Bridge and Hex River plants were not distinguished by Sir H. Barkly from some of the Mitchell's Pass plants by any separate number, all being sent as No. 54, so that in the varieties given above I am unable to say whether each was found in a distinct locality, or in two or more localities, and therefore merely quote the number, although I hare reason to believe that some of the specimens, at least, of var. lorgirostris, came from Mitchell's Pass. The three localities-Darling Bridge, Mitchell's Pass, and Hex Riveraccording to Sir H. Barkly, 'form a triang'e, the base of which, between the two first, is about 20 miles long, and the other two sides about 40 miles.'

Besides the typical form of S. patulx, Willd. (Jacq. Stap. t. 56), in which the onter coronal segments are entire and simply acute, Sir H. Barkly sent another form from Mitchell's Pass (No 36 , partly, and Nu. 68) in which the oater coronal segments are tridentate at the apex, with the middle tooth longest.-N. E. Brown.

Fig. 1. Portion of stem to shnw pubescence. 2 and 3. Coronas from different flowers. 4. Segment of inner corona, with anther. 5 and 6. Segment of outer corona, front and side views. 7. Pullinia. All enlarged.


## Plate 1915.

## STAPELIA ARNOTI, N.E.Br.

## Asclepiadaces. Tribe Stapeliese.

S. Arnoti, N. E. Br. (n.sp.) ; S. grandifloræ affinis sed minor, corollæ disco et parte inferiore loborum non rugoso longe hirsuto; coronæ exterioris segmentis anguste lineari-oblongis, acutis, valde canaliculatis ; coronæ interioris segmentis inæqualiter bifidis, subpatulis, alæformibus, antice triquetris acutis.

Hab. Griqualand West, Mr. Arnot, Burkly (No. 70).
Stems erect, pubescent, 6-8 in. high, about an inch in diameter, 4 -angled, angles compressed, dentate, with erect, ovate, rudimentry leaver. Cymes several-flowered? the flowers often opening in pairs; pedicels lin. long, stout, pubescent. Culyz-lubes about $\frac{1}{4}$ in. long, lanceolate, acute, pubescent. Buds very broadly ovate, obtuse, with a flatt ish-obconical base. Corolla 3.4 in. in diameter, with ovate, acute, flattish, revolute lubes, ciliate with long purple and white hairs; the back pufescent; the tace with the disk and basal half of the lubes covered with long, erect, purple hairs, and in this part smooth, not rugose, bright vinous-purple, the apical part of the lobes glabrous, slichtly rugose, blackish. Segments of the outer corona narrow, linear-oblong, acute, deeply channelled down the face, dark parplebrown, dull yellow at the base. Srgments of the inner curoma a little spreading, unequally bifid, the dorsal part broad and wing-like, acate or obtuse, adnate to the inuer part, which is a little longer, and triquetrous, acate ; dark purple-brown.

Allied to S. grandiflora, Mass., but the stems are not so stout, the flowers are smaller, and are smooth on the disk and basal half of the lobes of the corolla, not deeply rugose as in that species. The cymes appear to be $2-3$-flowered with several abortive buds, but whether more flowers are produced from the same cyme at another time I do not know, as I have not seen the plant alive.-N. E. Brown.

Fig. 1. Portion of stem to show pubescence. 2. Corona. 3 and 4. Segment of outer corona, front and side views. 5. Segment of inner corona, with anther. 6. Pollinia. All enlarged.


## Plate 1916.

STAPELIA DESMETIANA, N. E. Br.

## Asclepiadacee. Tribe Stapeliee.

S. Desmetiana, N. E. Br. in Gard. Chrom. 1889, vol. 6, p. 684.

Hab. Little Fish River, and Eapar's Drift, Great Fish River, Somerset East, Macouron (Nos. 19236 and こ2.2!) ; Shiloh, Oxkraal Mountains, Bueur (No. 783). Burkly (No. 72).

This species is readily distinguished from the other described forms with srout stems and large flowers, by the lobes and diak of the corolla being equally covered with hairs, which are all somewhat alpressed, and point to the tips of the lobes; and by the purple stripe down the module of the outur coronal segments. The segments of the immer corona are exceedingly variable in form, as is partly shown on the plate.-N. E. Brown.

Fig. 1. Purtion of stem to show pubescence. 2. Corona. 3. Segment of outer corona. 4, 5, and 6. Segments of inner corona, with anchers, from diterent flowers.
S. grandiflora, Mass. var. lineata, N E. Br. in Gard. Chron. 1877, vol. 7, p. 558 , f. 85 .

Hab. Near Fish River, 2,000 ft. alt., Somerset East, Mucnuran (No. 1197 , partly); Culesberg, Dr. Shan; Victuria West ; and Leribe, Basutoland, Rev. J. Büuchenuen. Burkly (No. :ll).
S. ambigua, Masson, Stap. p. 13, t. 12 (1-96); Jueq. Stap. t. 53 and 54.

Hab. Neighbourhood of Victoria West, Jurlly (No. ifi).
Sir Henry Barkly's plant is a variety with transeerse yellow lines on the lobes, but the colour of the thower as represented in lady Barkly's drawing is darker, and more parple in the centre, than in the variety ligured by Jacquiu on t . ist of his 'slug due. - N. E. Bhows.

ir S lith
Stapelia ǵlabricaulis, N.E.Br

## Plate 1917.

## STAPELIA GIABRICAULIS, N.E. Br.

## Ascleptadaces. Tribe Stapelief.

S. glabricaulis, N.E. Br. (n.sp.) ; ramis adscendentibus basi decumbentibus, glabris, tetraquetris; cymis plurifloris, pedicellis $1 \frac{1}{4}-2 \frac{1}{4}$ poll. longis glabris; corolla $2 \frac{1}{2}-3$ poll. diam., vinoso-parpurea, lobis ovatooblongis acutis, margine revalutis, longe ciliatis, disco et basi loborum pilis purpureis villoso; coronæ exterioris segmentis linearioblongis, acutis, canaliculatis; coronæ interioris segmentis bipartitis vel profunde bifidis, parte exteriore alæformi, attenuato-oblonga vel anguste-deltoidea, acuta vel obtusa, quam parte interiore triquetra subulata valde recurva multo breviore.

Hab. Blinkwater, Kaffraria ; Partlly (No. 52). In edges of woods or under large bushes in shady localities, Keiskama River, Kaffraria; King William's Town; Lower' Fish River, \&c. Mrs. Barher (drawing No. 7 in Kew Herbarium).

Stems rather loosely branching, decumbent at the base, 4-8 inches long, quite glabrous, 4 -angled, the angles rather compressed, dentate, with erect, glabrons, rudimentary leares. Cymes progressively several-flowered; pedicels $1 \frac{1}{4}-2 \frac{1}{2}$ inches long, glabrous. Culyc-luhs lauceolate acute, glabrous outside, but usually with a few hairs on their inner surface, and sometimes on the margins. Burls subglobose, withi 5 depressions jnst below the obtusely-pointed apex. Curulla $2 \frac{1}{2}-3$ inches in diameter, with ovate-oblong, acute, stellately sprealing lobes, having revolate margins ciliate with long, light purple hairs, and the disk and basal part of the lobes rather densely villicus with long, light purple hairs, that are more or less adpressed and directed towards the tips of the lobes; the back is glabrous, the face vinous-parple, paler and somewhat ochreous in the centre. Outrr coroncel seyments linear-oblong, acute or subobtuse at the recurven apex, chanuelled down the face, parple-brown down the centre, with dull ochraceous margins. Inmer coromol segments unerpually lipartite: dark purple-brown, the dorsal or outer part wing-like, ascendins. narrow, tapering to an acute or obtuse point, and about $\frac{1}{3}$ shorter than the triquetrons-subulate, ascending and arching-recurved inner part. Pods $4-5$ inches long, stout, glabrous.

This species has the habit of $S$. denenra, but the stems are stonter, and the fluwers very different and much more handsome. It fluwers fieely and abundantly under cultivation.-.N. E. Bruwr.

Fig. 1. Corona. 2. Serment of nuter corona. 3 and 4. Seerments of intuer coroma with anthers. j. Pollinia. All enturyed.


M 3. i.th

St,apelia tsomoens:s, NE: Rr

## Plate 1918.

## STAPELIA TSOMOENSIS, N. E. Br.

## Asclepiadacer. Tribe Stapelier.

S. tsomoensis, N. E. Br. in Gard. Chron. 1882, vol. 18, p. 168.

Hab. Tsomo River, Col. Boukier. Barkly (Nos. 32 and 42).
The stems of this species are glabrous, with the rudimentary leaves minutely pubescent. The flowers are liver-coloured without transverse markings, or sometimes with a few of the transverse ridges on the glalrons part of the lobes of a pale yellowish or greenish colour.N. E. Browx.

Fig. 1. Portion of stem, to show the pubescent rudimentary leaf. 2. Transverse section of stem. 3. Corona. 4. Segment of outer corona. 5 and 6. Segments of inner corona, with anthers. 7. Pollinia. All, except fig. 2, enlarged.


## Plate 1919.

STAPELIA LUCIDA, DC.

## Asclepiadacee. Tribe Stapeliee.

S. lucida, DC. Cat. Mort. Monsp. p. 148 (1813); DC. Prod. vol. 8, p. 652 ; Roem. and Schultes Syst. Veg. vol. 6, p. 15.

Hab. Eezeljagds Poort, district of George, Barkly (No. 22); MacOuan (No. 2242). Caledon Kloof, Bain (Nos. 5 and 6). Seven-weeks Poort, Bain (No. 9).

The flowers of this species are of an uniform purple-brown, and the glabrous surface of the slightly rugose lobes is very shining. The amount of hairs on the disk, around the corona, seems very variable : sometimes they are as shown in the plate; sometimes extending a little further, just on to the base of the lobes; and in other specimens almost confined to five lines of hairs radiating from the corona to the sinuses of the lobes; and they are always very fine and rather short.-N. E. Brown.

Fig. 1. Transrerse section of stem. 2. Portion of stem, to show pubescence. 3. Corona. 4 and 5. Segments of outer corona. 6 and 7 . Segments of inner corona, with anthers. 8. Pollinia. Figures 2 to 8 enlarged.


Stapolia Macowani N E Br

## Plate 1920.

## STAPELIA MACOWANI, N.E. Br.

## Asclepiadacete. Tribe Stapeliee.

S. Macowani, N.E. Br. (n. sp.) ; ramis erectis, 6-12 poll. longis, 1 poll. diam., pubescentibus, tetraquetris, angulis compressis, dentatis ; cymis plurifloris, pedicellis $\frac{1}{2} \cdot \frac{3}{4}$ poll. longis, crassis, pubescentibus; corolla $2 \cdot 2 \frac{1}{2}$ poll, diam., tabo vel disco latissime et hand profunde infundibuliformi, quinque sulcis radiatis notato, lobis ovatis acutis subplanis, marginibus non ciliatis; extus pubescente, intus glabra, rugosa, virescenti-alba, pallide vinoso-purpurea transversim lineata; coronæ exterioris segmentis oblongis, obtusis, apiculatis, canaliculatis; coronæ interioris segmentis erectis, alæformibus, apice oblique truncato, breciter bifido, emarginato vel denticulato.

Hab. In the vicinity of Grahamstown, at Currie's Kloof, Hell Poort, Bothasberg, and Loot's Kloof, and the district of Somerset; MucOwan (No. 909), Barkly (No. 49).

Stems erect, pubescent, 6-12 in. high, 4 in . in diameter as measured across one side, 4 -angled, the angles much compressed, dentate, with erect radimentary leaves. Cymes several-flowered; pedicels $\frac{1}{2}-\frac{3}{4}$ in. long, lengthening in fruit to $1 \frac{1}{4} \mathrm{in}$., stout, pubescent. Calym-lubes lanceolate acute, pubescent. Buds very obtuse, subglobose, caueately narrowed to the base from just below the middle. Corrolla $2-2 \frac{1}{2}$ inches in diameter, with the disk depressed into a very broad and very shallow, somewhat funnel-shaped tuhe, marked with five grooves radiating from the centre to the angles between the ovate, acate, flattish lobes, which are not ciliate; the back is pubescent, the face quite glabrous, transversely wrinkled, pale 'greenish white,' marked with pale vinous-purple transverse lines. Outer coronal segments oblong, obtase with an apiculus, channelled down the face, purple-brown, with the base yellowish. Inner coronal segments erect, broad and wing-like, obliquely truncate and emarginate, or slightly bifid, or toothed at the apex, dark purple-brown. Pods 5-6 in. long, stout, pubescent.

[^5]appears to me to be pale yellow with a slight greenish tinge. The odour, according to Sir N. Barkly, 'is by no means strong, resembling a slightly fermenting Stilton cheese.' Prof. MacOwan describes it as almost odourless.--N. E. Brown.

Fig. 1. Portion of stem, to show pubescence. 2. Corona. 3 and 4. Segments of outer corona. 5. Segment of inner corona, with anther. 6. Pollinia. All entarged.
S. olivacea, N. E. Br. in Gard. Chron. 1875, vol. 3, pp. 136 and 137, f. 24; Bot. Mag. t. 6212.

Hab. Common throughout the Karoo; Barkly (No. 43).
I described the flowers of this plant as dark olive-green with brown rugosities, and all that I have seen from cultivated specimens are so; bnt Sir H. Barkly describes the colour as 'dirty yellow, covered with reddish-purple wrinkles,' and in a subsequent letter remarks that ' the only point I caunot reconcile with your description is the colour of the interior of the corolla: with me it is rufous-red; the name olivacea is certainly inapplicable to the plant out here.' From this it would appear that in this country the flowers do not assume their natural colour. This cannot be a case of variation from difference of origin, as the plants which I described from were sent by Dr. Shaw from Sir H. Barkly's collection.-N. E. Brown.


Plate 1921.
STAPELIA ERECTIFLORA, N.E. Br.

## Asclepiadacetr. Tribe Stapeliek.

S. erectillora, N. E. Br. in Gard. Chron. 1889, vol. 6, p. 650.

Hab. Karoo, 6 miles beyond the Cederberg Mountains, Clanwilliam District, Mr. Bain; Barkly (No. 80) ; MacOwan (No. 2251).

This is a remarkable species, very distinct from any other known to me. It flowers proinsely all along the stems; and the long erect pedicels and small Tark's-cap-like flowers at once distinguish it. The corolla is purple, clothed with adpressed white hairs, so that it has a greyish-purple look; the lobes are curved back so closely that their margins meet one another, and the back of the corolla and calyx is entirely concealed.-N. E. Brown.

Fig. 1. Portion of stem, to show pubescence. 2 and 3. Back and oblique front riews of flower. 4. Segment of outer corona. 5. Segment of inner corona, with anther. 6. Pollinia. All, except fig. 2, enlarged.
S. glandulifiora, Masson, Stap. p. 16, t. 19 (1796); Jacq. Stap. t. 21.-S. glandulifera, Haw. Synop. Plant. Succ. p. 21 (1812).

## Hab. Clanwilliam district.

Only living specimens of this species were sent to Kew by $\operatorname{Sir} H$. Barkly, which were collected in the Clanwilliam district by Mr. Bishop and Mr. Bain. It seems to be a variable species, both in colour and in the form of the outer coronal segments, the latter being either entire and somewhat pointed, or emarginate, or shortly bifid at the apex.-N. E. Brown.

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Plate 1922.

## STAPELIA RUFA, Mass.

Asclepiadacer. Tribe Stapeliee.
S. rufa, Masson, Stap. p. 16, t. 20 (1796); not of Haworth.

Hab. Karoo, near Groote Fontein. Barkly (No. 65). $^{\text {a }}$
Fig. 1. Portion of stem, to show pulescence. 2. Transverse section of stem. 3 and 4. Corona, side and front riews. 5. Segment of outer corona. 6. Segment of inner corona, with anther. 7. Pollinia. All cnlarged, except fig. 2.
S. fissirostris, Jacquin, Stap. t. 23 (between 1809 and 1813).

Hab. Tomos Berg, Zwartberg Range, Bain (No. 3).
The notch at the apex of the segments of the inner corona varies considerably, as in some flowers the segments are distinctly bifid, as figured by Jacquin, in others merely emarginate at the apex.

A drawing of a plant belonging to this section was also sent by Sir H. Barkly, as No. 9, but no specimen accompanied it, and I am unable to determine the species from the drawing, but it may possibly be S. rufescens, Salm Dyck.-N. E. Brown.


## Plate 1923.

## STAPELIA PARVIPUNCTA, N. E. Br.

## Ascleptadacese. Tribe Stapelief.

S. parvipuncta, N.E. $B r$. (n. sp.) ; ramis erectis, 2-5 poll. longis, tetragonis, dentatis, glabris; cymis gradatim plurifloris ; pedicellis $\frac{3}{4}-1 \frac{1}{2}$ poll. longis, patulis vel deflexis ; corolla $1-1 \frac{1}{4}$ poll. diam., sulphurea, fuseo-purpurea punctata, plana, annulo obsoleto, lobis recurvis, marginibus ciliatis, ciliis clavatis; coronæ exterioris segmentis oblongis, bifidis, recurvis; coronæ interioris segmentis ovatis, acutis vel subulatoacuminatis, incumbentibus.

## Hab. Nieuwveld Mountains, Mr. Bain.

Stems erect, branching chiefly at the base, 2-5 inches high, $\frac{1}{2}$ inch or more thick, obtusely 4 -angled, the angles obtusely toothed, with rudimentary snbulate leaves, glabrous, dull green. Cymes from about the middle of the young shoots, progressively many-flowered; pedicels $\frac{3}{4}-1 \frac{1}{2}$ inches long, glabrous. Calyx-lobes lanceolate, acute or acuminate. Buds pentagonal, flat. Corollu 1-1 $\frac{1}{4}$ inches in diam., flat, with recurving, ovate, acute lobes, ciliate for $\frac{3^{4}}{4}$ their length with clavate purple hairs; the back of the corolla is glabrous, pale green, thickly spotted with purple-brown ; the face is glabrous and slightly ragulose, the disk is flat without an annulus, the colour varies from very pale sulphar-white to pale greenish-yellow, and is entirely covered with spots of dark purple-brown, which are either all minute and dust-like, or the spots on the lobes are mach larger; the lobes are sometimes margined with purple-brown. Both forms are represented in the plate. Outer coronal segments subrectangular, more or less recurving, bifid at the apex with diverging lobes, dark parple-brown, shining. Inner coronal segments simple, ovate acute, or subulate-acuminate, incumbent on the back of the anthers, purple-brown.

This was received from Sir H. Barkly marked 'Y. Bain' ; living plants were also sent, which flowered with me in 1878. I place it and $S$. fritens in the section Podanthes on account of the coronal structure being the same, though otherwise they bear little resemblance to the species previously placed in this section. There is no distinct
annulas, the disk being flat, with the very faintest possible trace of an annular convexity around the outside of the corona.-N. E. Brows.

Fig. 1. Section of stem. 2-5. Coronas from different flowers, frontand side riews. 6. Pollinia. Figures 2 to 6 enlarged.
S. verrucosa, Masson, Stap. p. 11, t. 8 (1796); Jacq. Stap. t. 18; But. Mag. t. 786.-S. irrorata, Lodd. Bot. Cab. t. 127, not of Masson. Podanthes verrncosa, IIaw., and P. pulchra, Haw., var. $\beta$, Haw. S'ynop. Plant. Succ. p. 33 (1812).

Hab. Near Graaff Reinet, 2,500 ft. alt., Bolus (No. 716) ; near Somerset East, MacOuan (No. 2177); Albany, Cooper (No. 15\%4); Burkly (No. 20) (from Griqualand West, Mr. Armot, and Hell Poort, near Grahamstown, MucOu*an) ; Barkly (No. 24) (from Kaffraria, Buacker).

A. Piaranthus grivanus, N.E.Br
B. comptus, N.E.Br.

## Plate 1924.

## A.-PIARANTHUS GRIVANUS, N. E. Br. B.-PIARANTHUS COMPTUS, N. E. Br.

## Asclepiadacee. Tribe Stapeliez.

A.-P. grivanus, N. E. Br. (n. sp.) ; ramis 1-2 poll. longis, tuber-culato-angulatis, tuberculis subspinosis; pedicellis brevissimis; corolla 1 poll. diam., tubo brevissimo, lobis deltoideo-ovatis patentibus, glabris, atropurpureis ; lobis coronæ ovatis acutis, postice tuberculo parvo instructis, fusco-purpareis.

Hab. Griva, Griqualand West, Mr. Arnot, Barkly (No. 11).
Stems 1 to 2 inches long, 'forking in all directions,' tuberculateangular, the tubercles tipped 'with a white spine' (the indurated or withered leaf). Pedicels very short. Culyx-lubes ovate-acuminate, $\frac{1}{4}$ inch long, glabrous. Corulla an inch in diameter, with a very short tube, and spreading, deltoid-ovate, acute lobes, glabrous and green with darker nerves outside, glabrous, rugose, and blackish-parple inside, the lobes not ciliate. Segments of the cirma ovate-oblong acute, a little longer than the anthers, with a smali tubercle behind (omitted in the plate), brownish-purple.

I have only seen a flower of this plant, the rest of the description being compiled from a drawing and description sent by Sir H. Barkly. It appears to be a very distinct and remarkable speeies.-N. E. Brown.
A.-P. grivance. Fig. 1. Back view of flower. 2. Corolla. 3. Pullinia. Figures 2 and 3 enlarged.
B.-P. comptus, N.E. Br. (n.sp.) ; ramis brevibus, obesis, caspitosis, obtuse tetragonis, dentatis, glabris; pedicellis $3-1$ lin. longis, glabris; ermolla subrotata, 8-9 lin. diam., intus pubescente, albida, fusenpurpurea maculata; segmentia corone arcte incombentihus, apice achtis, obtusis, vel denticnlatis, prope basin crista qnadrata horizontaliter patente postice denticulatis, luteis, fuscopurpureo punctatis.
Ilab. Karoo, at Groote Fontein, Mr. Dickson, Barkly (Nus. 58 and 7).

Stems densely cæspitose, short, stout, obtusely 4 -angled, us:ally
about an inch long, but sometimes growing to a length of 2-3 inches. Flowers 1-4 (usually 2) together, from near the middle or towards the tips of the stems; pedicels erect, $3-6$ lines long, glabrous. Liclys--luws lanceolate acuminate, $1 \frac{1}{2}$ line long, glabrous. Buds ovate acnminate. Corolla subrotate, 8-9 lines in expanse ; outside glabrous, dull greenishbrown; inside whitish, marked all over with small, dark parplebrown spots, and covered with a pubescence of white and purple lairs; the lobes are $3 \frac{1}{2}$ lines long, lanceolate acuminate, very slightly convex, the margins being very little recurved. Coronal lubes closely incumbent on the back of the anthers, and not prolonged beyond then, yellow, dotted with parple-brown, acute, obtuse, or denticulate at aper, expanding near their base into a quadrate and truncate, or somewhat ovate, denticulate dorsal crest.

This species seems to vary considerably in the size of its stems and in the form of the corona, but a series of flowers show that the coronal differences fade into one another. Two extreme forms are represented on the plate : that with the large stem and figs. $1-5$ is from the specimen sent by Sir H. Barkly, as No. 58, the rest of the plate being drawn from his No. i1. But a portion of the plant, No. 58, which Sir H. Barkly sent to Kew, has not prorluced stems under cultivation larger than those of the smaller plant (No. 71), as represented on the plate. N. E. Brown.
B.-P. comptrs. Figs. 4-7. Coronas from different plants, front and side tiems. 8. Pollinia. All enlarged.
P. decorus, N. E. Br.? -Stapelia decora, Masson?, Stap. p. 19, t. 26 (1796). Obesia decora, Huw.? Synop. P'unt. Succ. p. 43 (1812).

Hab. Little Namaqualand, Burkly (No. 2.5); Victoria West, Burlly (No. 25 bis); Karoo, at Groote Fontein, Burkly (No. 73)?

1 believe these are the same as Masson's plant, but do not feel quite certain about them.


## Plate 1925.

## DUVALIA ANGUSTILOBA, N. E. Br.

## Asclepiadaces. Tribe Stapeliee.

D. angustiloba, N. E. Br. in Gard. Chiron. 1883, vol. 20, p. 230.

IIar. Brought from the Karoo on the way to the Diamond Fields by Mr. Dickson, Burkly (No. 333).

The flowers of this species are dark purple-brown with a white corona, and are produced in great profusion. In the centre of the plate is a flowering brauch, sent home in spirits by Sir H. Barkly, below which is shown part of a plant as it grows under cultivation.N. E. Brown.

Fig. 1. Flower from living plant, natural size. 2. Corona, enlarged.
D. hirtella, Surect, Mort. Brit. p. 276 (1827).-Stapelia hirtella, Jucq. Sup. t. 10; S. reclinata, But. Mug. t. 1397, not of Musson.

Has. Cultivated in the Botanic Garden, Cape Town, origin unkiown, Tiarkly (No. 12).

Jacquin represents most of the stems on his plate as acutely quadrangular. This I believe to be quite incorrect : the plant as I know it, has broadly rounded tuberenlate angles, as in all the other spercies of the grenus. Some four or fire joints of the stem on Jaerquin's plate are however, more correctly represented with rounded angles; the sterus on the plate in question, as on several other plates in dacerginis work, are repreacuted as being much more elongated than they are usually foond, either in a wild state or under cultivation, but I helieve this due to some difference in the nethod of cultivation, as I have had the same individual make much longer branches some years than o, thers, and in Ducullia litrollu itself, although umber cultivation with mee the normal tengeth of the shonts is from 1 to 1 b in., yet during one stamen they grew $2 \frac{1}{2}$ to 3 in. long, and I thiuk that was owing to the atmont of water supphied to them that year being more than they usually receive.-N. E. Brown.
D. reclinata, ITune. Synop. Plent. Suce. p. 44 (1512).-Stapelia reFhata, Mussum, Stup. p. 19, t. 28; Jacq. Stup. t. 14.

Hab. Karoo, Barkly (Nos. 51, 53, and 67); Somerset East, MucOwan (No. 2232 ) ; stony hills near Graaff Reinet, $2,600 \mathrm{ft}$, Bulus (No. 54).

Notwithstanding that both Masson and Jacquin figure S. reclinatir with very elongated stems, I believe both figures represent abnormal conditions of the plant: both were made from cultivated specimens, which were perbaps grown in a rich soil and very freely watered. The flowers are identical with those of the plant commonly cultivated, with clavate hairs on the corolla lobes, but I have never sten the branches more than $2 \frac{1}{2} \mathrm{in}$. long, and usually they are only from $1-1 \frac{1}{2} \mathrm{in}$. long. This species is chriefly distinguished from D. hirtella by the clavate hairs fringing the corolla lobes; in D. hirtella the hairs are not clavate, and not so vibratile as in D. reclinutu.N. E. Brown.
D. elegans, Haw. Synop. Plant. Succ. p. 44 (1812).-Stapelia elegans, Masson, Stup. p. 19, t. 27 (1796) ; But. Mag.t 1184.

Hab. Little Namaqualand, Burkly (No. 34).
There are two forms of this plant : that figured by Masson, in which the annulus is very prominent, and the lubes of the corolla replicate, almost to their base ; and that figured in the 'Botanical Magazine, in which the aunulus is very much less prominent, being only a little elevated, and the lobes of the corolla sometimes replicate at the apical part only, the margius being reflexed-spreading at the basal part, and sometimes replicate nearly to the base Sir H. Barkly sent both forms, and I have had them both in cultivation, but whether they are rarieties of the plant, in the ordinary sense of the word, or sexual conditions, I do not know ; I believe both forms grow together.N. E. Brown.
D. Corderoyi, N. E. Br. in Bot. Mag. sub t. 6245 (1876). Stapelia Corderoyi, Houk.f. in But. Mug. t. 6082 (1874).

A living plant of this was sent by Sir H. Barkly, labelled as collected by Mr. Bain, bnt without locality or number, and no specimens, either dried or in spirits, were sent. There is a specimen in the kew Herbarium labelled 'Orange River, December.'

This plant raries in the colour of its flowers; some plants of it hare the corolla of an olive-green colour, in others it is of a dull purple colour, the hairs on the annulus being bright purple in both. That this is a mere colour variation, and not a specific difference, is provel lis the fact that I had flowers of both colours produced upon the same plant in September, 1877, a drawing of which, together with the driut flowers, is now placed in the Kew Herbariam. Ny plant, which produced these differently coloured flowers, was raised from a cutting of Mr. Corderoy's original plant. The buds as represented in the 'Botanical Magazine' are not correct, neither are the corolla-Jobes tipped with red as shown in that plate.-N. E. Brown.

## STAPELIE BARKLYAN压.

By N. E. Brown.

During the greater part of the time that Sir Henry Barkly, G.C.M.G., was Governor of the Cape of Good Hope, namely, from 1873 to 1877, he used every effort to collect together, from various districts of South Atrica, as many species of the tribe Stapeliece as he could possibly procure, and cultivated them at the Government House, Cape Town. As they flowered, drawings of them were made by Lady Barikly and Miss E. B. Barkly, and copies of the drawings were sent to Kew by Sir Henry Barkly, together with specimens preserved in alcohol, accompanied by excellent descriptions from the living plants. Besides this, he generously sent to Kew living plants of ali the kinds he had obtained; and, although several of these perished during the journey, the majority arrived safely, and many of them are in cultivation at the present time. The result has been that a very extensive series of these plants has been got together in the Kew Herbarium, consisting of the speeimens and drawings sent by Sir H. Barkly, and specimens and drawings subsequently obtained from the living plants which he sent to England, and from plants in cultivation received from other sources.

I have been for many years collecting material for a monograph of this gronp; but, as circumstances render it unlikely that I can prenceed with the work and bring it to an issue for some years to come, it has been thought advisable that the very important collection made hy Sir Henry Barkly should be treated of separately; therefore, in the following pages will be foand an enumeration of all those collecterl by him of which there is sufficient material for determination, with descriptions of the new species. There were several others of which stems or follicles were sent, some of them undoubtedly new species, but, as there are no flowers, I have not mentioned them in this' paper. The plates which accompany the descriptions hare been executer by Miss Smith, and are partly drawn from, Sir Henry Barkly's specimens, partly adapted from the drawingt which he sent, and partly copied from my own drawings of the living plants sent by Sir Henry Barkly.

Our knowledge of this remarkable group of plants has grown slowly ; in the works of Limneas and Linnans fil., up to the date $1 ; 81$, only five species are ennmerated; Thunberg in $\mathbf{7 7 9 4}$ enumerates eight species in his 'Prodromus,' one of which does not belong to the tribe, but is a Brachystelma; next comes Masson, who in 1706 published his 'Stapelim Novæ,' containing 41 species, 37 of which were previously

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undescribed. In 1806 Jacquin commenced his 'Stapeliarum in hortis Vindobonensibus cultarum descriptiones figuris coloratis illastratr,' in which many new species are published; the work appears to hase been completed aboat 1819 . Neanwhile Haworth, in 1812 , pullished the 'Synopsis Plantaram Succulentum,' in which several new speeirs are deseribed. Up to the year preceding-viz., 1811-all the members of the tribe had been placed under the one genus stapelia ; in that rear, however, Robert Brown, in his paper on the Asclepiadacex, divided them into the four genera Stupelia, Huernia, Piaranthus, and Cimothmen; and Haworth in his 'Synopsis,' and the 'Supplementum ' published in 1819, further divides them up into the genera Gomostemon, Poturliwes, Tridentea, Tromotriche, Orbea, Obesia, Inacalie, Pectimariv, and Curencularia, in addition to those proposed by Robert Brown. From that period until the present time no one appears to have paill much atten. tion to them; several odd species have been described in different works, and several more genera made ; numerous compiled descriptions of the species have appeared in the various Systemas, Cataloques, Dictionaries, \&c., the most comprehensive being that by Decaisue in volume 8 of De Candolle's 'Prodromus,' published in 1844. Finally, in Bentham and Hooker's 'Genera Plantarum,' the genera are dealt with as a whole and redescribed; most of those proposed by Haworth being reduced both by Decaisne and Bentham and Hooker to the rank of sections of Stapelia.

Some twenty years ago, when I commenced to study this group and to cultivate them, the great difference in habit, and in the shape and structure of the flowers of different kinds, certainly seemed to me to warrant their generic separation as proposed by Haworth. But as my knowledge of them has increased, ehiefly by means of the spleniid collection sent by Sir Henry Barkly, so have I found that the characters which seemed so distinctive of one genus or group, when only comparatively few species were known to me, gradually merged into and became blended with the characters of another group, and that with another group, and so on, as I became acquainted with other forms. And now after a study of many jears-during which a rery large number of specimens, amounting to some handreds, livinu, dried, and preserved in alcohol, have passed through my hands-I ams quite unable to find any definite limiting characters for some of the genera here retained. The genera have been chiefly founded upen the structure of the corona, shape of the corolla, and habit of the plant. Habit, we know, is often a fallacious character, as, for example, in Veronica we have annual and perennial herbs, and evergreen shrubs; in Oralis and Pelaryonium, annuals, bulbs, and shrubs; in Eutherfinite leafy herbs and shrubs, and leafless succulents of very diverse hatit: and among Stapeliece habit appears of no more generic importance than in the genera named. It is true that a similarity of halit prevails among many of the species haring the same floral structure, and so forming a distinctive groap, but such habit is not in variably limited to those species; for instance, the stems of the plants which belong to the group called Gonostemon by Haworth are exactly imitated among those to which he restricted the generic name Stapelia: the stems of

Diplocyatha are very like those of Stapelic namaquensis : and those of the plant figured by Masson as Stapelia aperta have exactly the same general appearance as those of $S$. pedunculata ; but the corolla has a distinct campanulate tube, and the structure of the corona is that of Curullumec, so that they cannot buth be placed together in the same group; and the stems of Piuranthus and Huemiopsis resemble those of Duvalia. It is evident, then, that no detinite generic character is to be found in the stems. The corolla varies considerably among the different members of the same genus; in Stropelin itself it is asually flat and rotate, but some species have a saucer-shaped or shortly campanulate tube, without any alteration in the general coroual structure. With regard to the coronal structure, that appears to me to be so indefinitely variable that it cannot, when taken alone, be implicitly relied apon for generic distinction. To give a few instances: in the plant I originally described as Quaqua lioltentotorum I have seen specimens, living and in alcohol, in which a distinct outer corona was present, and others in which it was quite absent, or so rudimentary as to appear so! Yet the plants were otherwise identical, and certainly belong to but one species, and not to two genera as would be the case if the coronal character only were taken into consideration. An undescribed species of Trichocmulon has the stems and flowers very similar to those of $T$. piliferem, bat a corona like that of Ifvorlia. Stupelia intermedtix, described at pl. 1910A, offers another case of variation in the same species; in floral structure it appears to be quite intermediate between the sections Trilented and Porlanthes of the genus Stapeliu: the three-toothed segments of the outer corona are usually free to the base, as in the typical Stapelias, but sometimes they are connate, or adnate to the sides of the segments of the inner corona, up to the point of origin of the lateral teeth, so as to form an annular corona with five large teeth, and five pairs of minute teeth alternating with them (see pl. 1910A, f. 2), thas resembling the corona of certain species of c'aralluma, in which genus such a coronal structure would place it, whilst the other form of corona places it in Stapelia. It would be easy to give other instances, but these will suffice to show that, except in a few of the genera, no character, or in some instances even no set of characters, can be relied upon as definitely separating the genera. They all seem to blend and intermingle in a manner that in many cases defies classification.

I believe this intermingling of characters has been brought abont in this way: the Asclepiuducece all require the agency of insects to bring about fertilisation; and two species growing within a moderate distance of each other would become very liable to be cross-fertilised with each other's pollen, and hybrids would be likely to result, which would not necessarily be found in the neighbourhood of their parents, as the seeds, being provided with a large tuft of long fine hairs, would be liable to be carried to a considerable distance by the wind, in the same way as thistle seeds are carried, and the new hybrid established in another place, where it in turn, in course of time, miglit give rise to other hybrids. That such has been the origin of many of the species
is a conclusion that inevitably forces itself on the mind when such species as $S$. Bartilyi, S. lutea, S. intermedia, \&cc., are examined and compared with other forms. For these reasons I am in favour of uniting most of the forms under the two genera. Stapelia and Cutrallumu, which, although containing (in the sense that I understand these genera) a heterogeneous assimblage of species in each case, yet in must cases are seen to be bound together by evident relationship with une another, when all the species, described and undescribed (uf which there are many), are passed in review. These two genera certainly have a tendency to merge into each other, but seem to have this distinetion : in Stupmlit the segments of the outer coroua are free to the base, whilst in C'crulluma they are more or less connate with each other, or adnate by their edges to the segments of the inner corona, so as to form a cupshaped onter corona. If the variuus forms be not so grouped under these two genera, then a large number of small and often monotypic genera would have to be made, especially if the coronal structure is made the basis of classification as hitherto, and taking each variation as of equal generic value. Such genera would be very unnatural, and would be rather a hindrance than an aid to the student who wished to determine his plants ; hence I have only retained as genera those grouls of species which seem comnected with each other by natural bonds, although often diverse in appearance. Yet, in spite of having thus limited the genera to few, rather than increased their number, I am of opinion that some of the genera still retained are more artificial than natural; for instance, Frerea and Trichocauton only differ from Caralluma in habit, and Trichocaulon only differs from Hoolia in its corolla, for, although some of the species have a different corona, one has a corona indistinguishable from that of Hoodia; possibly it would be more logical and convenient, after all, to do as our predecessors did, and place them all in the genus Stapelia, with the exception of Decalelume, Diplucyatha, Duralia, IIuernia, and Huernimpsis. This view of consolidating the genera especially commends itself to me, as I have every reason to believe that, if collectors would hut pay a little m:ore attention to them than bitherto, there are still a large number of forms that remain to be discovered in South and Treptial Africa, many of which, in all probability, will be found to comneet and bring together more closely some of those forms which at present appear to le somewhat anomalously placed in the genera where I have located them. In 1873 Dr . John Shaw, of Cape Town, told me that le thought the sitapelias were disappearing from some of the central purts of the Cape Colony, owing to their being eaten by the sheep and rrate: the natives also eat them; three or four years later, Mrs. Bartur wrote from Kimberley to the same effect.

But I learn from Sir Henry Barkly, and others, that this can scarcely be the case with regard to the whole of South Africa, and that fur the most part, except in the ricinity of towns, there is lithe probability of their being exterminated for a very long time to conse: Stapelia rariegata grew on the Lion Mountain when that place was first discovered, and I am told that it is still plentiful there now.

One interesting feature connected with Stapelias is the vitality af
their seeds, and the rapidity with which they germinate under suitable conditions. When sown in moist, sandy soil, and placed in a greenhouse heated in summer only by the sun's rays, the night temperature going down to $60^{\circ}$ Fahr., or lower, I have found that most of the species I have tried will germinate in thirty-six hours, many in twentyfunr hours, and that with regard to some speries, but not all, it does not appear to matter whether the seed has but just ripened or has been kept for eight or ten years, except that in the latter case there is a considerable percentage that do not germinate at all ; and that, although many will germinate in twenty-four hours, some do not do so under from two to four days. Most of them are comparatively hardy, and under shelter, if the soil is kept dry, will stand a succession of slight frosts of from $1^{\circ}$ to $3^{\circ}$ Fahr., and some will endure as much as $8^{\circ}$ Fahr. of frost without injury, if not continued for more than a few hours; I have many plants now living, which I have cultivated for sixteen or eighteen years, that almost every wiuter have been subjected to a slight amount of frost during severe weather.

It may not be ont of place here to say a few words about Jacquin's work on Stapelias. This book appeared in five parts, but is dated 1806, which is in reality the date of only the first part or parts, as the work was not completed until 1819. I have been unable to discover the dates at which the parts appeared, but there is internal evidence to show that a portion was not published until after Haworth's 'Synopsis' had appeared ; and Willdenow, in his 'Enumeratio Plantarum Horti Regii Botanici Berolinensis,' published in 1809, only quotes Jacquin's work for the following species:-ambigua, asterias, bufonia, ccespitosa, divaricata, geminata, gluuca, hircosa, hirsuta, hirtella, juvencula, lepida, maculosa, patula (sororia, Jacq.), planiflora, radiata, reclimeta, replicata, reticulata, roriflua, rugosa, serrulata, sororia (patula, Willd.), sororiu var., tubata, varieguta, verrucosa, and vetula. For S. comspurcata, gramiffora, and normulis Jacquin is not quoted. And in the 'Supplementum,' published in 1813, Jacquin is not quoted for the names cluvigera, comata, diflear, fissirostris, marmoruta, ocelluta, and paniculutu, so that in all probability the species for which Willdenow does not quote Jacquin were not published before 1813, at which date it would appear that Part IV. appeared; Part V. was published, according to Pritzel, in 1819 by the son, Joseph Franz Jacquin, who, however, must have included all the species of that part in his 'Synopsis Stapeliarum,' published in 1816 (see the note on the back of the title-page of that work), but it is not possible to discover which they are.

The plants as represented in Jacquin's work are, many of them, very different in appearance from the plants in nature, the stems being frequently larger and much more elongated than is usually seen; hence, I believe, the plants have not always been recognised from Jacquin's plates. It appears to me that the plants there tigured were grown in rich soil, in a hot, and perhaps hamid, atmosphere, and were consequently much drawn up, and the appearance of the stems much altered ; I have seen similar alteration of the stems in coltivated plants when placed under such conditions.

I now give a key to all the genera of the tribe Stapeliece, in which I have taken into consideration all the species known to me, including those that still remain undescribed. I have retained as genera only those groups of species which appear to me to be the most natural and distinct; and, however direrse some species may appear from others of the same group or genus, I find them so iutimately connected and blended by intermediate forms, as previously stated, that they cannot be separated except by the creation of several very artificial geuera, depending on very trifling characte"s, which would doubtless be apset by further discoveries, and woald be no aid to the worker in the determination of the plants. It will be seen that the genera Quaqua and Surcocodon, previously proposed by myself, and Buurerusia, W. and A.. disappear from the list, as I caunot separate them by any good characters from Caralluma. The stems, however, of Sarcocodon are nut satisfactorily known, and may afford a distinctive character, but the flowers are merely those of Caralluma much enlarged, and compare with some of the species of that genus as Stupelice giguatea compares with S. rufa or S. olivacea. Obesia, Haw., as I have previonsly shown, is svnonymous with Piurcutlues, R. Br., and Podanthes, Haw., I cannot distinguish from Stapelia.

## KEY TO ALL THE GENERA OF THE TRIBE STAPELIEE.

(Of those genera marked with a * no specimens were collected by Sir Henry Barkly.)
I. Corona simple, outer corona wanting (very rudimentary in Echidnopsis。 Seo
also Caralluma hatentotor also Caralluma hottentotorum).

1. Stems usually 4 -angled, occasionally 5 to G-angled, short.

Corolla distinctly campanulate; coronal segments stont, with the apes produced, erect. 8. تuerniopsis,* I. E. Mr.
Corolla rotate, or rarely with a very short tube, not campanulate ; coronal segments crested on the back. 12. Piaranthus, R. Br.
2. Stems teretely many-angled, tessellate-tuberculate, elongrating. Corolls small, saucer-shaped; coronal serments not crested. 3. Echidnopsis, Hook. f.
II. Corona double, outer corona present, arising from the staminal tube.

1. Lobes of the corolla cohering at their apex. 4. Pectinaria," Haw.
2. Lobes of the corolla not cohering at their apex.
A. Limb of the corolla nearly entire, 5 -cuspidate. the lobes almost obsolete, outer cor na cup-shaped, \%-lobed; stems with numerous tuberculato angles, the tubercles bristle-tipped. 6. Boodia, Sweet.
B. Limb of the corolla distinctly and usually deeply five-lobed:
a. Stems terete, bearing distinct leaves an inch long; corolla sulail. rotate; outer corona cup-shaped, the imner coronal serments not prib duced at the apex. 1. Frerea,* Dalz.
b. Stems thick, covered with confluent tuhercles more or less arranmal in numerous rows or spirals, sometimes irregular, leatless, the tuber.
cles with or without bristle-tips: corolla small, cup-shaped, or subcampanulate: outer corona of tive deeply bifid or emarginate lobes, connte at the base and adnate to the lack of the simple inner coronal segments. 5. Trichocaulon, సे. E. Br.
c. Stems ( $;-12$-ancled, leafless, the anyles tuberculate, tubercles tipped with three bristles, the two side ones deflexed; corolla large, tubular-fumel-shaped; outer corona cup-ihaped at the base, produced into 10 filiform processes ending in hnobs; inner coronal segments simple, ovate, adnate lehind to the outer corona. 7. Decabelone, Dcne.
d. Stems ustally 4 -angled, ravely 5 - (i-angled, leafless, or with rudimentary leares, ancles acute or obtuse, toothed or tubercled, the tubercles often spine-tipped, sometimes irregularly placed, rarely obsolete.
$\dagger$ Corolla with a distinct campanulate tube, longer or shorter than the lobes.
x. Outer corona cup-shaped, at least at the base, the segments being adnate to the sides of the inner coronal segments at their base, or connate and adnate to their badk, the margin denticulate or produced into five short or long bifid or two-forked lobes: inner coronal segments simple or two-horned, not longer than the anthers, or prodaced beyond them into erect points. 2. Caralluma, R. Br.
xx. Outer corona of five emarginate or bifid segnuents more or less connate at the base, but not adnate to the sides or back of the inner coronal segments.

* Corolla-tube double, an inner tube with a thichened rim arising from near the base of the outer tube. 10. Diplocyatha,* N. E. Br.
** Corolla-tube simple, the base of the sinuses hetween the luhes produced into small triangular teeth; outer corona sessile on, and partly adnate to, the base of the corolla. 9. Euernia, li. Br.
xxr. Outer corona of five segments free to the base. (Siee also


## Euernia)

Corolla-lubes 2-4 times longer than broad. 2. Caralluma, R. Br.

## Corolla-lobes not much longer than broad. 11. Stapelia, Linn.

+ Corolla rotate and star-like, or broadly cup-shaped, with or without a raised rim (annulus) on the dise or bise of the cup, somatimes forming a short tube for the corona, but with no distinet campanulate tube.
0 The base of the sinuses between the corolla-lobes produced into triangular teeth: outer corona sessile on, and adnate to, the base of the corolla. 9. Fuernia, i. Br.
Oe The base of the sinuses between the cornila-Infes not proulureal into teeth; outer corona not aduate to the hase of the cor Alla.
8 Outer corona of five segments free to their have, entire, emarginate bifid or trifid. (See also next parayraph, Caralluma.)


## 11. Stapelia, Linn.

88 Outer corona cup-shaped, or the segments very deeply divided into two subulate lobes, and more or less aduate at the base to the staminal tube or base of the inner coronal segments so as
to form a small ponch at the base, rarely quite free to the base.
2. Caralluma, R. Br. (See also Stapeliu intermedia.)

888 Outer corona in one piece, disc-like, pentagonal, resting oul the rim of the annulus and closing the spurious tube formed by it; corolla-lobes more or less folded lenerthwise, and olten into narruw vertical plates. 13. Duvalia, Haw.

## KEY TO THE SPECIES COLLFCTED BY SIR HENRY BARKLY.

## Genus 2.-Caralluma, R. Br.

I. Angles of the stem with stout acute teeth, often spine-like.
A. Segments of the inner corona produced beyond the anthers into erect or recurred tips.
a. Pedicels $\frac{1}{3}-1$ inch long, flowers wholly yellow. C. lutea, Pl. 1901.
aa. Pedicels less than $\frac{1}{3}$ of an iuch long, flowers not wholly yellow.
Corolla-lohes minutely hispid-pubescent inside, the tips of the inner coronal segments with short subulate points. C. mummillaris, sub Pl. 1902.
Corolla-lobes clabrous, the tips of the inner coronal segments flattened, linear. C. linearis, Pl. 1903a.
AA. Segments of the inner corona not produced into erect or recurred tips.
a. Outer corona cup-shaped, not distinctly five-lobed. C. armata, Pl . 1902.
aa. Outer corona distinctly five-lobed.
Flowers ciliate, purple-brown with yellow bars on the basal half of the lobes. C. dependens, Pl. 190:3b.
Flowers glabrous, entirely light yellow. C. hottentotorum, sub Pl. 1903.
II. Angles of the stem very obtuse, with distinct or nearly obsolete lartro crenations, not toothed.
Pedicels about 1 line long. C. ramosa, Pl. 190t.
Pedicels 2-3 inches long. C. aperta, Pl. 1905A.

## Genas 5.-Trichocaulon, N. E. Br.

Tubercles of stem rery blunt, not bristle-tipped; flowers yellow, spotted with purple-red. T. cactiformis, sub P1. 1905.
Tatereles of stem ending in a stiff bristle; flowers yellow without spots. T. flavum, sub Pl. 190.5.

## Genus 6.-Hoodia, Sweet.

1. Corolla glabrous inside.
a. Corolla distiuctly cup-shaped, 2-3 inches in diameter.

Lubtes of onter corona distinctly hifid. H. Barklyi, sub Pl. 1005.
Lobes of outer corona emarginate. H. Drinii, sub P1. $190 \overline{5}$.
aa. Corolla nearly flat, $3 \frac{1}{2}-4$ inches in diameter. II. Gordoni, sub pl. 1905.
II. Corolla pilose inside, 3-5 inches in diameter. II. Currori, sub T1. 190\%.

## Genus 7.-Decabelone, Dene.

$$
\text { D. Barklyi, sub Pl. } 1905 .
$$

Genus 9.-Huernia, R. Br.

1. Corolla-tube campanulate with no anuulus around the mouth ; flowers yellow, not spotted. H. primulina, Pl. 1906.
2. Corolla-tube very short, cup-shaped, with a broad rim or annulus around the mouth.
Flowers marked with small spots; tips of inuer coronal segments not produced beyond the anthers. II. humilis, Pl. 1905b.
Flowers marked with large spots, leaving a network of yellow spaces between them: tips of inner coronal segments produced beyond the anthers into erect subulate points. 11. reticulata, sub Pl. 1906.

## Genus 11.-Stapelia, Linn.

## Key to the Sections.

I. Segments of inner corona not produced at the apex into erect horns, corolla cup-shaped or rotate, with or without a raised rim on the disc around the corona. § 7. Podanthes.
II. Segments of inner corona produced at the apex into erect horns, which are simple, or with a broad adnate wing at the back, or two-horned, the horns similar or the dorsal one flat and wing-like.

1. Corolla with a raised rim or annulus on the flat or cup-shaped disk around the corona.
Lobes of the corolla fringed with trembling clavate hairs. § 2. Tromotriche.'
Lobes of the corolla either without a fringe, or the hairs are not trembling. § 1. Orbea.
2. Corolla without an annulus on the disk.
A. Corolla-tube none, or the disk a little depressed or concave.
a. Segments of the outer corona divided into 3 narrow lobes to half-way down or more: corolla usually ciliate with clavate trembling hairs.

## § 4. Tridentea.

aa. Segments of the outer corona entire, hifid, or 3 (rarely 4-5) -toothed at the apex, but not deeply divided into three.

* Horns of inner coronal segments similar, but the outer ones shorter, both clavate and tuberculate at apex, pedieels 3-6 inches long.


## § 3. Caruncularia.

* Inner horn clavate, the outer one sborter, and suluulate: lohes of the corolla fringed with trembling clavate hairs ; pedicels $\frac{1}{2}-2$ inches long. § 2. Tromotriche. ${ }^{1}$
*** Horns not clavate at the apex, similar or dissimilar, the ruter horn subulate or wing-like, free, or more or less completely adnatr to the inner horn as a dorsal wing, or reduced to a mere crest, or entirely absent.

[^6]Lobes of the corolla ciliate with clavate, trembling and very loosely attached hairs. § 4. Tridentea.
Lobes of the corolla without a fringe, or ciliate with simple hairs, which are neither trembling nor loosely attached. \& 5. Stapletonia.
AA. Corolla with a short campanulate tube, the apices of the erect inner coronal segments bifid. §6. Fissirostres.

## Key to the Species.

§ 1.-Orbea.
I. Stems quite glabrous, flowers $2-3 \frac{1}{2}$ inches in diameter.
A. Segments of the outer corona emarginate, bifid, or three-toothed at the apex.
a. Inner coronal segments two-horned.
*The dorsal horn nearly horizontally spreading. S. horizontalis, P!. 1907.
** The dorsal horn ascending, or nearly erect.
x. Buds, when full-grown, abruptly and very acutely pointed.
§ Segments of the outer corona with their apical lobes a little divergent; flowers with maderately large darl purple-brown spots. S. variegata, sub Pl. 1907.
§§ Spgments of the nuter corona with their apical lobes parallel.
Flowers dark-lonking, with large crowded spots. S. variegate, var. bufonia, sub P1. 1907.
Flowers light-coloured, with small spots. S. variegata, vali pallida, sub P1. 1907.
Flowers with a clear ground and large spots, those on the annulus of a very dark blood-red, the rest tending to darls purplebrown. S. picta, sub Pl. 1907.
§§§ Segments of the outer corona a little narrowed towards the emarginate or shortly bifid apex ; flowers licht-coloured, the spols not very crowded. 'S. variegata, var. Curtisii, sub Pi. 1907.
xx. Buds flat when full-grown, not pointed. S. trisulea, sub Pl. 190… aa. Inner coronal segments produced at the apex only, no dorsal horn. $s$ namaquensis, var. tridentata, Pl. 1908c.
AA. Segments of the outer corona entire, acute. S. namaquensis, and nir ciliolata, P1. 1908A and в.
II. Stems minutely pubescent, flowers 5-6 inches in diameter. S. Barkilyin PI. 1909.
§ 3.-Caruncolaria.

Stems obsoletely toothed, smooth ; pedicels very long, erect. S. pedunculda, sub Pl. 1909.

## §4.—Tridentea.

I. Flowers about 1 inch in diameter, yellowish-green, not ciliate. S. virecechlt, Pl. 1910в.
II. Flowers 2 inches or more in diameter, ciliate with trembling clavate hairs. Corolla dull yellowish-green, densely spotted with dark purple-brown. S. hircosa, sub Pl. 1910.
Corolla entirely dark purple-brown without spots. S. gemmiffora, sub Pl. 1910.
§ 5.—Stapletonia.
I. Inner coronal segments with an adnate wing behind, or bipartite with a free wing, or horn, behind.
A. Corolla with hairs on the disk, or at least just around the corona, and ciliate on the lobes, 2-6 inches in diameter.
a. Stems pubescent.
x. Stems less than $\frac{3}{4}$ of an inch square.
$\dagger$ Disk of corolla more or less densely villose, apical half of lobes glabrous.
§ Corolla-lobes usually (always?) gibbous at the apex, disk with a very large, dense cushion of hairs. S. pulvinata, sub Pl. 1911.
§§ Corolla-lobes not gibbous at apex, cushion of hairs only moderately large and dense.
8 Corolla-lobes broadly ovate. S. villosa, Pl. 1911.
88 Corolla-lobes lanceolate or ovate-lanceolate.
Basal half of corolla-lobes marked with transrerse yellow lines. S. affinis, Pl. 191:, and S. patula, Pl. 1914.

Basal half of corolla-lobes vinous-purple, without transverse yellow lines, apex darker. S. Arnoti, Pl. 1915.
$\dagger \dagger$ Disk of corolla shortly and not densely pilose with ereot hairs.
Flowers $3-3 \frac{1}{2}$ inches in diameter, uniformly purple-brown, lobes very shining. S. lucida, Pl. 1919.
xx. Stems $\frac{3}{4}-1$ inch square.

* Corolla unifurm purple-brown, densely villose on the disk. $S$. fuscopurpurea, Pl. 1913.
* Corolla marked with transverse yellow lines.

0 Disk and lobes uniformly covered with somewhat adpressed whitish hairs all pointing to the apex of the lobes. S. Desmetiana, Pl. 1916.
00 Disk rather thinly corered with erect hairs.
Inuer coronal segments yellow. S. grandiffora, var. lineata, sub Pl. 1916.
Inner coronal segments purple-brown. S. ambigua var., sub Pl. 1916.
aa. Stems glabrous; disk of corolla densely villous.
Stems very distinctly decumbent at the base, of a trailing habit; flowers rinous purple. S. glabricaulis, Pl. 1917.
Stems scarcely decumbent at the base, habit compact ; flowers dark, amoky purple-brown, sometimes with a few pale transverse lines. S. tsomoensis, Pl. 1918.

AA. Corolla glabrous on the disk and lobes, but ciliate with simple hairs, dark olive-green, or olive-brown, not more than $1 \frac{1}{2}$ inch in diameter. S. olivacea, sub Pl. 1920.

AAA. Corolla glabrous on the disk and lobes and not ciliate, pale greenishyellow with transverse purple lines 2-2 $\frac{1}{2}$ inches in diameter. S. Macouani, Pl. 1920.
II. Inner coronal segments produced at the apex into a simple subulate horn, without a wing, horn, or crest behind. ${ }^{1}$
Pedicels quite erect; corolla small, like a Turk's cap, the lobes so closely revolute that their tips touch the pedicel and conceal the calyx. S. erectiflora, Pl. 1921.
Pedicels drooping ; corolla-lobes spreading, the disk covered with clarate white hairs, and the lobes ciliate with similar hairs. S. glanduliftora, sub Pl. 1921.

> § 6.-Fissirostres.

Flowers purple-brown or vinous-purple. S. mufa, Pl. 1922.
Flowers yellow with purple-brown spots. S. fissirostris, sub P1. 1922.

## § 7.-Podanthes.

I. Corolla flat or nearly so.

Angles of the stem acutely toothed; outer coronal segments 3 -4-toothed. S. intermedia, Pl. 1910A.

Angles of the stem very obtusely toothed or crenate, but with acute rudimentary leares; outer coronal segments bifid. S. parvipuncta, Pl. 1923.
II. Corolla cup-shaped, with a slightly raised annulus around the corons. S. verrucosa, sub Pl. 1923.

## Genus 12.-Piaranthus, R. Br. ${ }^{2}$

I. Corolla quite glabrous, dark purple-brown or blackish-purple. P. grivanu, Pl. 1924a.
II. Corolla pubescent on the face, yellowish, spotted with dark purple or purplebrown.
Corolla-lobes 3-4 lines long; coronal segments not produced into erect points at the apex. P. comptus, Pl. 1924B.
Corolla-lobes 5_7 lines long; coronal segments produced into short ereet points at the apex. P. decorus, sub Pl. 1924.
${ }^{1}$ The abore character corresponds with Haworth's genus Gonostemon; but I 8 m unable to retain it even as a section. For, although $S$. divaricata, on which Haworth's genus was founded, has no wing, crest, or dorsal horn to the inner coronal segments, yet some closely allied species, such as $S$. deflexa, have a short crest on the badk of the shoulder at the base of the horn ; this in other allied species passes into 8 shori dorsal wing or horn. thence through other species into the ordinary dorsal wing ef horn of the section Stapletonia. There are some species, like the two collected 昗 Sir Henry Barkly, entirely without the dorsal wing or horn, but they are unlike ease other, and unlike S. divaricata; to place these in a section together would be to place unlikes together, and separate $S$. divaricata from the species to which it is natural. closely related, by means of what is eridently a very graduating character.
${ }^{2}$ With regard to the manner in which Piaranthus and Obesia have been misander. stond by previous authors, I have already given an account in the Journal of the Limnean Society, Botany, rol. 17, p. 162, so that no remarks on the sutject aro needed at this place, except to correct the authorship of the species placed by $\mathbb{m}^{3}$ under the genus on p. 163, which should have read P. punctatus, R. Br. (Stape. punctata, Mass.) ; P. decorus, N, E. Br. (Stapelia decora, Mass.); P. geminataw N. E. Br. (Stapelia geminata, Mass.) : P. serrulatus, N. E. Br. (Stapelia sermila Jacq.). the last three being inadvertently quoted as Piaranthi of Masson and Jecqliv raspoctively.

## Genus 13.-Duvalia, Haw.

I. Corolla-lobes very narrow, and closely replicate to their base ; the entire flower quite glabrous, and not ciliate. D. angustiloba, PI. 1925.
II. Corolla-lobes lanceolate or ovate, replicate nearly to their base.
A. Corolla-lobes pubescent on their surface, ciliate with clavate hairs. D. elegans, sub P1. 1925.

AA. Corolla-lobes glabrous on their surface. Uorolla-lobes ciliate with simple hairs. D. hirtella, sub Pl. 1925. Corolla-lobes ciliate with clavate hairs. D. reclinata, sub P1. 1925.
III. Corolla-lobes ovate, replicate closely at the apex only.

Corolla-lobes and annulus pubescent with short dark hairs, lobes ciliate with clavate purple-brown hairs. D. elegans, sub Pl. 1925.
Corolla-lobes glabrous, ciliate with clavate purple hairs, annulus clothod with long purple hairs. D. Corderoyi, sub Pl. 1925.

## H00KER'S ICONES PLANTARUM;

 or. Figures, With descriplive characters and remarks, OF NEW AND RARE PLANTS, SHLECTED FROM THE
## KEW HERBARIUM.

THIRD SERIES.
edited for the bentham trustees by
DANIEL OLIVER, F.R.S., F.L.S.
EMERITES PROFESSOR OF BOTANY IN UYYIVRGSITY COLLEGE, LONDOV: LATE KERPRR OF THE HERBARIUM AND LIBRARY, ROXAL BORANIC GARDMEG, KRW.
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VOL. X.
OR VOL XX. OF THE ENTIRE WORK.

WILLIAMS AND NORGATE,
14, HENRIETTA STREET, COVENT GARDEN, LUNDON ; AND 20, SOUTH FREDERICK STREET, EDINBURGH.
R. FRIEDLÄNDER UND SOHN, 11, Cablstrasse, berlin.
1890.
$\vdots$
$\vdots$
$\vdots$
 (








## Plate 1926.

## TILIA TUAN, Szyszyl.

## Tiliace龙. Tribe Tilire.

T. Tuan, Szysaylonvie: (sp. nov.) ; arhor, foliis membranaceis oratis obliquis basi semicordatis apice cuspilatis, margine intererrimis vel all apicem indistincte remotiusenle ciliato-dentatis, discoloribus supra glabris subtus adpresse stellato-albo-tomentosis, petiolis stellatotomentosis, bracteis pedunculo usque ad basin adnatis apice obtusatis basi angustatis, supra nervis exceptis glabris, subtus adpreese stellatotomentosis, pedunculo æquilongis, floribus cymosis, sepalis 5 extus alt:o-tumentosis intns barbatis, petalis 5 o ovato-lanceolatis, staminodiis paucis, staminibus $2 \mathbf{2}_{5}-3(3)$, ovario globoso albo-tomentoso.

Hab, China, Prov. Szechwan, District of Sunth Wushan. Dr. A. Henry (58'4, 7452).

Artior 40-pedalis. Folia 3-5 poll. longa, 2-3 poll. lata; petiolus $1 \cdot \frac{1}{2}$ poll. longas. Bractexe 4-5 poll. lougæ, $\frac{1}{2}$ poll. latæ. Sepala 1-1! lin. longa. Petelu $2-2 \frac{1}{2}$ lin. longa. Stylus cum ovario $1 \frac{1}{2}-2$ lin. longus. - Lie. Szyszylowicz.

The bark, Dr. Henry states, is much used for making shoes.
Fig. 1. Sepal. 2. Stellate hairs of same. 3. Petal. 4. Staminode and stamens. i. Detached stamen. 6. Pistil. 7. Transverse section of uvary. All enturged.


M : ciel et hat
Tilia Herryana, Szyszyl

## Plate 1927.

## TIIIA HENRYANA, Szyszyl.

## Tiliacere. Tribe Tiliee.

T. Henryana, Szyszylowicz (sp. nov.) ; arbor foliis coriaccis cordatovel truncato-rotundatis, apice subito cuspidatis, margine ciliato-dentatis, supra glabris subtus dense fulvo-tomentosis, axillis nervorum primarium secundariumque pilis ferrugineis minute barbalatis, petiolis glabrescentibus, bracteis pedunculoæqnilongis fere usque ad basin adnatis apice obtusatis basi angustatis, supra plahris subtus stellato-tomentosis, floribus cymosis fragrantibus, cymis densis, sepalis 5 lanceolatis extus albo-tomentosis, petalis $5-8$ albis, staminiḅus $20-25$, ovario $\check{c}$-sulcato albo-tomentoso, stylo petalis longiore.

H4B. China, Prov. Hupeh, Distr. Hsingshan, Dr. A. Henry (7452 A.).

Arbor 30-pedalis. Folia 21-4 poll. longa, 2-21 poll. lata; petiolo $11_{2}^{1}$ poll. longo. Bractee $5-6$ poll. longæ, $\frac{1}{2}$, poll. Iatæ. Sepala $1-1 \frac{1}{2}$ lin. longa. Tetatu $1 \frac{1}{2}-2$ lin. longa. Stamina 1 lin. longa. Stylus cum ovario 2-2 $\frac{1}{2}$ lin lengus.-IGas. Szyszrowicz.

Fig. 1. Flower. 2. Stellate hairs of calys. 3. Petal. 4. Staminode and stamens, 5. Pistil. 6. Transererse section of ovary. All enlarged.

The same collection of Dr. Henry includes, besides the two fore-groing:-
T. Miqueliana, Maxim. Mél. Biol. T. 587, var. chinensis, Szyszyl, foliis late lanceolato-ovatis basi inæquali-cordatis v . truncatis, arguto-serratis, serraturis incumbentibus breviter calloso-apiculatis, supra glabris subtus parce stellato-pubescentibus albescentibus, axillis nervorum primarinm secundarium et nonnunquam tertiarium pilis ferrngineis minute barbalatis; petiolis adpresse stellato-pilosis; bracteis pedunculo ad basin adnatis, basi angustatis stellato-pubescentibus cyma loncioribus vel æquilongis.

Hab. China, Prov. Hupeh, District of Hsingshan. Dr. A. Henry (6474).

Arbor 12-pedalis. Folic $4-5$ poll. longa, $2 \frac{1}{2}-3$ poll. lata ; petiolus $1 \frac{1}{2}-2$ poll. longus. Bractece $4-4 \frac{1}{2}$ poll. longæ, $\frac{2}{2}$ poll. latæ.

[^7]T. mandshurica, Tupir. et Mu.eim. l. c. 586.

Hab. China, Prov, Hapeh, Fang District, Dr. A. Menm ( 74.2 B )
T. Oliveri, S:yysulnowicz (sp. nov.) ; arbor foliis cordiformibus basi inæerualibus vel truncatis apice breviter acuminatis r . obtusinsculis, margine inæquali-serratis, serraturis breve calloso-apiculatis, supra glabris subtus allo-tomentosis, coriaceis, petiolis glabris, bracteis pedunculo ad basin adnatis apice rotundat is basi angrastatis, tenuiter albo-tomentosis pedunculo xquilongis, nuce crasse lignosa ellipsoidea apicnlata, leviter tuberculata dense cano-tomentosa.

Hab. China, Prov. Szechwan, District of North Washan, Dr. A. Henry (7089).

Arbor 15-pedalis. Folia 2 21 poll. longa, 132 poll. lata; petiolus $\frac{2}{3}-1 \frac{1}{4}$ poll. longus. Bructece $2 \frac{1}{2}-3$ poil. longre, $4-b^{2}$ lin. latze. Diti $4-5$ lin. longa.-I InN. Szyszy lowicz.


## Plate 1928.

## TAPISCIA SINENSIS, Oliv.

## Sapindacef, Sub-order Staphylee?

Tapiscia, Oliv. (yen. nov.). Flores parvi regulares hermaphroditi panicalati sessiles. C'alya tabuloso-campanulatus brsviter late et ohtuse 5 -lobatus. Petalio 5 calycem paulo superantia v. subequantia, oblanceglata obtusa. Discus o. Stumina 5 cum petalis alterna libera exserta, filamenta anguste lineari-subulata; anthere oblongo-ellipsoideæ dorsifixæ longitudinaliter dehiscentes. Ocarium nniloculare crassiusculum subglobosum; stylus longinsculus, apice stigmatifero minute 2-3-denticulato; ovulam solitarium e bari adscendens subsessile anatropum. Fructus suhglobosus v. ellipsoideus siccus indehiscens, pericarpio crustaceo. Semen lateraliter alfixum, hilo latiusculo excavato, albuminosum, albumine corneo copinso; embr; 0 obliquus albamine dimidio brevior; cotyledones radicula requilongro plane ovatie $\nabla$. elliptice.-Arbor ut videtur, glabro. Folia ulterne impuripimnata $\tilde{j}-7$-filliolita, stipulutu, stipulis culucis; folliohn ocutoelliptima lusi corduta $v$. sublemrdata acututa a. Lieciter urmmimath serrulut., sublus glancescentic glaliru $v$. in axillis costarum subtus villusenlu, petiolulutu. Paniculx azillares petiolo srppius breviores, dicuricaltr, ramulis rillosulis; Uractere minutre angustoe.

## T. sinensis, Oliv. (sp. unica).

Hab. China, Prov. Szechwan, Dr. A. Menry (8990). $_{\text {. }}$
Frilia 8-15 poll. longa, petiolus subteres glaucescens; foliola is is pull. linnea, $1^{3}-2 \frac{1}{2}$ poll. lata; petiolulus (folinlu lut.) $\frac{1}{4} \frac{1}{2}$ poll. Imagus, (f. (trim.) $1 \frac{1}{4}-1 \frac{1}{2}$ poll. longus. Paniculce pedunculate 23 poll. lonsa atque late. Flores 1 lin. longi; stylus exsertus calyce denique duplo longior; panicuæ fructiferæ 3-5 poll. longe. Fiructus ellipsovidens $\nabla$. subglobosus $\frac{1}{4}$ poll. longus.

In general fucies our dried specimens of this remarkable tree so directly suggest the genus Pistuciu that I adopt an anagram of this familiar name for its generic designation. It is not without considerable hesitation that 1 leave it referred to the group of Staphylee. The omly alternative I can think of is to regard it as an anomalons memher of the Anacardiacee. It is mainly on the ground of the conpinus ahbunen of the sced, the presence of conspicuous stipules (as indi-
cated by their scars, for they must be early deciduons, and are waiting in our specimens, excepting in the winter bods), and the remarkable resemblance of tire leaves to those of Enscaphis and some other Staphylex, that I prefer to place it provisionally with the latter group, notwithstanding its alternate leaves and unilocular aniovulate ovary. -D. Oliver.

Fig. 1. Tro flowers. 2. Flower detanhed. 3. Longitudinal section of flawer. 4. Petal. 5. Stamen. 6. Fruit. 7. Vertical section of same, showing embryo. All enlarged.


## Plate 1929.

FRAXINUS PLATYPODA, Oliv.

## Oleacere. Tribe Fratinere.

F. platypoda, Oliv. (sp. nov.) ; folis 7-9-foliolatis, foliolis ovalibus lanceolatisve leviter acuminatis serrulatis subtus pallidioribus nervo medio prope basin pilosulis tomentellisve, lateralibus subsessilibus, petiolis basi abrupte dilatatis vaginis ovato- $\nabla$. cordato-rotundatis dorso pubescentibus, samaris ovali-oblongis acutiusculis mucronatis.

Hab. China, Prov. Hupeh, Fang District, Dr. A. Henry (6800).
Arbor 20-pedalis. Folia 6-9 poll. longa; foliola 2 $2 \frac{1}{2}-3 \frac{1}{2}$ poll. longa, $\frac{2}{3}-1 \frac{1}{6}$ poll. lata, inferiora minora; vagina petioli 3-5 lin. lata. Samara $\frac{13}{4}-2$ poll. longa, 4-5 lin. lata, basi calyce persistente lobato circumdata.

I do not know any other species of Fraxinus presenting the singular dilatation of the petiole characteristic of this species.-D. Oliver.
Fig. 1. Longitudinal section of base of fruit, showing seed.
2. Longitudinal section of seed. Enlarged.


[^8]Fraxinus retust, Champ: Na, Hermata

Plate 1930.
FRAXINUS RETUSA, Champ. var. Henryana.

## Oleaces. Tribe Fraxinef.

F. (Ornus) retusa, Champion in Hooker Kew Journ. Bot. iv. 330, var. Henryana, Oliv.; arbuscula 15-20-pedalis glaberrima, foliis 3-5foliolatis foliolis petiolulatis anguste ovalibus lanceolatisve acutis $\nabla$. acuminatis serrulatis, paniculis amplis multifloris, floribas albidis graciliter pedicellatis, petalis lineari-oblongis obtusis.

Hab. China, Prov. Szechwan, District of South Washan, 'occurring only on precipitous edges of cliffs,' Dr. A. Henry (5493).

Folia plerumque 3-foliolata, gracile petiolata; foliola in ramulis floriferis tenuiter coriaceis, f. terminale $2 \frac{1}{2}-4$ poll. longum, $\frac{1}{2}-\frac{3}{4}$ poll. latum ; petiolulus $\frac{1}{3} \frac{3}{4}$ poll. longus. F'lores $\frac{1}{4}$ poll. diam.

This description is from Dr. Henry's Szechwan specimens. The Hongkong specimens (Col. Champion's type) have considerably broader leaflets; those sent by Mr. Fortune from Amoy are intermediate.

The fruit in the Hongkong plant is $\frac{3}{4}-1 \mathrm{in}$. long, and distinctly emarginate at apex. I have not seen the fruit of the Szechwan plant. -D. Olifer.
Fig. 1. Flower. 2. Vertical section of calyx. Enlarged.
(An

## Plate 1931.

## SYCOPSIS SINENSIS, Olir.

## Hamamelidef.

S sinensis, Oliv. (sp. nov.) ; arbuscula 15 -20-pedalis v. frutescens, foliis coriaceis petiolatis lanceolatis $v$. elliptico-lanceolatis acuminatis basi cuneatis v. plus minus rotundatis apicem versus sæpius denticulatis glabris $\nabla$. subtus pilis minutis stellatis parce conspersis, glomerulis fl. of 6-12-floris breviter pedanculatis fructiferis sæpe recurvis, calycis tubo irregulariter fisso, ovario tomentoso cum setis rigidis erectis dense obsito, pericarpio loculicide bipartito, seminibus lævibus pallide brunneis sub-plano-convexis.

Hab. China, Prov. Hapeh, Districts of Chienshih, No. Tunghu, and Changlo; Prov. Szechwan, District No. Washan, Dr. A. Henry (6019, 7574, and B. 7825).

Folia $2 \frac{1}{2}-3\left(-4 \frac{3}{4}\right)$ poll. longa, $1-1 \frac{1}{2}$ poll. lata, petiolus $\frac{1}{3}-\frac{1}{2}$ poll. longus. Calyx extus dense stellato-tomentosus, lobis intus coloratis recurvis, tubo deinde irregulariter fisso. Semina $\frac{1}{4}$ poll. longa.

Prior to the receipt of these specimens from Dr. Henry, our only examples of the genus were those collected by Mr. Griffith in Khasia, which I described thirty years ago in the 'Trans. Linn. Soc.' xxiii. p. 83, under the name of Sycopsis Grifithiana. The flowers, as in the Khasia plant, appear to be truly unisexual ; the male flowers in the axils of closely imbricating coriaceous squamæ, which, as in our specimens, while still unexpanded, occur as rounded heads the size of a pea, shortly pedunculate and often recarved more or less in the axils of the upper leaves. The ovary differs from that of the Indian species in the presence of copious rigid setæ in addition to the short, close tomentum. The endocarp is crustaceous, splitting loculicidally, conformably with the thinner setose outer layer of the pericarp.-D. Oliver.

Fig. 1. Bract and male flower (hud). 2. Rudimentary perianth-segment. 3. Anthers. 4. Rudiment of pistil. 5. Pistillate flower (far advanced). 6. Vertical section of same. 7. Sted. 8. Longitulinal sertion of same. Faxeppt 7, menlarged.


## Plate 1932.

## STREPTOPUS PANICULATUS, Baker.

## Liliacele. Tribe Polygonatef.

S. paniculatus, Buker (sp. nov.) ; rhizomate brevi, fuliis oblongis acutis membranaceis, floribus viridulis in paniculam amplam laxam ramis simplicibus gracilibus patentibus dispositis, pedicellis apice articulatis flore æquilongis vel longioribus, bracteis lanceolatis minutis, perianthii segmentis lanceolatis acuminatis supra basin patulis, filamentis brevibus, antheris subglobosis.

Hab. China, in the provinces of Hupeh and Szechwan, in bamboo woods, Henry (5723).

Folia 6-8 poll. longa venis primariis circiter 7. Panicula semipedalis vel pedalis. Perianthium $1 \frac{1}{2}-2$ lin. longum. Bucca parva globosa.
I)iffers from all the species of this genus which are already known by its terminal panicled inflorescence.-J. G. Baker.
Fiy. 1. Flower. 2. Stamen, front and back view. 3. Pistil. 4. Transverse section of ovary. 5. Fruit. Enlarycd.


MS del et ith
Cephalotaxus Griffithii Zhf

Plate 1933.

## CEPHALOTAXUS GRIFFITHII, Hook: fil.

## Coniferer. Tribe Taxodief.

C. Griffithii, Hoor. f., Flora of Brit. India, v. 647; arbuscula foliis rigidis linearibus v . anguste oblongo-linearibus sepius leviter falcatis apice cuspidatis basi truncatis subcordatisve subsessilibus, subtus (fol. junioribus) atrinque latiuscule pallide lineatis, amentis masculis globosis circ. 6 -floris, squamis rotundatis concavis basi coneatim angustatis, antheris subsessilibus $3-(2-4-)$ locellatis, capitulis fœemineis 5 -7-floris breviter pedunculatis, seminibus ellipsoideis acutatis, lævibus, testa bilamellata crustacea.

Hab. China, Prov. Szechwan, Mt. Omei, 3,500 ft., Rer. E. Faber; Prov. Hupeh, India, Upper Assam, Griffith; Munnipore, Dr. Watt.

Folia in ramulis floriferis 9-13 lin. longa, basi $\frac{1}{6}$ poll. lata, disticha patentia. Semen 10-12 lin. longnm, 6-8 lin. latum.

The figure and description are taken solely from the Chinese specimens, which agree with those gathered by Mr. Griffith, excepting in their shorter more closely distichous leaves. They have the same broad stomatigerous longitudinal band on either side of the midrib, silvery white in the younger leaves.-D. Oliver.

Fig. 1. Portion of leaf, underside. 2. Male inflorescence. 3. Male flower. 4. Anther, front and back. Enlarged.


SCHIZOPHRAGMA INTEGRIFOLIA, Oliv.

## Saxifragacer. Tribe Hydrangee.

S. integrifolia, Oliv. (sp. nov.) ; foliis tenuiter coriaceis ovato-ellipticis $\nabla$. late ellipticis apice acutiusculis $v$. breviter acuminatis integerrimis supra glabris subtus præcipue in nervis pilosulis, floribus exterioribus radiantibus longe pedicellatis calyce petaloideo ovato- vel oblongolanceolato instructis.

Hab. China, Szechwan, Mt. Omei, near the summit, Rev. E. $_{\text {A }}$ Faber; Dr. Henry (8951).

Folia 4-7 poll. longa, $2 \frac{1}{2}-5$ poll. lata; petiolus $1-2 \frac{1}{2}$ poll. longus. Calyx petaloideus (in fl. radiant. abortivis) $1 \frac{1}{2}-2$ poll. longus, $\frac{1}{2}-1$ poll. latus.

Although I have not seen a specimen, I think the Schizophragma collected by Father David at Monpine, in Eastern Tibet, and which M. Franchet (Plant. David. 2me partie, p. 44) regards as a variety of S. hydrangeoides, S. \& Z., must be the same with the plant here figured.

We have a good series of Japanese specimens of S. hydrangecides, but on renewed comparison with these I think the continental plant may well rank as specifically distinct. The much more coriaceous leaves, not cordate-based, and the narrower petaloid calyx-limb of the abortive ray-florets, which florets are represented by a much more conspicuous rudiment in S. integrifolia, seem to me to distinguish it well from the Japanese form.-D. Oliver.

[^9]

Calathodes palmata, Hk.f.\&T

## Plate 1935.

## CALATHODES PALMATA, Hook. $f . \&$ Thom.

## Ranunculacee. Tribe Helleboree.

C. palmata, Hook $f$. \& Thoms., Flora Intica, i. 41 ; herba glabra erecta 2 -3-pedalis, simplex $\nabla$. parce ramosa, radice fibrosa, foliis longe petiolatis palmatim tripartitis segmentis profunde trifidis vel lateralibus bipartitis lobis inæqualiter incisis dentibus acutis v. obtusis mucronulatisque, floribus terminalibus solitariis, folliculis 6-10 stipitatis, stipitibus coalitis, apice stylo persistente oblique apiculatis tenuiter coriaceis, oblique transversim venosis, carina medio appendiculatis.

Hab. Himalaya, Sikkim, 10,000 ft. alt., Sir J. Hooker; China, Prov. Hupeh, Hsingshan District, 9,000 ft. alt., Dr. A. Henry (6977).

Folia $2 \frac{1}{2}-4$ poll. longa atque lata ; f. radicalia petiolis 4-6 poll. longis, f. caulina pet. brevioribus basi membranaceo-dilatatis amplexicaulibas. Flores (aurei) $\frac{3}{4}-1 \frac{1}{2}$ poll. diam. Follicula radiatim divergentia $1 \frac{1}{3}$ poll. longa, stipitibus coalitis $1 \frac{1}{2}-3$ lin. longis, appendicibus dorsalibus oblique lanceolato-deltoideis patentibas 1-1步 lin. longis. Semina oblongo-obovoidea lineam longa, testa tenuiter coriacea nigra nitentia.

I find the embryo straight and about $\frac{1}{4}-\frac{1}{6}$ the length of the fleshy albumen in one of the two seeds observed in Dr. Henry's fruiting specimens. Our sparing material hardly permits of analysis sufficient to explain the nature of the singular spur-like projection on the back of the follicles; it appears as an obtuse gibbosity at the base of the ovary in the flowering stage.-D. Oliver.

Fig. 1. Stamen. 2. Carpel, base of same laid open with gibbous ippendix. Enlarged.


## Plate 1936.

FAGUS SYLVATICA, L., var. longipes.

## Cupuliferes. Tribe Quercinete.

F. sylvatica, L., D.C. Prodr. XVI. pt. ii. 118. var. longipes, Oliv.; arbor $20-50$-pedalis, foliis longiuscule petiolatis ovato-ellipticis acutatis $v$. breviter acuminatis basi late cuneatis rotundatisve subtus tenuiter vel obsolete sericeis supra medium serrulato-denticalatis, utrinque $9-10$-costatis, amentis fructiferis longe pedunculatis (pedunculis involucro $1 \frac{1}{2}-3$-plo longioribas), valvis involucri fructus sericeos superantibus, setis dorsalibus patentibus recurvisve rigidiusculis tomentellis.

Hab. China, Prov. Hupeh, South Patung, Dr. A. Henry (5334, 7444 ) ; var. bracteolis involucri exterioribus angaste spatulatim dilatatis, Fang Distriet (6797).
Folia $2 \frac{1}{2}-4$ poll. longa, $1 \frac{1}{2}-2 \frac{1}{4}$ poll. lata; petiolus $\frac{1}{2}-1$ poll. longus. Amenta of graciliter pedunculata; floribus pedicellatis perianthio longe sericeo-piloso; antheræ glabræ. Involucrum fractiferum $\frac{2}{3}-1$ poll. longam ; pedunculus apice inerassatus 1-2 poll. longus adscendens.
F. japonica, Maxim., which resembles our plant in its long slender peduncles of the fruit, has a remarkably small involucre, and the valves at length shorter than the enclosed fruits.-D. Ourver.

Fig. 1. Male flower. 2. Involucre of $f$ flower. 3. \& flower. 4, Fruit. 5. Seed. 1-3 enlarged.

Pl 1937.


## Plate 1937.

## DICENTRA MACRANTHA, Dliv.

## Fumariacee.

D. macrantha, Olie. (sp. nov.) ; herba caulescens diffusa glaherrima, foliis amplis triternatim pinnatipartitis segmentis tenuiter membranaceis sessilibus vel breviter ovato- vel oblongo-lanceolatis petiolulatis, acutiusculis, terminalibus basi cuneatim angustatis lateralibns sxpius basi plus minus rotundatis marginibus atrinque 4-8- (3-10.) late crenato-serratis dentibus obtusis oblique mucronulatis, subtus glaucescentibus, racemis pancifloris folio oppositis extra-axillaribus v. terminialibus folio multo brevioribus pendulis, sepalis angaste lanceolatis corolla 4 -plo brevioribus, petalis exterioribus basi leviter gibbosis haud calcaratis cum petalis interioribus lanceolatis inferne coalitis, capsula elongata ovali-oblonga stylo persistente coronata, seminibus sublævibus nigris nitidis hilo cristatis.
Hab. China, Prov. Hupeh, District Chienshih, 'in a dark woord, only seen in one place,' Dr. A. Henry (5846).
Folia inferiora caulina petiolata $1-1 \frac{1}{2}$ ped. longa atque lata; semmentis ultimis sæpe $3-4 \frac{1}{2}$ poll. longis c. $1 \frac{2}{2}$ poll. latis. Flores $1 \frac{1}{2}-2$ poll. longi, petalis (in sicco) membranaceis marcescentibus capsulam superantibus.

Our only specimens of this interesting ally of the familiar I). sperflubilis are unfortunately past the flowering stage, but the sepals and petals persist with but little change, sheathing the capsule uutil its maturity and dehiscence. The petals cohere about one-third of their length, the slightly dilated free lamina especially of the onter petals being conspicuously pinnately veined. The outer petals are but slightly gibbons at base.-D. Oliver.
Fig. 1. Sepal. 2. Corolla, laid open. 3. Phalange of stamens. 4. Pistil. 5. Apex of style. 6. Sued and its crest. 7. Section of same. 8. Embryo. 3 and 5-8 enlarged.




## Plate 1938.

## CYCLEA RACEMOSA, Oliv.

## Menispermacefs. Tribe Cissampelidee.

C. racemosa, Oliv. (sp. nov.) ; ramis costatis primum pilosis deinde glabratis, foliis ovato-detoideis peltatis, apice tenuiter et breviter acuminatis, basi truncatis, supra parce pilosulis sabtus pallidioribus procipue in nervis pilosis, floribus in racemis angustis axillaribus sepius solitariis geminisve basi breviter ramosis plas minas pilosis, bracteis parvis lanceolatis cymbiformibus pedicello brevioribus; floribus of pedicello longioribus glabris, calyce breviter 3-4-fido lobis uvatis obtusis, petalis 4 obovatis rotundatisve marginibus recurvis columna staminum 3-plo brevioribus; fl. 오 ovario setoso-hispido, fruetibus parce setalosis, (sicco) radiatim rugulosis.

Hab. China, Prov. Hupeh and Szechwan, Dr. A. Herry (2030, $36 \cdot 28,3925,4113,5539$, and $55: 39$ A. B.).

Folia $22_{2}^{2}-3$ poll. longa, 2-2 $2_{5}^{4}$ poll lata; petiolus pilosus lamina brevior. Jacemi fl. © $1-2$ poll. longi; fl. \& $1 \frac{1}{2}-3$ poll. longi. Fl. ठ , calyx $\frac{1}{8}-\frac{1}{6}$ poll. longus.

In our specimens the sepals of the female flowers are fallen. In the narrow racemes this species resembles C. deltuidea, Miers, a glathrous species of Southern China.-D. Oliver.

Fig. 1. Male flower with 4 -fid calyx. 2. Same, calyx removel. 3. Petal. 4. Anthers. 5. Female fluwers. 6. Fruit. 7. Seetion of same. 8. Embryo. Enlarged.


## Plate 1939.

## ALOE KNIPHOFIOIDES, Baker.

## Liliacef. Tribe Aloinef.

A. kniphofioides, Buker (sp.nov.) ; acaulis, foliis linearibus rigidulis ascendentibus margine serrulatis, floribas in racemum laxam simplicem elongatam dispositis, bracteis ovatis acuminatis, pedicellis ascendentibas bracteis subæquilongis, perianthio pallide rubello tabo cylindrico, segmentis lineari-oblongis tubo triplo brevioribus, genitalibus inclusis.

Hab. Pondoland, in damp grassy places on Mount Enkansweni, near the high road between the river Umtamerina and Emagusheni, alt. $4,000 \mathrm{ft} .$, Dec. 1885, Tysun (2829).

Folia pedalia vel sesquipedalia, $1 \frac{1}{2}-2$ lin. lata. Racemus pedalis. Perianthium 15-18 lin. longum.

This is a most distinct new species of Alve, without any near alliance with anything already known.-J. G. Baker.

Fig. 1. Portion of leaf showing recurved marginal teeth. 2. Longitudinal section of flowers. 3. Stamen, front and back. 4. Transverse suction of ovary. Enlaryed.

$\therefore$ If cot on ! $a^{4}$ t
Dermatobotrys Saundersii

## Plate 1940.

## DERILATOBOTRYS SAUNDERSII, BuTus.

## Scrophulariaces. Tribe Chelonee?

Dermatobotrys, Bolus (nor. gen.). Culyp herbaceus ad basin fere 5-partitus, lobis acuminatis valvatis, fruetifer vix auctus. Curullas tubulusa elongata, sursum gradatim ampliata, fauce non constricto: lobi s, parri áquales orato-rotundati obtusi late imbricati (lobo postien) ut videtur exterione), per anthesin erecto-patentes. Stamina 5, equalia summo tubo affixa inclusa, filamentis filiformibus brevissimis; ant herae erectæ ellipticæ inappendiculatæ, loculis parallelis in longituditem dehiscentibns. Liscus pulvinatus parnm conspieuns. Orarium 2 -loculare; stylus filiformis, corollae tuho arualongus, st gmate capitellato ; orula numerosa. İncou (ut videtur) parum suceosa oroidea acuta, pericappio crasso sobeoriaceo, indehiscens. Somma numerna subeompressa, ohlongo-ellipsoidea (in cavitatibus placentæ spongiosx immersa). testa leviter scrobiculata: embry in albumine cornen restus vel leviter incurvus, cotyledomibus semiteretibas radicula param lationihus, aquilatisve.-Frutex surmentusus equplytious? ylaber. Folia pretiolutu,
 temest, sulnemmasa. Flores ad nomlos axillares, satius termi, bieviter perlic-linti, putentes, busi tructea linerri montiti. Calycis luli linemriLemcenluti. Corolla intus busion cersus pilis trevibus ulbis suffilta.

Dermatobotrys Saundersii, Pulus (sp. unicif). Ramuli ultimi : 4 millim. crassi. Forlim majora (cum petiolis 1-5 cm. longis) $13-15$ cmb. lomga, $5-(i-9 \mathrm{~cm}$. lata; calycis lobi $3-4$ millim. longi; corolla 4 cm. longa, lobis :3-1 millim. longis; bacca matura 2 cm . longa.

Hab. Etshowe, Zululand: flor. July Aug., C. Smuders, E:q ; Natal, Gerrurd (1417), J. M. Woorl.

Mr. Saunders deseribes this plant as a parasite, killing the trees inn which it lives, but it is dombtless epiphytic as M1r. Wood states it to he, with a tendency to fix itself on trees already dead. I am indeloed for living specimens and the inspection of a characteristic drawing to Mrs. K. Sannlers of Natal, who has already sent so many interesting novelties from that region.

The plant had previonsly, however, been found by Mr. J. Medley Wood, the energetic curator of the Natal Botanic Cardens, at that gentleman has since informed me; atd though his specimen-
were not in flower he was at once struck by its peculiar appearance, and only awaited another opportunity to complete them. (The late Mr. Gerrard was apparently the first to discover the plant, and his specimens from Natai, distributed under No 1417, in fruit only, have been in the Kew Herbarium some eighteen years.)-H. Bolus.
(With regard to the affinity of this plant it is due to my friend Mr. Bolus to say that he referred it with little hesitation to Solanacex. I think, however, he cannot have had the adrantage of examining welldeveloped seeds, as he described the embrgo as much incurred. With an ample supply preserved in glycerine, I mast say I find it either straight or very nearly so, about $\frac{2}{3}$ or $\frac{3}{4}$ the length of the seed. Notwithstanding the complete development of the fifth stamen, which is represented by a more or less conspicuous staminode in the genera of Cheloner which I imagine it most nearly to approach, I think the bilabiate æstivation, and the straight embryo, with apparently a more or less quadrangular stem and decussate leaves, clearly indicate Scrophulariaceous affinity.-D. Oliver.)

Fig. 1. Astivation of corolla-lohes. 2. Bud. 3. Calyx and pistil. 4. Corolla, laid open. 5. Orary. 6. Transyerse section of orary. 7. Seed. 8. Longitudinal section of same, with embryo. Enlarged.
(A) Pl 1941 ,

## Plate 1941.

## VACCINIUM EXUL, Bolus.

## Vacciniacere. Tribe Euvaccinete.

V. Exul, Bulus (un. sp.) ; fruticosus, erectus, ramosus, bipedalis vel ultra; ramis foliosis, cinereis tenuiter pubescentibus; foliis breve petiolatis coriaceis lanceolatis acutis vel acuminatis, serrulatis serraturis mucronulis minutis articulatis auctis, penniveniis; racemis axillaribus patentibus, folio brevioribus; bracteis late ovatis ciliatis, bracteolis lanceolato-linearibus acuminatis; pedicellis sub ovario articulatis; calyce glabro obconico, lobis late ovatis acuminatis; corolla oblongo-urceolata fauce parum angustata, lobis brevibus obtusinsculis patentibus; staminibus parum exsertis, filamentis linearibus antice pilosis anthera brevioribus, antheris sursum tubuloso-productis scabris dorso exappendiculatis, poris minimis ovalibus terminalibus; stylo recto incluso apice parum ampliato, stigmate simplici; ovario infero apice pulvinato glabro, 5 -loculari, loculis pluri-ovulatis.

Hab. In saxosis montium Drakensbergen prope Devil's Kantoor (Reipublicæ Transvaalensis) alt. circa 1,700 metr., fl. Sept. legi (No. 7616 in herb. Kewensi, \&c.).

Folia 4-5 cm. longa, $1 \cdot 3-1 \cdot 8 \mathrm{~cm}$. lata, internodiis multo longiora. Rucemi 2 cm . longi; pedicelli $5-7$ millim. longi. Corolla 5 mill. longa.

Mr. N. E. Brown, of Kew, who looked over some of my plants collected during a journey from Delagoa Bay to the Transvaal Republic, drew my attention to this as a very interesting discovery. No Tuccinium has hitherto been found in South Africa, nor indeed any so far south (the station above named lies about $25^{\circ} 30^{\prime} \mathrm{S}$. Lat.) in any part of the world. One species was discovered by Forbes at Mozambique, which would be about $15^{\circ} \mathrm{S}$.; and several are described from the Island of Madagascar. It forms another link in the chain of evidence that the mountain range of Eastern Africa has been the great highway of interchange, as well for northern forms to travel southward as for South African forms to migrate northward. We might have expected our plant to be more like Forbes's; it differs, however, considerably both in the form of the corolla and the stamens, and in these respects is very like V. javanicum, Hook. Icon. Plient. t. 740 . - H. Bolus.

Fig. 1. Flowers and bracts. 2. Same, corolla remored. 3. Stamen, front and back. Enlarged.

## Plate 1942.

## TYSONIA AFRICANA, Bolus.

## Boraginete. Tribe Boragre.

Tysonia, Bolus (gen. rm.). Calyx sub-5-partitus, segmentis lanceolatis, fractifer persisteus parum auctus. (Yorollu subrotata, fauce non ampliata, squamis erectis exsertis, quadrato oblongis, retusis, lobi 5 subpatentes tubo æyuilongi, ima basi squamis $\nabla$. callis 10 instructa. Staminx 5, tubo affixa, exserta, filamenta corollæ lobis æquilonga filiformia, basi valde ampliata complanata; antheræ oblonge obtusæ versatiles. Octrium gynobasi craisa semiglobosa impositum, apice indistincte 4-lobum, 4-loculare; stylus terminalis indivisus filiformis, staminibus subrequilongus, stigmate capitellato ; ovola angulo interiori affixa, horizontalia. Nucule 1 3, subdisciformes, quarum una (an demam plures?) major, margine in alam latam cartilagineam ruculosam crenatam gynobasi multo latiorem producta, secanda tertiaque minores margine angustiori (an demum producto?) totæ in areolis depressis gynobasis pyramidalis insidentes. Semen sub apice nuculre affixum, exalbaminosum, erectum, ovatum, compressum, testa renis curvis percursa; cotyledones cuneato-obovatæ plano-convexæ, radicula brevi multo majores. - Herba perennis (?) valida, sculro-punciata. Canlis erectus simplex. Folia inferiora ampla, petiolatu, ovata arnta, superiora minora, lancenluta, acuminata, sessilia, omnia basi anynstatus subitus prominenter nerrosa. Inflorescentia terminalis pro urdine ampla multiAlura e cymis scorpioideis soppe dichotomis parce bracteatis in panirulum disposita; flores longe pedicellati cum pedicellis ebracteati. Calscis lobi obtusi apicem versus ciliati. Corollæ tubus renis 20 parullelis (1rnatus, lobi reticulato-vennsi (colure, ex inventore, gile"), gilbee pmblescentes, squamre nectariferce lazales comubus iluvbus dicergentibus arictoe.

## Tysonia africana, Bolus (sp. unicu)

Hab. Juxta rivulos cirea Clydesdale, Griqualand Orientalis (Kaffrariæ provincia), alt. circ. 3,000 ped., flor. Dec., legit $W^{-}$. Ty:on (2117).

Triperlalis vel altra. Folium inferum (cum petiolo 14 centim. longo) 38 cm . longum, 15 cm . latum, canlina $20-10 \mathrm{~cm}$. longa. Puriculd $3(1) \mathrm{cm}$. longa, $15 \mathrm{~F}-25 \mathrm{~cm}$. lata; pedicelli suh anthesi 2.25 cm .,
 major cum ala (an matura?) 1.1 cm . louga, 1.5 cm . lata.

Aceording to Mr. Tyson this plant grew abundantly where he found it, and also on the banks of several other rivulets in the neighbourhond.

Allied to Currinia and Solenanthus, and more nearly to Rimdera-all of which have hitherto been found only in Europe and Asia. From the last (of which I have here no access to figures or specimens) it differs chiefly, according to description, by the appendages of the corolla springing from the top of the tube and exserted, by the presence of distinct scales at the base of the tube, by its long filaments and short oblong anthers, and by the rarely more than one winged nucule. Of eight fruiting calyces seem none had more than one such nucule. Yet two of the remaining ones seemed to be fertile, and their margin might become developed into a wing. The habit, leaves, and shape of the seed strikingly resemble those of Mynosotidium multile, IInok. But. May. t. 5137, but there are great differences in the flower, fruit, and shape of the cotyledons.

I am glad of the opportunity to dedicate this genus to Mr. W. Tyson, whose diligent collections in the little known districts of Upper Kaffraria have added much to our knowledge of the botany of that region.-H. Bolus.
Fig. 1. Corolla laid open. 2. Pistil. 3. Fruit, with undevelnped carpels on near side. 4. Same, with ripe carpel. 5. Fruit-carpel. 6. Seed 7. Embryo. Enluryed.


MS del et, ith

## Plate 1943.

## POPULUS LASIOCARPA, Oliv.

## Salicinee.

P. lasiocarpa, Oliv. (sp. nov.) ; arbor, ramulis crassiusculis hornotinis gemmisque albido-tomentosis, foliis amplis ovato-cordiformibus acutis basi profunde cordatis sinu angusto, e basi ad apicem serratis serraturis incurvis calloso-glandulosis obtusis, supra glabris subtus costa nervisque secundariis parce tomentellis glabratisve, longiuscule petiolatis, stipulis anguste linearibus caducis, amentis fructiferis elongatis capsulis dissitis dense albido-lanuginosis sessilibus v. subsessilibus, bracteis scariosis rotundatis apiculatis, cupula fructifera glabra irregulariter lobata basin capsulæ cingente.

Hab. China, Prov. Hupeh, District of Chienshih, Dr. A. Henry (5423 A.).

Folia 6-11 poll. longa, 4 $\frac{1}{2}-7 \frac{1}{2}$ poll. lata; petiolus $2-3 \frac{1}{2}$ poll. longus teretiusculus deinde glabratus apice lanuginosus. Amenta fructifera 5-8 poll. longa, rhachi parce albido-tomentosa. Capsulce ovoideæ v. oblongo-ovoideæ 2-3-valves.

Dr. Henry says this is a 'good timber tree,' common in mountains from 4,000 to $6,000 \mathrm{ft}$. Under unmber 5423 he sends male catkins, found under a tree at that time of year (May 3) leafless, from south Patung. These may well belong to the same species (though perhaps not), and a catkin is added to our plate. These are $3-4 \mathrm{in}$. in length, glabrate with but a few sparse silky hairs, with finely laciniate caducous bracts narrowed into their stipes, the cupale with rotundate or deltuid lobes, and 30-40 stamens.-D. Oliver.

Fig. 1. Bract of flower. 2. ठ flowor. 3. Stamen. 4. Bract of of fluwer. 5. Fruit. Ealarged.

M. S. delet lith.

Oreocharis Henryana, Oliv.

## Plate 1944.

## OREOCHARIS HENRYANA, Oliv.

## Gesneraceef. Tribe Cyrtandrete.

O. (Euoreocharis) Henryana, Oliv. (sp. nov.) ; herba acaulis, foliis radicalibus lamina carnosula ovato- vel oblongo-lanceolata petiolo æquilonga obtusiuscula deltoideo- $\mathrm{\nabla}$. obtuse dentata, basi obtusa v . subcordata, supra setaceo-pilosula, subtus dense cinnamomeo-lanuginosa, seapis 6 -8-floris pilis purpureis septatis parce villosulis, pedicellis flore $2-4$-plo longioribus, calyce 5 -partito segmentis linearisubulatis obtusiusculis. corolla campanulata calyce 2 -plo lorigiore breviter bilabiata, lobis 2 posticis rotundatis, 3 anticis quadratooblongis obtusis integris v . leviter retusis, staminibus corolla subbrevioribus, antheris liberis, locellis apice subconfluentibus, ovario glabro basi disco carnosulo subintegro cincto, capsula anguste lineari.

Hab. China, Prov. Szechwan, Dr. A. Herry's Collector (No. 8999).
Folia lamina 2-23 poll. longa, $\frac{2}{3}-\frac{5}{6}$ poll. lata; petiolus crassus dense lannginosus $1 \frac{1}{2}-2 \frac{1}{2}$ poll. longus. Scapi folia superantes $4-7$ poll. longi. Flores $\frac{1}{3} \frac{1}{2}$ poll. longi. Capsula (vix matura) $1-1 \frac{1}{4}$ poll. longa.

This plant was forwarded from Central China after Dr. Henry left Ichang, so that we have no precise information as to its habitat. The flowers seem to have been rather darkly coloured. Its nearest ally known to me is $O$. Benthami, C. B. Clarke.-D. Oliver.

Fig. 1. Calyx. 2. Corolla laid open. 3. Stamen. 4. Ovary and sheathing disk. 5. Transverse section of ovary. 6. Young fruit. 1-5 enlaryed.

M.S.del.et Iith.

Clematis formosana, 0. Kuntze

## Plate 1945.

## CLEMATIS FORMOSANA, O. Kuntze.

## Ranunculaces. Tribe Clematidet.

C. formosana, O. Kuntze (sp. nov.) ; frutex scandens, ramis tenuibus basi perulatis, foliis trifoliolatis membranaceis foliolis vix pollicaribus angustis oblongo-linearibus breviter apiculatis basi plerumque brevilobis parce pilosulis, paniculis paucifloris foliatis, sepalis albis patulis obovatis extus glabrinsculis intus pubescentibus, marginibus hand alatis, staminibus biserialibus haud numerosis, antheris brevibus ellipsoideis muticis, filamentis carnosulis glabris haud torulosis nigrescentibus, ovariis paucis.

Hab. Taiwan, Formosa, G. M. H. Playfair, Esq. (No. 307).
Ramuli parce pilosuli. Foliola lateralia $\frac{1}{3}-\frac{3}{4}$ poll. longa, intermedia $\frac{3}{4}-1$ poll. longa; petiolus $\frac{3}{4}-1$ poll. longus. ${ }^{4}$ Flores $\frac{1}{2}-\frac{2}{3}$ poll. diam.Dr. O. Kontze.
Fig. 1. Sepal. 2. Stamen. 3. Carpel. 4. Longitudinal section of ovary. Enlarged.

M.S. dei et lith

Apios macrantha, Oliv

## Plate 1946.

## APIOS MACRANTHA, Oliv.

## Lleguminoser. Tribe Phasbolee.

A. macrantha, Oliv. (sp. nov.); glabra v. sulglabra, ramis floriferis gracilibns, foliis 5 - - -foliolatis, foliolis ovato-lanceolatis leviter acuminatis apice longiuscnle costa producta apiculatis glabris haud triplinerviis, racemis folio longioribas dissitifloris pedunculatis, fiorious sepius geminis, calycis labio superiore integro late ovato-rotundato subito apiculato, labio inferiore lobis lateralibus oblique lanceolatis acuminatis, lobo centrali latiore ovato-rotundato cuspidato. corcella majuscula, vexillo calyce 6-plo longiore, ovario stipitato pubescente i-8-ovalato.

Hab. China, Prov. Szechwan, Dr. A. Henry's Collector (8984).
Folia ǒ-8 poll. longa, stipulæ subulatæ deciduæ; foliola 2- (v. terminalia 3-) pollicaria, $\frac{5}{3}-\frac{5}{6}$ poll. (v. term. $1 \frac{1}{6}$ poll.) lata ; petiolula hirtella 1-11 $\frac{1}{2}$ lin. longa. Racemi 7 - 10 poll. longi. Vexillum $\frac{3-5}{4}$ poll. longum atque latum. Carina elongata incurva obtusiuscula.

This plant has much of the general fucies of $A$. Fortunei, Maxim.. but besides the much larger flowers, the leaflets are never triplinerved. I have not seen the legume.-D. Oliver.
Fig. 1. Calys
2. Vexillum
3. Ala. 4. Carina.
5. Andrœecium.
6. Piatil.
7. Longitudinal section of ovary. $5-7$ enlurged.


## Plate 1947.

RUBUS MALIFOLIUS, Focke.
Rosaces. Tribe Rubee.
R. malifolius, Fucke (sp. nov.) ; lignosus prostratus v. scandens parce aculeolatus v . subinermis, foliis 1 -foliolatis petiolatis oblongo-ellipticis breviter acuminatis basi obtusis serratis glabris $\nabla$. subtus costa nervisque secundariis primum parce lanuginosis, venulis ultimis subparallelis numerosis obliquis, floribus in racemos terminales pauciftoros dispositis, bracteis scariosis lineari-oblongis deciduis ; alabastris oroideo-globosis dense tomentosis, petalis rotundatis breviter unguiculatis, toro longe hirsuto, orariis glabris.

Hab. China, Prov. Hupeh, District of Chienshih, Dr. A. Henry (5794).
[Caules lignosi repentes aculeis brevibus recurvis armati. Rami hornotini simplices pabescentes inermes foliosi vel steriles vel apice floriferi. Folia petiolata simplicia, inferiora ovalia, superiora oblonga acuminata, omnia obtuse (sed sæpe mucronato-) serrata supra glabra, sabtus in nervis puberula; folia inferiora 2 poll. longa, $1-1 \frac{1}{4}$ poll. lata; suprema $3 \frac{1}{2}-4$ poll. longa, $1 \frac{1}{3}-1 \frac{2}{3}$ poll. lata; longitudo petiolorum $\frac{1}{3} \frac{1}{2}$ poll. Flores pauci in racemum terminalem aphyllum inermem dispositi ; bracteæ lineares deciduæ. Pedunculi $\frac{1}{2}$ poll. longi. Flurum rtirem. $\frac{1}{3}$ poll. Sepulu ovata mucronata tomentosa. Petala lata externa hirta. Filumenta subulata puberala, antheræ hirsutissimæ. Torus hirsutissimus, germina cum stylis elongatis apice clavatis glabra.

The leaves of this species resemble very much those of $R$. pirifolius. Sm., which is, however, a taller and stouter plant bearing compound panicles of numerous small flowers.-Dr. W. O. Focke.]

Fig. 1. Petal. 2. Stamen front and back. 3. Carpel, showing elongate style. Enlarged.


## Plate 1948.

## RUBUS SIMPLEX, Foclee.

## Rosacem. Tribe Robee.

R. simplex, Focke (sp. nov.) ; herbaceus, canle erecto glabrato parce aculeolato, foliis trifoliolatis, foliolis ovatis ovato-lanceolatisve inæqualiter mucronato-serratis f. intermedio basi interdum leviter cordato, floribus paucis breviter pedanculatis in fasciculos 2-4-floros axillares v. quasi-terminales dispositis, petalis pubescentibus calyce vix longioribus, calycis lobis fructiferis erectiusculis ovato-deltoideis subalato-acuminatis.
$H_{A B}$. China, Prov. Hupeh (5982) and Prov. Szechwan (7333), Dr. A. Henry.
[Caules e radice repente lignosa fibrillis numerosis instructa herbacei simplices erecti 1 -2-pedales puberuli sparsim et minute aculeolati. Foiia circa septem longe petiolata ternata, petiolas $2 \frac{1}{2}-4$ poll. longus; stipulæ e basi petioli ortæ lineari-lanceolatæ; petiolus precipue in foliis inferioribus longus puberulus cum petiolulis et nervis intermediis paginæ foliolorum inferioris sparsim et minute aculeolatus. Foliola $2 \frac{1}{2}-3 \frac{1}{2}(-5)$ poll. longa, inequaliter sed nou profunde mucronato-serrata, super striguloso-pilosa, subtus in nervis solum puberula, lateralia breviter petiolulata intermedio vix minora ; intermedium longius petiolulatum ovatum, in foliis superioribus acuminatum ; petioluli intermedii $\frac{3}{4} 1$ poll. longi. Flores diam. $\frac{1}{2} \frac{2}{3}$ pwill. panci ( $2-4$ ) rarius singali, et in axillis foliorum superiorum et terminales, omnes breviter pedunculati, pedunculi $\frac{1}{4} \frac{1}{2}$ poll.; cupula sat ampla hypocrateriformis cum sepalis triangularibus subulato-acuminatis tomentoso-marginatis pubescens viridis aculeolata; petala pubescentia, sepalis, ut videtur, vix longiora; stamina numerosa ; post anthesin sepala eriguntur, in fructu maturo rubro eduli patentia sunt. I'uleme" rugulosum.

This species seems to propagate by creeping roots, for in the dried specimens nothing is to be seen like the annual leafy runners of I. suxatilis, L. R. simplex can only be compared with $R$. Churliei, Ifunk. f., and $R$. saxatilis, L., but it may be easily distinguished from either of these species.-Dr. W. O. Focke.]

[^10]

## Plate 1949.

## HETEROPSIS JENMANI, Oliv.

Aroidee. Tribe Pothoem (Engl.).
H. Jenmani, Oliv. (sp. nov.) ; foliis oblongo-oblanceolatis acuminatis costa subtus prominula, petiolo brevi canaliculato basi caulem plus minus amplectente, pedunculis axillaribus spatha brevioribus teretinus 3 5-annulatis, spatha convoluta ellipsoidea breviter abrupte rostrata, spadice breviter stipitato subclavato obtuso.

Hab. British Guiana, 'called Sarabanareo by the Indians,' G. S. Jenman (No. 5000).

Folia 6-8 poll. longa, 2-2 $\frac{1}{2}$ poll. lata; petiolus $3-5$ lin. longns. Spatha $2 \frac{1}{3}-2 \frac{3}{4}$ poll. longa, clausa $1 \frac{1}{2}-1 \frac{3}{4}$ poll. diam. Spadix 2 poll. longus, stipite $\frac{1}{4} \frac{1}{3}$ poll. longo.

Of this species Mr. Jenman writes:-' The plant grows up the stems of trees, from which it sends down long aerial roots, which, split into thin strips, form the most useful tying material the Indians employ. The construction of their houses is all done with it, used, as it has been from time immemorial by them, instead of nails or bnits. They also make whips, which they call "Macwarrie," and use in their games,-and many other things of it. Curiously, these whips have been adopted by Government for use in prisons in cases where flogging is awarded to juvenile offenders, and are called "Tamarind rods" in the judicial phraseology uniformly used when a sentence of the kind is given. This, no doubt, is a survival of a name which denoted at one time the real material employed.' The acrial root sent by Mr. Jenman is about the thickness of a swanquill, terete, with the typical polyarchal disposition of its rascenlar elements, as, for instance, are shown in the figures of similar roots given by A. F. W. Schimper in his very remarkable and capital paper ' Leber die Baa- und Lebensweise der Epiphyten Westindiens.'
II. ollongifolia, Kth., is the most nearly allied species to II. Jenmani that I have seen, but in this species the ellipsoidal spadix is only $\frac{2}{3}-\frac{1}{3}$ of an inch in length on a peduncle of about the same; the leaves also do not show the tendency to an oblanceolate contour so evidently as in $\boldsymbol{H}$. Jenmani.-D. Oliver.
Fig. 1. Flower, detached. 2. Stamen, front and back. 3. Vertieal section of orary. Enlarged.

M.S. del etith

## Plate 1950.

## EUCOMMIA ULMOIDES, Oliv.

## Genus anomalum, incerter stedis.

Eucommia, Oliv. (gen nov.). Flores ut videtur dioici: foominei achlamydei; (fl. masc. non vidi). Pistillum dimerum, syncarpicum. Fructus samaroideus, indehiscens, monospermus, samara periptera tenuiter coriacea stipitata ovali-oblonga basi angustata apice breviter bifida, divisuris facie interna dense papilloso-stigmatosis. Semen unicum sub apice loculi appensum anguste ovali-oblongum albuminosum ; testa membranacea, raphe dorsali ; embryo centralis rectus albumine æquilongus, radicula supera plus minus compressa, cotyledones planæ carnosæ lineari-oblongæ radicula longiores; funiculus brevissimus medio leviter incrassatus. - Arbor -0-30-pedalis. Folia $^{2}$ alterna exstipulata petiolata simplicia elliptica acuminata serrata supra glabrata subtus precipue in costa neriistue parce pilosula. Fractus in axillis bractearum solitarii, breviter pedicellati; bractece squameeformes ovato-rotundatee concavce caluce; samare stipes basi articulatus.

## E. ulmoides, Oliv. (sp. unica).

Hab. China, Prov. Hupeh : cultivated in the Districts of Changjang and Patung. 'I have never seen it wild, but I was informed it occurred wild in Fang and other Districts to the north,' Dr. A. Henry (Nos. 3182, 4683. 7936).

Fulia $6-7$ poll. longa, $2 \frac{1}{2}-3$ poll. lata, in ramulis fructiferis minora, $21-4$ poll. longa, $1 \frac{1}{2}-2$ poll. lata; petiolus $\frac{1}{2} 4$ poll. longus. Sumara $1 \frac{1}{4} 1 \frac{1}{2}$ poll. longa, $\frac{1}{3} \frac{1}{2}$ poll. lata.

In the absence of male-flowers-indleed, of flowers of any kind, for the only young ovaries which I have seen were dissected out of a small axillary perulate bud-I am unable to speak with any confidence as to the affinity of this remarkable tree. The fruit and general aspect of the specimens at once suggest Ulmacer, bnt there is no trace of perianth even in the winter-buds referred to, the leaves are destitute of stipules, and in the cell of the fruit, which survives and includes the solitary seed, there is always present a collateral, or nearly collateral, pendulons abortive second ovule. The tribe Phyllantheæ of Fuphorbiaceæ occurs to one as a probable affinity; but, until additional rnaterial has been received, speculation can hardly be profitable. VOL. X. PART II.

Meantime, as the tree is of considerable commercial importance, highly valued in Chinese materia medica, it has seemed desirable to call attention to it in 'Icones Plantarum.'

The most singular feature about the plant is the extraordinary abundance of an elastic gum in all the younger tissues-excepting perhaps the wood proper-in the bark (in the usual sense of the word), the leares and petioles, and pericarp; any of these snapped across, and the parts drawn asunder, exhibit the silvery sheen of imnumerable threads of this gram. The morphological relations and general histology of the cells which give rise to this substance, we hope to have the opportanity of describing from specimens in fluid or living, which, throneh Dr. Menry's kind offices, there is probability we may soon receive. It is better, therefore, to abstain from any discassion on this head, from inadequate data, in this place. 'The bark,' Dr. Henry, under No. 3182 , wrote, 'is a most valued medicine with the Chinese, selling at 4*. to cis. per lb.' Under No. 4683 (the cultivated Patung specimens), he says further: 'It is planted from the seeds (fruit). The tree is cut down in the third to sixth Chinese months and stripped of its bark. . . . During the last twenty years the production seems to be diminishing in Szechwan, from which it chiefly comes, and the price las increased four- or fivefold. . . . Whether the bark has any real medicinal properties I do not know.' Dr. H. says the tree is figured in the 'Chih-wu-ming,' xxxiii. 18, but I fail to identify it with the figure given under that citation in the copy of that work in the lihrary of the Kew Herbarium. Dr. Bretschneider, in a letter to the Director, referring to the bark of this tree, remarked that 'the tree from which it is derived is probably unknown to botanists. The Chinese name given to it is "Tu chang." In Japan this Chinese name is applied to Eumymus japonicus, Thb.' The following particulars, translated from the Chinese, given in Dr. F. P. Smith's 'Contributions towards the Materia Medica, \&e, of China,' p. 94, under Eumymus jupronicus, relate to the Chinese plant: '. . .The leaves of this tree are eaten when young. The fruit is astringent. The wood was formerly ased to make pattens. Tonic, invigorating, and arthritic properties are ascribed to the bark.

It is with the bark of Eucommia ulmoides that a roll of bark mounted on a sheet of Parameria glandulifera, Bth. and Hk. f , in the Kew Herbarium may be identified. This specimen was received from Monsieur I. Pierre, to whom the herbarium is indebted for so many valuable contributions from Cochin-China and Cambodia, and who agrees with me that it does not belong to the Parameria. (See 'Report on Royal Gardens, Kew, for 1881,' p. 47.) - D. Oliver.

Fig. 1. Upper portion of fruit. 2. Longitudinal section of fruit. 3. Transrerse section of seel through radicle. 4. Same through cotyledons. 5. Embryo.
En'arged.

## H00KER'S

## ICONES PLANTARUM;

 or,FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS, OF NEW AND RARE PLAANTS,

SFLECTED FROM THE

## KEW HERBARIUM.

## THIRD SERIES.

edited for the bentham trustees by
DANIEL OLIVER, F.R.S., F.L.S.
 HERRARIOM AND WBRABY, ROXAL BOTANTC GARDENS, ESW.

Qunder the Clutbority of the 宜irector of the Rogal 迢otanic Bardens. Neno.

## VOL. X.

OR VOL. XXII. OF THE ENTIRE WORK.

WILLIAMS ANI NORGATE.
14, henrietta streft, conent garden, londun; AND 20 , SOCTH FREDERICK STREET, EDINBURGH.
R. FRIEDLÄNDER UNU SOHN.

11, Carlistrasse. berlin.

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## Plate 1951.

RUBUS LASIOSTYLUS, Focle.

## Rosaces. Tribe Rubee.

R. lasiostylus, Fucke (sp. nov.) ; caulibus teretibus pruinosis glabris foliiferis aculeis subulatis sæpius gracilibus patentibus v. leviter uncinatis instructis, foliis 5-3-nato-pinnatis, foliolis grosse et inæqualiter duplicato-serratis supra glabriusculis subtus tomento adpresso albidis, terminale molto majore lato subcordato sæpe trilobato acuminato, stipulis oblique lanceolatis acutis submembranaceis, cymis quasi terminalibus breviter pedunculatis v . sessilibus pauci-(2-6)-floris, pedicellis longiuscalis fructu decurvis, petalis calyce brevioribus rotundatis breviter unguiculatis deciduis, carpellis numerosis lana densa obtectis, stylis pilosis, endocarpio areolato-rugoso.

Har. China, Prov. Hupeh, Dr. A. Henry (forma typica et tomentosa: ramis petiolis pedunculis sepalisque dense tomentosis, District Patung, 5788 A ; forma glubratu: ramis petiolis pednnculis sepalisque glabratis pruinosis, Districts Chienshih, Fang et Kaei, 5788 et B, C, D, etc.; forma glandulosa: foliis ramuli floriferi interdum pinnatis, foliolis minoribus, pedunculis glaudulosis, District Chienshih, 587:2).
[Turiones teretes aculeis numerosis setoso-subulatis pangentibus instructi. Foliu b̌-nato-pinnatis, cum petiolo, in ramis fuliferis, 10-15 poll. longis, petiolis cum rachide et nervis foliolorum primariis setosoaculeatis, glabris v . pubescentibus; foliola lateralia bresiter petiolata inæquilatera subovata acuta. Inflorescentia brevis nutans subcorymbosa aphylla, bracteis sat magnis ovatis subscariosis munita. Culyx sermentis ovato-lanceolatis acuminatis, extus tomentosis vel glabris. tabo interdum aculeolato. Starnina filamentis filiformibus glabris. Fructus globosus $\frac{3}{4}$ poll. dian.

This species is allied to R. opulifolius, Bertol., and to R. hypargyrus, Edgew.-Dr. W. O. Focke.]
[iig. 1. Petal. 2. Stamen, back and front. 3. Carpel. 4. Fruiting-carpel. Enlarged.


Rubus chroösepaius, Focke

## Plate 1952.

## RUBUS CEROÖSEPALUS, Focke.

## Rosacenc. Tribe Rubet.

R. chroösepalus, Forke (sp. nov.), frutex glaber, aculeis sparsis recurvis, foliis simplicibus longe petiolatis rotundato-cordiformibus cuspidatis repandis argute denticulatis, supra glabris subtus albidis, inflorescentia terminalis paniculata ramulis patentibus tomentellis, floribus apetalis parvis brevissime pedicellatis, calycibus fructiferis accerescentibus lobis intus margine excepto glabris, carpellis glabris nigrescentibus.
Hab. China, Prov. Hupeh, District of Patung, Dr. A. Henry (5505, 7291).
[Ramus floriferus glaber brunneus aculeis recurvis foliisque simplicibus sat longe petiolatis instructus. Stipulce parver lanceolatæ caducre ; gemmarum axillarium loco fasciculi pilorum videntar. Petioli $1 \frac{1}{4}-2!$ poll. longi glabri parce aculeati. Folia $3-5$ pcII. longa, $2 \frac{1}{2}-5$ poll. lata, cordato-subrotunda cospidata, margine subrepanda, argutissime sed non profunde mucronato-dentata, supra glabra glandulis sessilibus punctata, subtus albida et in nervis parce pilosa, foliis Tiliarum similia. Inflorescentica 6-9 poll. longa e racemis composita aphylla inermis apicem versus decrescens, ramuli inferiores sat longi $2-5$ poll. longi patentes sericeo-tomentosi racernosi, superiores breves parciflori; bracteæ lanceolatæ caducæ; pedicelli brevissimi. Flores parvi :5-6 lin. lati; cupula hypocrateriformis, cam sepalis ovatis mucro. natis, sericeo- albido-tomentosa. Calyw fructiferus $\frac{3}{4}$ poll. latus, sepalorum facies interna margine hirsuto albido cincta basin versus glaberrima nitens et atrorabens, ut videtur. Petala nulla. Stamina numerosa; receptaculum hirsatissimum. Carpella c. 12-15, glabra; styli elongati stamina superantes.

The leaves of this species resemble very much those of Tilia allia. The glandular tissue of the disk seems to extend over a great part of the inner surface of the sepals, and, being coloured in compensation for the want of petals, it must be very attractive for flies and other small insects. The plant appears to be allied to R. tephrodes, Hance.()r. W. O. Focke.]

Fig. 1. Fragment of inflorescence at time of flowering. 2. Bract. 3. Stamen, lack :Ind front. 4. Carpel. 5. Immature fruit. Enlaryed (exerpht i).

Dr. Henry's collection includes, besides the two foregoing and others previously tigared:-
R. sozostylus, Focke ( $s p$. nov.). Rumi lignosi teretes aculeis minutis scabriusculi et hinc inde tomenti vestigiis vestiti; folia decidua esse videntur. liumuli hornotini palmares foliis paucis instructi tomentosi, in parte inferiore foliifera vix aculeati, inflorescentia terminati. Folia longe petiolata membranacea e basi lata obiter cordata palmato-quinquenervia quinqueloba, suprema triloba, lobo intermedio producto acutissimo, margine acute serrata, snpra glabra, subtus flavescentialbida. Stipulse caulinæ lanceolatæ caducæ. Inflorescentic racemosa c. 8.12 -flora aphylla; bracteæ lanceolatæ; rachis cum pedunculis dense tomentosa aculeolis crebris instructa. Cupula hypocrateriformis cum sepalis triangulari-lanceolatis mucronatis in fructu patulis tomento denso sericeo flavescente vestita. Sepala interne hirta basin versus glabrescentia. Petala? Filamenta subulata pilosa, verosimile rubra. Tonus hirsutus. Carpella numerosa: styli elongati in fructu persistentes tota longitudine pilis suberectis hirti.

Longitudo ramorum fructiferorum 8-15, inflorescentiæ fractiferæ $5-8$, pedunculoram $1 \cdot 5-2 \cdot 0$, petiolorum folii intermedii 6 , foliorum (9-1), lohi intermedii folior. 6 cm ; latit. folior. $8 \cdot 0-8 \cdot 5 \mathrm{~cm}$; diameter calycis fractiferi 2 cm .

## Hab. China, Prov. Hupeh, Dr. A. Henry (coll. 5005).

This plant is nearly allied to $R$. Henryi Hemsl. et Kntze., which is readily distinguished by its trident-like leaves of three narrow nearly equal lobes, by its glandular calyx, and by the small number of carpels. The style is not deciduous in $R$. sozostylus and in some other Chinese Rubi.
R. bambusarum, Focke (sp. nov.). Rami lignosi scandentes aculeis parvis recurvis muniti. Fulia perennantia digitato-ternata; stipule lanceolatr scariosæ caducæ; petioli breves lanato-puberuli; folicila fere æqualia brevissime petiolulata coriacea anguste lanceolata utrinque attenuata obiter argute serrata, supra glabra, subtus tomento adpresso albicantia. Rumi florentes lanuginoso-pilosi, folia pauca gerentia inferne inermes; inflorescentiæ racemosæ rachis cum pedunculis tomentosa aculeolataque. Bractece ovato-lanceolatæ scariosæ. Cupula pelviformis cum sepalis longe mucronatis sericeo-hirsuta; sepala in flore et fructur reflexa. Petala parva hirta parpurea. Torus hir-utus. Stumina numerosa pilosa stylis breviora. Stylorum pars inferior hirsnta, superior elongata glabra. Fructus niger.

Longitudo petiolorum e. 2, folioloram 610 (latit. 1-2), pedunculoram 1-2 cm.; diameter florum c. 1-5 cm.

Har. China, Prov. Hapeh. Frequenter obvius in montibus in alt. 4,001)-6.000 pedum, precipue in bambusaram silvis, Dr. A. Hrn?!
(coll. n. 5618 ).

This species also resembles very much R. Herryi, Hemsl. et Kntze.. which has, however, tripartite, not ternate, leaves; bosides that its
calyx is glandular and the number of carpels seems to be smaller. R. bambusarum is an evergreen climber, adapted by its narrow leaflets to catch the scattered beams of light in the bamboo-woods. The leaves are dried and used as tea (Hemry).

Rubus flosculosus, Fuckie (sp. noc.). Caulis lignosus teres aculeis falcatis sparsis manitus. Rumi floriferi palmares vel pedales brunnei pubescentes aculeis brevibus raris instructis. Folin imparipinnata bijuga vel trijuga; stipulæ basales parvæ subulatæ, foliola parva duplicato-serrata, supra parce pilosa, subtus aibo-tomentosa, terminale lanceolato-rhombeum vel elliptico-rhomberm, lateralia similia minora vix petiolulata. Inflorescentia terminalis elongata basi foliifera superne racemosa, ramuli inferiores pauciflori ; pedunculi cum rachide hirti inermess Floves parvi. Sepialu ovata mucronata tomentosa in fructu patentia. Petula unguiculata sepalis paullulum longiora purpurea. Strmina numerosa stylis fere æquilonga. Ovaria dense hirta, styli glabri. Totutus immatari fragis parvulis similes rubri, maturi nigri.

Longit. ramor. florent. $15-25$, folioram cum petiolo 8-5, folioli terminalis $4-5 \mathrm{~cm}$. ; latitudo folioli term. $1 \cdot 0-2.5 \mathrm{~cm}$. ; diameter floris 0.5 cm .

## IIsb. China, Prov. Hupeh, In. A. Ienry (5853, 6495, 7321).

A pretty species, remarkable for its very small purplish flowers. It is allied to l . coreanus.
R. pileatus, Focke (sp. now.). Caules lignosi scandentes c. 4 pedes alti glabri aculeis sparsis brevibus e basi lata apice falcatis instructi. Rumnli ex axillis foliorum anni precedentis brevissimi, ad basin squamis scaricsis muniti, foliis pancis (23) instracti et sæpe floribus nonnullis terminati ; ramulorum folia quinato-pinnata; stipulæ e petioli basi ortæ lincari-lanceolatæ scariosæ; petioli longi supra sulcati, parce pilosiasculi, aculeis paucis parvis instructi. Fuliota argute duplicatoserrata utrinque viridia, supra glabra, subtus in nervis puberala; nervis secundariis subparallelis utrinque c. 10-12; foliolum terminale ellipticum acuminatum basin rersus subcuneatum, lateralia parum minora brevissime petiolulata. Flores 2-4 in ramulo terminales; pedunculi glabri parce aculeolati ; sepala lanceolata utrinque tomentella in fructa reflexa. Filumenta subulata. Carpella cam basi styloram lana densa alba obducta. C'arpophonrum siccum conrexum stipite crasso paullulum elevatum cum drupeolis rubris lana alba stylorumque fasciculo coronatis fungi fere pilenm æmulans. Fructus grati edules; drupeolæ inferne glabræ; putamen rugosum.

Longitudo foliorum cum petiolo $30-36$, petiolorum $8-10$, folioli terminalis $5-9$ (latit. $4 \cdot 0-4 \cdot 5$ ), ramuli fructiferi $3-4$, pedunculorum 2 cm . ; diameter fructus 2.5 cm .

Mar. China, Prov. Hupeh. Ji. A. Henty (coll. No. ficta).

The very short branches furnished generally with two large pinnate leaves and the curious fruits 'shaped like a mushroom' (A. Hemry) are very remarkable. I know no species which I can regard as closely allied to this one; perhaps it may belong to the group of T. pungens, Cambess.
R. chiliadenus, Focke (sp, nov.). Ramuli florentes hirti glandulis stipitatis inæqualibus longis atropurpureis aculeisque raris e basi latissima recurvis muniti. Folia ternata et quinato-pinnata; stipulæ e basi petioli enatæ filiformes hirsutæ ; petioli hirti glandulosique parce aculeati ; foliola inæqualiter grosse et duplicato-serrata, utrinque viridia et hirta, supra glandulis stipitatis sparsis, subtus glandulis sessilibas instructa; foliolum terminale in foliis ternatis sæpe cordatoovatum sublobatum, in foliis quinatis ellipticum acuminatum basi trnncatum. Influrescentia sat longa inferne sæpe interrupta foliifera, sinperne racemosa inermis. Rachis cum pedunculis sepalisque hirta glandulisque confertis atropurpurea. Sepala ovato-lanceolata acuta in flore patentia. Petala sepalis longiora. Stamina stylos superantia; filamenta filiformia.

Longitudo foliorum cum petiolis 10 20, folioli terminalis 6-8 (latit. 4-5), pedicelloram 1 cm . ; diameter florum c. 1.5 cm .

Hab. China. Prov. Hupeh, Dr. A. Henry (coll. No. 6009).
A branchlet of this plant bearing ternate leaves only resembles very much the small Firopean Glunilulosi of the Hirtus group. The scattered broad-based prickles, however, are very different; they are often fored opposite to the leares. $R$. chilindenus is allied to $R$. innominatus, s. Moore

Besides these new species, the last interesting collection sent by Dr. A. Henry contains several remarkable forms and varieties of other Rubi, and two well-known species, which he has found for the first time in China, viz, the Himalayan R. Frocleconns, S. Kurz, and the Japanese $R$. peltatus, Maxim.-Dr. W. O. Focke.]


MSçent ent
Manglietia Fordiana Oliv.

## Plate 1953.

## MANGLIETIA FORDIANA, Oli:

Magnoliacee. Tribe Magnolief.
M. Fordiana, Oliv. (sp. nov.), arbor 25 -pedalis, glaberrima, foliis coriaceis longiuscule petiolatis oblanceolatis breviter obtusiuscule acuminatis basi in petiolum angustatis, floribus solitariis terminalibus brevissime pedunculatis eburneis, sepalis petalisque carnosis ellipticis obtusis concavis, carpellis 24-30, fructiferis ovoideo-capitatis.

Hab Hong Kong. 'Indigenous near road to Victoria Peak. Only one tree known." C. Ford.

Ramuli floriferi teretes glabri $\frac{1}{4}$ poll. diam., cicatricibus stipularam annulati. Folia 4-6 poll. longa, $1 \frac{1}{2}-2$ poll. lata, subtus leviter reticulata. Sepula oblongo-elliptica obtusa concava $2-2 \frac{1}{2}$ poll. longa, $1 \frac{1}{4}-1 \frac{1}{2}$ poll. lata. Petala elliptica. Anthere lineares apicem versus leviter dilatatæ carnosæ, connectivum apice obtusam brevissime productum; filamenta brevissima. Receptaculum staminiferum $\frac{3}{4}-1$ poll. longum. Gynocium sessile. Ovula c. 8, subbiseriata.

This is interesting as the first record of the genus Manglietia from China, and as another instance of a species only known to us from solitary, or very few, individual specimens in Hong Kong. Of course we may expect these restricted species to occur in the interior of Southern C'hina.-D. Oliver.

Fig. 1. Petal. 2. Stamens and carpels insertel on receptacle. 3. Detached anther. 4. Carpels, as inserted, seen from outside. 5. Orary, laid open. 6, Fruiting receptacle. More or less enlarged.


Ms sel et ith

Eustiǵma Balansæ, Oliv.

## Plate 1954.

## EUSTIGMA BALANSE, Oliv.

## Hamamelidee.

E. Balansæ, Oliv. (sp. nov.), arbuscula, ramulis teretibus lenticellatis parce stellato-tomentellis, foliis ellipticis obtusiuscule caspidatis integris supra opacis obsolete scabriusculis, subtus parce stellatotomentellis, floribus spicatis subsessilibus, spicis terminalibus v. folio oppositis subsessilibus, bracteis obovatis obtusis $\mathbf{v}$. apiculatis tomentosis bracteolis longioribas.
Hab. Tonkin; forests in the Valley of Lantok, M. Balansa (No. 3283).

Arbuscula 20-30-pedalis. Folia 3-31 poll. longa, $1 \frac{3}{4}-2$ poll. lata; petiolus $\frac{1}{4}-\frac{1}{3}$ poll. longus. Spica florifera $1 \frac{1}{4}-1 \frac{1}{2}$ poll. longa. Calyx tubo breviter turbinato stellato-tomentoso, segmentis obovato-rotundatis glabris v. apice tomentosis. Petala calycis limbo breviora, crassiuscula, cuneata truncata v. retusa unguiculata. Antherce subsessiles, ovoidew obtusæ inappendiculatæ. Styli 2 longe exserti carnosi ; stigmata dilatata lobnlata intas corragata. Capsula $\frac{3}{4}$ poll. longa bivalvis, valvis bifidis.

A genus hitherto regarded as monotypic and restricted to Hong Kong. The Tonkin plant of which one excellent specimen is included in the fine distribution of M. Balansa, differs from $E$. oblongifolium, G. \& C., in its distinctly spicate flowers and broadly elliptical less coriaceons leaves.-D. Oliver.
Fig. 1. Flower and bracteoles. 2. Same, calyx-segments and stigmas removed. 3. Anther, side and back views. 4. Vertical section of ovary. Enlarged.


In $\varepsilon$ ?
finomiat Ifemmianli. Ollv.

## Plate 1955.

## EPERUA JENMANI, Olic.

Leguminoser. Tribe Elcashlpinter.
E. Jenmani, Olic. (sp. nov.), glabra, foliolis 4-3-jugis oblongo-ellipticis breviter acuminatis basi rotundatis coriaceis subtus reticulatis, racemis axillaribus v . quasi terminalibas solitariis breviter peduaculatis v. sessilibus sæpe recurvis folio multo brevioribus, floribas congestis, bracteis parvis coriaceis rotundatis $\nabla$. late ovatis, petalo maximo, ovario giabro, ovulis $2-3$.

Hab. British Guiana, various localities, G. S. Jenman (Nos. 573, $975,2154,3830,4770)$.

Arbor 20-80 pedalis. Fotia 10-16 poll. longa; foliola 4-7 poll. longa, 2-3 poll. lata, basi interdum sub-cordata; petiolulus crassiusculus $2- \pm$ lin. lonyus. Stipulce oblique ovatæ v. rotundatæ coriaceæ $\frac{1}{3}-\frac{3}{2}$ poll. longæ. Racemi cum pedanculo floribusque expansis 2-4 poll. longi. Caly.x segmentis ovali-oblongis $\frac{3}{4}-1$ poll. longis. Petalum c. $2 \frac{1}{2}-3 \frac{1}{2}$ poll. lngum. N'taminu tubo coriaceo extus lineatim pubescente; antheræ ellipticæ versatiles. Uvarium stipitatum compressum ; stylus elongatus glather grasilis staminibus longioribus æquilongas. Legumen (vix maturum) magnum coriaceo-lignosum oblique elliptico-quadratum, extus (in sicco) plus minus transverse rugosum, 5-6 poll. longum, $3-3 \frac{1}{2}$ poll. latnm.

I cammot venture to refer this to E. apandiflora, Benth. (Parison grandiffore, Aubl. Pl. Gui. 7.57, t. 303) in Mart. Fl. Brus. xv. pt. ii. $22 h$, on account of the laxer and corymbose inflorescenee of the latter. It is, no doubt, a nearly allied species, as is also E. bijeryn, Mart. E. Jenmani is known in British Guiana as 'Itoori-wallaba,' according to Mr. Jenman.

The scraped root is used by the Indians for the cure of toothache. The timber is used for the frames of houses, vat staves, paling staves, and shingles for colonial use and exportation. - D). Ourer.

Fig. 1. Stamens. 2. Ovary, laid open. Enlarged.


## Plate 1956.

## NAUCLEA SINENSIS, (Mir.

## Rubiacets. Tribe Naucleete.

N. sinensis, Oliv. (sp. nor.), glabra, ramis tetragonis v. ultimis acutiascule 4-angularibus interdum cirrhis rigidis retrorsum uncinatis armatis, foliis membranaceis ellipticis $\nabla$. ovato-ellipticis breviter acnminatis basi rotandatis breviter petiolatis, stipulis indivisis rotundatis reflexis, pedunculis axillaribus patentibus medio bibracteolatis folio sæpius brevioribus monocephalis, floribus brevissime pedicellatis, calycis lobis oblongis obtusiusculis ovario æquilongis extus hirtellis, corollæ tubo elongato calycis lobis 4-6-plo longiore apice breviter infundibuli-forme-dilatato, lobis corollæ obovatis tubo 4-6-plo brevioribus, æstivatione late imbricatis, antheris ovali-oblongis obtusis basi breviter sagittatis filamento longioribus inclusis, stylo elongato filiforme glabro exserto, stigmate clavato.
Hab. China, Prov. Nan-t'o ; 'and mountains to the northward,' Dr. A. Henry (No. 4501).

Folia $4-5 \frac{1}{2}$ poll. longa, $2 \frac{1}{4}-3$ poll lata; petiolus $\frac{1}{6}-\frac{1}{3}$ poll. longus. Pedunculi 2-31 poll. longi. Cupitula florifera c. 1 poll. diam. Flores albi.-D. Oliver.

Dr. Henry has obliged us with the following memorandum :-
'This plant is known to the Chinese as kou-t'eng, i.e. "hookcreeper"; and is figured in Chih un ming, xxii. 57. The hooks or hardened peduncles, with portions of the stem attached, are used in Chinese medicine, being known at Hankow (from which there is an export of about 20 tons annually) as kou-p'ien or mi-kon. From these hooks a tineture is prepared with wine. The chief place of production is Hapeh.

[^11]

## Plate 1957.

## BLUMEA BALSAMIFERA, $D C$.

Compositer. Tribe Inuloidee.
B. balsamifera, DC. Prodr. v. 447, erecta suffraticosa lanatotomentosa ramis teretibus foliis oblongo-lanceolatis acatis v. acatiusculis basi interdum pinnato-lobatis vel petiolo lobis angustis linearibus appendiculato supra hirtellis villosulisve rugulosis subtus lanatotomentosis, capitalis cymosis in panicalis interdum corymbiformibas amplis terminalibus dispositis, involueri bracteis gradatim longioribns lineari-subulatis fulvo-pilosis interioribus anguste linearibus floribus subæquilongis, achæniis angulatis, pappo rufescente.-Hook. Flora of Brit. India, iii. 270 (with synonymy).
Hab. India, from the Himalaya to Singapore and Indian Archipelago, various Cullectors ; China, to coast of Formosa, Wilford. Hainan.

Caulis basi suffruticoso 5-8-ped. alt. Folia inferiora cum petiolo 7-12 poll. longa. Capitula $\frac{1}{3}-\frac{1}{2}$ poll. lata, bracteis involucri tandens laxis $v$. plns minus reeurvis. Receptaculum glabrum leviter tuberculatum. Fl. of anguste tubulares ore 2-3-denticulato. Achernium anguste columnare angulare parce sericeum v. glabratum ; pappus simplex 1 -seriatas corolla fere requilongns.
We find a place for this common Indian species in 'Icones Plantaram,' chiefly on account of its economic interest as affording a camphor exported from Canton and Hainan of considerable annual valne; moreover, there does not exist any good figure of it. Our plate is from a Formosan specimen. It is doubtless a native of South China, as well as of Hainan, but we have no speeimens from thence. We are indebted to Dr. Henry for the subjoined note-D. Ourver.
'From this is produced in Kwangtung and Hainan the peculiar camphor known to the Chinese as ngri-jin, signifying the crude product, and ngai-pien, the name given to the refined article. The export from the port of Hoihow in Hainan of the crude camphor is about $15,000 \mathrm{lbs}$. annually. This is refined in Canton, from which there is an annual export of about $10,000 \mathrm{lbs}$. of ngai-p'ien. Hanbury (Science Notes, in 394) gives an account of the camphor, and mentions that the plant in question is well known to emit when bruised a strong oflour of camphor, and that in Burmah a crude camphor is extracted firm
it. For the physical and chemical properties of this peculiar camphor, see Pharmareutical Journal, ser. 3, vol. iv. pp. 710, 712 ; and Neues Reperturium für Pharmacie, xxiii. p. 325.'-A. Henry.

See also Mr. Thiselton Dyer's paper, 'On some New Economic Products,' in the Journal of the Linnean Society, Bot., xx. 414, in which attention is called to the abundance of Blumea bulsamifera in Burmah.

Fig. 1. Capitulum, 2. Female floret. 3. Disk floret. 4. Seta of pappus. 5. Anthers. 6. Stigma. Enlarged.

'In Japan the name kao-pêu is applied to Nothusmyrnium jununicum, Miq.
'The determination of the umbelliferous plants used in Chinese' medicine, which nearly all come from the internal provinces of Hupeh, Szechwan, Shansi, \&c., is very difficult; and the attention of travellers ought to be directed to the obtaining of specimens of the plants in fruit with roots attached. There is still considerable doubt regarding the sources of the following drugs of this category:-pai-chih, tang-kuei, ch'uan-hsiung, tu-huo, ch'iang-huo, ch'ien-hu, and fang-fêng. These are all exported in enormous quantities from Hankow.'-A. Henry.

Fig. 1. Staminate flower. 2. Fruit, lateral riew. 3. Same, dorsal view. 4. Same, commissural face. Enlarged.
[Note-Since writing the above I have found specimens of Dr. Henry's No. 4954 from Patung, which I think probably the same species, and undoubtedly a Ligusticum, with a plane commissural face to the mericarps, and, on the dorsal side, three rather conspicuous vittæ hetween the nearly equal ridges. I. pteritiphyllum, Franchet, MSS. (Herb. Delaray), lately received at Kew, may perhaps be the same.-D. O.]

## Plate 1958.

## LIGUSTICUM SINENSE, OTi.

## Umbelliferke. Tribe Seselinet.

L. sinense, Oliv. (sp. nor.) ; caule erecto longitudinaliter striato glabro, foliis glabris radicalibus . . . caulinis inferioribus bipinnatipartitis pinnis inferioribus petiolulatis, segmentis ovatis inæqualiter incisis dentatisve dentibus obtusis apiculatis, superioribus subsessilibus, petiolo amplexicaule late vaginante, involueri bracteis anguste linearihus, umbellæ radiis $15-22$ scaberulis adscendentibus, inrolucelli bracteolis angastissimis pedicellis fructiferis brevioribus, fructu late oroideo lateraliter leviter compresso, commissura profunde sulcato, jugis primariis prominulis, vittis ad valleculas sæpius 3 obscuris, facie commissurali pluribas, carpophoro bipartito.
$H_{A B}$. China, Prov. Hupeh, District Hsingshan, and Prov. Szechwan, District No.Wushan.-Dr. A. Henry (Nos. 6759 A and B).
Herba 21 $\frac{1}{2}$-4-pedalis. Folia deltoidea, caulina inferiora cum petiolo 8-12 poll. Ionga; segmentis ultimis $1-1 \frac{3}{4}$ poll. longis $\frac{1}{2}-\frac{3}{4}$ poll. latis. Umbellre longe pedunculatæ, fructifere $2 \frac{1}{2}-4$ poll. latæ. Petala l-nervia albida elliptica v. antica obcordata. Styli graciles dein refracti fructibus immaturis subæquilongi.
From the characters of the fruit I suspect this plant may be an ally of Nothosmyrnium japonicum, Miq. It is not without hesitation that I refer it to Ligusticum -D. Oriver.

Dr. Henry farours us with the following note:-
'The root of this plant is dag up in the mountains of Western Hupeh. and is one source of the Chinese drug known as kulu-pin, which was the name given to the plant by the drug collectors in the mountains of Hapeh. It seems, however, that the drug is exported from Hankow (a tons annually) under the name ksi-hsiang, so-called from the resemblance of the root to another drug of mach greater importance, chisuan-hsiung. In the Customs List of Chinese Menlicines, p. 342, we find the entry lico-pên or lisi-hsuing, an article of export from Canton of about 3 tons annually. Whether this product of $K$ wangtung and $K$ wangsi is the same as the Hupeh plant it is immissible for me at present to determine.


## Plate 1959.

## ASTRAGALUS HENRYI, Olic.

## Leguminose. Tribe Galeger.

Astragalus (Cenantrum) Henryi, Olic. (sp. nov.). Herba erecta e basi lignosa $1 \frac{1}{2}$-pedalis, caule gracile glabro V . parce villosulo, stipulis ovato-lanceolatis v . lanceolatis acutatis scarioso-membranaceis marcesceutikus, foliolis ellipticis v. oblongo-ellipticis obtusis mu :ronulatis sub)tus pallidioribus parce villosulis, racemis (fructiferis) laxiusculis in axillis superioribus v. quasi-terminalibus interdum subpanicalatis, pedicellis gracilibus pilosulis calycem requantibus, calyce tubuloso v. campanu-lato-tubuloso oblique truncato ore subintegro dentibus miuntissimis, parce appresse setuloso-pilosulo, legumine sutura carinali haud int rus:a stipitato (stipite calyce interdum fere duplo longiore) elliptico $\nabla$. ovato-elliptico apice apiculato sæpius I-spermo, valvis glabris lavibus obscure et oblique transversim venulosis.

Hab. China, Prov. Hupeh, Fang Disirict, Lr. A. Henry (Nu. 6902).

Caulis subteres v. obscure angulatus. Fiolia sæpius 5-foliolata, $2 \frac{1}{2}-4$ poll. longa; foliola $1-1 \frac{1}{2}$ poll. longa, $\frac{1}{2}-\frac{2}{3}$ poll. lata, lateralia brevissime petiolulata $v$. subsessilia. Rucemi fructiferi $2: 3$ poll. longi. Legumen 2 - vel sæpias 1 -spermum, $\frac{1}{2}$ poll. longrun, $\frac{1}{4}-\frac{1}{3}$ poll. latum.

Of this plant Dr. Henry was able to send us only fruiting specimens, which, however, abundantly suffice to establish its specific distinctness. It is an important drug-plant of Central China, known as the humupch' $i$ in Szechwan and Ifupeh. The species of Astiogulus named i. Ifomutcly by Mons. Franchet is very distinct from this plant, haviner a much introflexed suture in the legume, leaflets in 8 ly pairs, de. We are indebted to the kind offices of this distinguished tmianist for specimens of this plant, as also of Bunge's . I. mumghlulions, the latter. another species of the section Cenuntrum, to which, as Mons. Franchet pointed out to me, our plant belongs. It is ailied to A. Henryi, but the leaflets are very small and numerous, the legumes larger, with seeds varying to six or more.-D. Olifiti.

Dr. Henry has kindly favoured us with the subjoined mermo-randum:-

[^12]The root is the part used. From a priblication of the Chinese Customs we learn that the export annually from the various treaty ports is as follows (the local names are given):-
'Trien-rh'i. Thit piculs from Newchwang, produced in Shantung and Manchuria.
${ }^{6}$ Huangecli'i, $3,5,00$ piculs from Tientsin, produced in Chili (and Mongolia).
'Huang ch`i, pmicclici, and humg-cluti, 2,600 pienls from Ichang and Hunkow, Mrodneed in Szechwan, Hupeh, and Shensi.
'Other local names nsed are chin-che'i, ch'uan-ch'i, hsi-chi $i$, hsi-fertoch'i, and pei-ch ${ }^{〔}$.

- M. Franchet (Pl. Durit. i. p. 8fi) has described as a source of the Arug, Astrumbus IIoantrly, collected by Père David in Mongolia. This is perhaps the sonrce of the Pei-ch'i and 'T'iao-ch‘i, exported from Newchwang and Tientsin. He also (Pl. Durid. ii. p. 31) describes Astmy!us mimpinemsis, "a plant used in Chinese medicine." This Thihetar plant may be one of the sources of the Szechwan drag.
- During my trip of 1888 I fonmd in the mountains of Hupeh the plant, forfe, which is the source of the drug in Hupeh and Eastern szechwan, and perhaps in Shensi.
'Chinese books acknowledge the existence of three or four kinds of the drug. One kind is figured in Chih wu ming, vii. 3.
'The Gustoms Trade Reports, 1869, p. 59, has the following:"The diedront of an herbaceous plant cultivated in Shansi, which grows 2 or 3 feet high. In early autnmn it bears a yellow and purple Hower, and the seeds are contained in a pod about an inch long. The root is fi or 8 inches long, yellowish white in colour, with a thick rind and a pithy centre."
'In Japan, huang- ${ }^{\prime}$ ' $i$ is furrished by Astragalus reflexistipulus, Miq. Other kinds of the drug in Japan are from A. adsurgens and Herlysurum esculentum, Ledeb.
' Bretsehneider, Euvly Resererches, 1). 14*, says that humy-ch'i at Pekin! is Sirpluru llucuscens, Ait. There must be some error here, as the ront of this plant is a very different drage, "hi'u-shim," which is lined in veterinary practice.'-A. Henry.

Fig 1. Fruit, pernistent calys, and pedicel. 2. Fruit, laid open. Euluryud.


## Plate 1960.

## MEZONEURON SINENSE, Hems\%.

## Lequminoser. Tribe Eucesalpiniet.

M. sinense, Hemsl. in Journ. Linn. Soc. xxiii. 204 ; ramis fuliorum rachidibasque aculeatis aculeis rigidis recurvis, foliis amplis pinnis 3 4-jugis foliolis sæpius 3 -jugis brevissime petiolulatis coriaceis ovatooblongis $\nabla$. oblongo-ellipticis obtusiusculis mucronulatis $\nabla$. acutis, glabris $v$. costa subtus basin versus parce hirtella, subtus pallidioribus, racemis multifloris divergentibus paniculatis paniculis amplis terminalibus v. axillaribus plus minas ferrugineo-hirtellis pedicellis patentibus flore subæquilongis, calycis lobis ovali-oblongis obtusis lobo infimo cymbiforme apice subgaleato, petalo postico minore cum tuberculo piloso ad basin laminæ, filamentis inferne lanuginosis, ovario subsessile ferrugineo-lanuginoso, stylo glabro, legamine rigide coriaceo subsessile oblique elliptico $\nabla$. fere semi-orbiculare oblique apiculato, sutara ventrali angustissime alata.

Hab. China, Prov. Hupeh, Ichang and Nan-t'0, Dr. A. Henry (Nos. 1122, $3113,3416,3819,4629$; and var. parvifolium, Hemsl. 2238).

Frutex scandens v. prostratus. Folia ad $1 \frac{1}{2}$ ped. longa; foliola 21, 4 poll. longa. Flores lutei. Legumen $1 \frac{1}{2}-2$ poll. longum, 1 poll. latum.

Mr. Hemsley points out the resemblance of the legume to that of the Australian M. brachycarpum, Benth, these species differing from their congeners in this particular.-D. Oliver.
Fig. 1. Bud. 2. Vexillum. 3 and 4. Lateral and anterior petals. 5. Stamens. 6. Pistil. Enlarged.


MS dicu: un

Davidia involucrata, Baill

## Plate 1961.

## DAVIDIA INVOLUCRATA, Buill.

## Cornacere. Tribe, Nyssex.

D. involucrata, H. Baill. Adansonia, x. 115, spec. fructiferum; fructu drupaceo obovoideo v. ellipsoideo brunneo v. rubiginoso læviusculo lenticellato-punctato apice depressiusculo, mesocarpio granuloso-crustaceo, endocarpio osseo longitudinaliter $15-25$-sulcato sæpius $3-5$-spermo, seminibus solitariis pendulis albuminosis, albumine carnoso, embryone albumine subæquali recto, cotyledonibus oblongis radicula panllo longioribus.

Hab. Tibet, Prov. Moapine, David; China, Prov. Szechwan; District of South Wushan, Dr. Henry (No. 55̃77 ; a solitary tree seen during a six months' excursion).

This very remarkable tree has been so carefully described by Professor Baillon, and an excellent plate given by M. Franchet in his Plantce Davidiance, part ii. tab. 10, that we restrict our plate and description to the fruiting specimens sent to us by Dr. A. Henry, the first, so far as I am aware, that have reached Europe, or at any rate that have been described and figured. With regard to the affinity of the genus, I quite agree with Professor Baillon in regarding it as an ally of Nyssa, though I differ from him in his transfer of Nyssece to Combretacea. Now that the group has been strengthened by the addition of the curious Tibetan genus Camptotheca of Decaisne, it may beeome desirable to give the group ordinal value. The fruit is about $1_{\frac{1}{4}} \mathrm{in}$. long by 1 in . in diameter. The outer layer of the pericarp presents macroscopically the appearance of a hard 'granular' intermixture of white minute sclerenchymatous nodules with a reddishbrown apparently resinous matrix. The sulcation of the thick bony endocarp, in which asually all but three or four of the cells are aborted, recalls the similar condition in some species of Nyssu. From the conspicuous areolation of the receptacle of the inflorescence after the fall of the stamens and the circular disposition of the staminal cicatrices upon each areole, I cannot but think the inflorescence is a capitulum of closely crowded achlamydeous male flowers with one obliquely lateral female one. Daridia is mentioned by l'Abbé David in the sketch of his travels prefixed to M. Franchet's ' Plantue Davidiance, pt. i. p. 9, under the specific name of tibetina.

Daviflia is a tree almost deserving a special mission to Western China with a view to its introduction to European gardens. Dr. Henry describes it as 30 feet in height; 'the large white bracts, mingled with the green leaves of the tree, give it an extraordinary and beautiful appearance.'-D. Oliver.
Fig. 1. Apex of peduncle after fall of the staminate flowers. 2. Transverse section of fruit. 3. Embryo. 1 and 3 enlarged.


MSter et anh.
Gentiana Herrediana Balm

## Plate 1962.

## GENTIANA HERREDIANA, Raim.

Gentianacere.
G. Herrediana, Raimondi i in Weddell, Chloris Andina, ii. 309 (ex descriptione), maxima speciosissima glaberrima, multiflora, caule erecto inferne folioso, foliis radicalibus . . ., foliis canlinis inferioribus oppositis (ternisve) basi connatis nblongo-lanceolatis acaminatis margine lævibus $7-15$-nerviis, foliis superioribus bracteisque ovato-lanceolatis, inflorescentia ampla multiflora laxe pyramidali, fluribus magnis 'longe pedicellatis, aliis ex axillis ipsis foliorum caulinorum nascentibus, aliis ad apicem ramulorum lateralium subumbellatis,' calyce herbaceo j) fido, laciniis ovato-lanceolatis acutis, corolla calyce duplo longiore (purnurea) subcampanulata, segmentis late ellipticis obtusis obscure denticulato-erosis, sinubus inappendiculatis.

Hab. Peru, Cordillera of Muña, 12,000-13,000 feet, Mr. Pearce.
Cantis $1_{2}^{\frac{1}{2}}-3$-pedalis teres. Folia caulina inferiora 4-6 poll. longa, superiora $2^{2}-3$ poll. longa. Flores $1 \frac{3}{4}-2$ poll. longi. Antherce oblongæ dorsifixæ incumbentes; filamenta complanata anguste linearia glabra, corolla breviora, prope basin tabi inserta. Ovarium anguste ublongum sursum angustatum ; stigma subsessile bifidum, lobis ovatis obtusis.
Dr. Weddell's description of this fine species was based on fragmentary specimens sent to him by Professor Raimondi of Lima, collected in the Cordillera of the Province of Pataz, at the highest point of the route between Chillo and Buldibuyo. But a solitary specimen was found. In his 'Chluris Andina' Dr. Weddell enumerates nearly sixty species of Gentiana, of which he considers this 'la plus belle du genre peut-être.' I feel a little uncertainty as to my identification of Mr. Pearce's specimen with Dr. Weddell's description of Raimondi's plant, hecause he says the leares are free at the base; but the general correspondence is so close that I do not think it would be prudent to describe it as new.-D. Olifer.

Fig. 1. Anther, back and front. 2. Pistil.


Alpinia Rafflesiana, Wall

## Plate 1963.

## ALPINIA RAFFLESIANA, Wall.

## Scitaminex. Tribe Zingiberee.

A. Rafflesiana, Wa7l. Cat. No. 6575 ; caule foliifero elongato, foliis lanceolatis subtus pubescentibus, vaginis latis apice truncatis, floribus in capitulum terminalem subsessilem congestis, rachide piloso, bracteis ovatis, calyce infundibulari dentibus parvis latis, corollæ segmentis lineari-oblongis tubo subcylindrico æquilongis, labello late ovato conduplicato basi auriculato, stamine arcuato.

Hab. Malay Peninsula; Goping, King's Collector; Penang, Porter; Malacca, Giiffth, Maingay; Singapore, Finlayson, Cuming (2400), Ridley.

Caulis foliatus 5-6-pedalis. Fulia pedalia et ultra. Calyx 5-6 lin. longus. Corolla segmenta 6-7 lin. longa. Labellum luteo-rubrum 1 poll. longum et latum.

This fine plant has been long known, and has received several names in manuscript, but has never been described. I believe that a plant which has been widely spread in gardens under the name of Alpiniu rittata is a variety of the same species with variegated leaves.-J. G. Baker.

Fig. 1. Labellum. 2. Anther. 3. Pistil. 4. Stigma. Enlarged.
(A)

[^13]
## Plate 1964

NYSSA SINENSIS, Oliv.

## Cornacele. Tribe Nyssee.

N. sinensis, Oliv. (sp.nov.). Arbuscula (20-pedalis), foliis petiolatis ovato- $\nabla$. oblongo-ellipticis breviter acuminatis basi plus minus rotundatis integris membranaceis supra glabris subtus præcipue in costa parce pilosis $\nabla$. glabratis, pedunculis gracilibus axillaribus $\nabla$. sepius in axillis squamarum delapsarum solitariis, pedicellis apicem versus umbellatim $\nabla$. breviter racemosim congestis, fl. $\delta$ : calyce minuto, petalis deciduis anguste oblongis filamentis brevioribus, staminibus . circam discum carnosulam dispositis, fl. $ㅇ:$ : basi minutissime bracteolatis pedicellatis ovario glabro v . basi pilosulo.

Hap. China, Prov. Hupeh, Districts of Chienshih and Changlo (Nos. 5832,6273 ), Dr A. Henry.

Folia 4-6 poll. longa, $1 \frac{3}{4}-2 \frac{1}{4}$ poll. lata; petiolus $\frac{1}{2}-\frac{3}{4}$ poll. longas, sæpius parce pilosulus. Pedunculus $1 \frac{1}{2}-2 \frac{1}{2}$ poll. longus, fl. of sæpius 3 -5-florus, fl. of 10-15-florus.

Haring been previously discovered in the Himalaya, this genus, formerly supposed to be restricted to the Eastern States of North America, was sure to turn up in China. This species differs from its nearest allies in the pedicellate ovaries. I have not seen the frait.D. Oliver.

Fig. 1. Staminate flower. 2. Ovary, after flowering, and pedicel. 3. Longitudinal section of ovary. Enlarged.
in. S zetetith
Cyanastrum cordifoliom Jive

## Plate 1965.

## CYANASTRUM CORDIFOLIUM, Oliv.

Hemonoracee. Tribe Conantheree.

Cyanastrum, Oliv. (nov. gen.). Perianthium 6-partitam, segmentis ovali-oblongis longitudinaliter venosis æqualibus patentibus basi, breviter connatis. Stamina 6 basi segmentorum perianthii inserta, æqualia et omnia perfecta; filamenta filiformia glabra; antheræ anguste lineares basifixæ, basi bidentatæ, apice poris dehiseentes. Ovarium semi-inferum, basi tubo perianthii adnatum, trilobum triloculare, loculis biovulatis; ovula erecta anatropa; stylus filiformis centralis staminibus æquilongus; stigma minute tridentatum. Fructus . . .Cormi monophylli superpositi depresso-globosi nudi loeves. Foliam longe petiolatum cordifornie acutum v. obtusiusculum utrinque curvatim nervosum, venulis ultimis transversis subparallelis, membranaceum glabrum. Scapus solitarius pauci- (1-4) florus, inferne vaginatus, vaginis membranaceis longitudinaliter nervosis. Flores lreviter racemosi pedicellati bracteati ccerulei; bractece membranacece pedicello 2-4-plo longiores; pedicelli supra bracteam sepius plus minus adnati.

Hab. - West Tropical Africa, Sierra d. Crystal, and Ambas Bay, Mann; Camaroons, near the shore, Kalbreyer; Yoraba Expedition, Millson.
C. cordifolium, Oliv. (sp. unica). Cormus $\frac{1}{2}-\frac{3}{4}$ poll. diam. Folia $2 \frac{1}{2}-4 \frac{1}{2}$ poll. longa, sinu 1-2 poll. prof.; petiolus $6-10$ poll. longus. Scapus $2-6$ poll. longus; vaginis vacuis $1-1 \frac{1}{2}$ poll. longas. Flores $\frac{3}{4}$ poll. diam.

Of this interesting new type of Hæmodoraceæ we have recently received good specimens, collected by Mr. Alvan Millson, through the good offices of H.E. Sir A. Moloney, Governor of Lagos, which enable us to figure and describe it. Ripe fruit is still a desideratum, and seeds or corms would be a welcome addition to our caltivated stove plants. In the absence of inflorescence, the leaf suggests that of some Aroids or some cordiform-leaved Commelynacea, bat analysis of the flowers leaves little donbt of its nearaffinity with the South African genus Cyanella. We have scapes only of probably the same species sent us by Mr. H. H. Johnston from between Lakes Tanganyika and Nyassa at an elevation of about 5,000 feet; but in these specimens the flowers vary in number to 7 .

Cyanastrum of Cassini is reduced to Volutarella.-D. Oliver.
Fig. 1. Portion of perianth, showing insertion of stamens. 2. Anther, back and front. 3. Pistil. 4. Vertical section of ovary. Enlarged.


Codoncpsis Tangshen, Oliv.

## Plate 1966.

## CODONOPSIS TANGSHEN, Oliv.

## Campanulacere. Tribe Campanulee.

C. Tangshen, Oliv. (sp. nov.) ; volubilis caulibus (ad 10 ped. longis) gracilibus glabratis $\nabla . j u x t a$ nodos parce setaloso-pilosulis, folis petiolatis ovato-lanceolatis obtusiusculis sinaato- v . crenato-dentatis supra parce pubescentibus subtus glaucescentibus minute setaloso-pubescentibus, pedunculis extra axillaribus v. folio oppositis, calyce partito, segmentis ovato- V. oblongo-lanceolatis herbaceis, corolla viridescente intus prope basin purpureo notato campanulata breviter 5 -fida calyce duplo longiore, segmentis deltoideo-ovatis, basi ovario adnata, capsula subglobosa vertice intra lobos dehiscente, calyce fructifero deflexo.
$H_{A b}$. China, Prov. Hupeh, Districts of Hsingshan and South Patung (No. 6468).-Dr. A. Henry.

Folia $1 \frac{1}{2}-2 \frac{1}{2}$ poll. longa, $\frac{3}{4} 1 \frac{1}{4}$ poll. lata. Pedunculi sæpius $1-2$ poll. longi. Flores $1 \frac{1}{2}$ poll. longi. Fructus 1 poll. diam.

Dr. Henry, who has favoured us with the following note on this plant, says, 'The root, when broken, emits a white sticky juice, and with the leaves, \&c., has a peculiar odour.'-D. Oliver.
' This (the t'ang-shên) is a very important Chinese drug, which is used by the poor as a substitute for the costly ginseng. The name signifies "ginseng from the district of Shang-t'ang in Shansi:" but the drug is now produced in the different provinces of Hupeh, Szechwan, Shensi, and Shansi.

[^14]large quantities of the root of the wild-growing plants being everywhere in the mountains dug up. The root of 6527 (identified as Codonopsis lanceoluta, B. \& Hk. f.) was also said to be used ; but it is much inferior in quality, having a disagreeable odour, and commands a very low price. I am inclined to think, then, that most of the t'ang-shên exported from Hankow and Ichang is the root of my 6468. There are different qualities of the drug in the market, and some of these may be from 6527, and possibly other species.
' There is a drug, ming-t'ang, produced in Anhwei (export from Wuku 60 tons yearly) and in Kiangsu (export from Chinkiang of 16 tons annually), but specimens of the plant producing it have not been obtained. It will probably tarn out to be an Adenophora.'A. Henry.

Fig. 1. Flower, after removal of calyx-segments and corolla.


MS dellet lith
Codonopsis Henryi, Oliv.

## Plate 1967.

## CODONOPSIS HENRYI, Oliv.

Campanulacee, Tribe Campanclee.
C. Henryi, Oliv. (sp. nov.) ; caule volubili glabrato, foliis ovatolanceolatis acuminatis dentatis membranaceis supra minute et parce setuloso-pubescentibus subtus pallidioribus minute pubescentibus, pedanculis brevibas axillaribus sæpius bi( -4 )-bracteatis bracteis foliaceis foliis sabæquilongis, calycis tubo hemisphærieo ovario adnato segmentis lanceolatis reflezis temp. florifero tubo longioribus, corolla campanulata breviter 5-fida albida intus inferne purpureo notata, ovario apice libero, stigmate 3-lobo lobis ovatis obtusis.

Hab. China, Prov. Hupeh, Fang District, Dr. A. Henry (No. 6651).
Folia $2 \frac{1}{2}-4(-5)$ poll. longa, 1-2 poll. lata ; petiolus $\frac{1}{6}-\frac{1}{2}$ poll. longus.
I have not seen the fruit.-D. Oliver.
Fig. 1. Flower, after removal of calyx-segments and corolla. Enlarged.


Dalbergia hupeana, Hance

## Plate 1968.

## DALBERGIA HUPEANA, Hance.

## Leguminosf. Tribe Dalbergiee.

D. (Dalbergaria) hupeana, Hance in Journ. Bot. 1882, p. 5 ; foliolis 9 (7-11) oblongo-ellipticis utrinque obtasis apice sæpius emarginatis supra obscure hirtellis nervis secundariis sæpins prominulis subtus pallidioribus parce pubescentibus, paniculis multiforis terminalibus parce ferrugineo-hirtellis floribus congestis pedicellis calyce sæpius brevioribus, calycis labio postico breviter obtuse bilobo lobis latis ovatis, labio antico longiore tubo æquilongo cymbiforme, vexillo rotundato, staminibus isadelphis, ovario stipitato glabrato $3-5$-ovulato, legumine tenaiter coriaceo oblongo 1-2(-4)-spermo.

Hab. China, Prov. Hupeh, Ichang, and immediate neighbourhood, Wutters, Dr. A. Henry; Nan-t‘o and mountains to northward, Dr. A. Henry (Nos. 3112, $3670,4128,4558$ ) ; Prov. Chekiang, Ningpo, Cooper, Oldham; Prov. Kiangsu, Shanghai, Carles, Faber; Prov. Szechwan, Faber.

Arbor 20-40-pedalis. Folia (in ramulis floriferis) 6-10 poll. longa; foliola $1 \frac{1}{2}-3$ poll. longa; petiolulus $\frac{1}{6}-\frac{1}{4}$ poll longus. Flores albidi $v$. flavescentes 3 lin. longi. Culyx campanulatus parce ferrugineosericeus. Vexillum breviter unguiculatum inappendiculatum.

It is very nearly allied to D. assamica, Benth.; but in this species the lobes of the upper lip of the calyx are broadly cuspidate or acute; in $D$. hupeana they are quite rotundate.-D. Oliver.

Dr. Henry supplies the following note on this valuable timber-tree:-

[^15]Fig. 1. Flower, after removal of petals. 2. Vexillum. 3. Ala. 4. Petal of rarina. 5. Pistil. 6. Longitudinal section of orary. Enlarged.
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## Plate 1969.

## ARUNDINARIA KURILENSIS, Rupr. var.

Graminere. Tribe Bambusex.

A. kurilensis, Ruprecht, var. paniculata; F. Schmidt, Reisen im Amurlande und auf d. Ins. Sachalin, 198 ; foliis culmi foliiferi oblongovel ovato-ellipticis acuminatis basi rotundatis minute tessellatis subtus ad nervos parce setuloso-pilosis deinde glabris, culmi floriferi multo minoribus ovato-lanceolatis setuloso-ciliatis, vaginis fimbrilliferis, paniculæ terminalis ramis elongatis erectis pubescentibas, spiculis purparascentibus lanceolatis discretis adpressis internodiis longioribus.A. Vietchii, N. E. Brown in Gard. Chron. 1889, vol. v. 521 ; B. Vietchii, Carr. in Rev. Hort. 1888, p. 90 ; and B. palmata, Hort. Latour-Marliac (ex N. E. Brown, l.c.).

## Hab. Japan, Rein; and Sachalin, Schmidt.

Folia $5-7$ poll. longa, 2-2 $2_{3}^{1}$ poll. lata; culmi floriferi $1 \frac{1}{2}-3$ poll. longa. Panicula 5-6 poll. longa, stricta. Glumce vacuæ variabiles, superior cymbiformis elliptico-lanceolata acutiuscula, inferior minuta linearisubulata; gluma florifera ovata breviter acuminata 7- vel obscure 9 -nervosa, apicem versus parce setulosa, c. 4 lin. longa; palea gluma subæquilonga, minute bidentata. Lodiculce obovatæ ciliatæ. Stamina 6-3. Ovarium cylindricum glabrum.

Probably to this species may be referred the Bambusacea published by Mr. Gamble last year, in Journ. Asiat. Soc. Bengal, 207, t. 7, under the name of Microcalamus Prainii. The name Microcalamus was preoccupied, having been published by Mons. Franchet the previous year (1889) in Journ. de Botanique, 282, for a Bambusacea from the Congo. I think Bambusa senanensis, Franch. et Savat. Enum. Pl. Jap. ii. 182, 606, may be a form of A. kurilensis (var. speciosa).

On the technical ground of the usual number of stamens this species has been referred to Bambusa; but in habit it is so diverse from that genus, and so entirely an Arundinaria, that I do not hesitate to follow Ruprecht, Schmidt, and Mr. Brown in referring it to the latter genus. I further agree with Schmidt in regarding it as a variety of $A$. kurilensis, which he looks upon as a very variable species. The number of stamens is not constantly six. Mr. Brown and I have found them varying down to three.-D. Oliver.

[^16]

## Plate 1970.

METAPLEXIS HEMSLEYANA, Oli้.
Asclepiadex. Tribe Cynancheas.
M. Hemsleyana, Oliv. (Holostemma sinense, Hemsl. in Journ. Linn. Soc. xxvi. 103); volubilis, ramulis gracilibus glabrescentibus, foliis cordato-ovatis petiolatis acatis vel obtusis cospidatis supra glabris v. costa basin versus puberula, subtus glaucis, cymis axillaribus pedunculatis subumbellatis $v$. interruptim racemosis, pedicellis flore suberquilongis, calycis segmentis lanceolatis acutiusculis corolla dimidio brevioribus, corollæ lobis ovatis obtusis glabris $\nabla$. extus parce pilosulis, æstivatione dextrorsum obtegentibus, corona ima basi tubi staminei inserta 5-lobata, lobis a basi distinctis antheris alternis brevibus rotundatis gynostegii multoties brevioribus, stylo breviter subulato bifido.
Hab. China, Prov. Hupeh, near Ichang. Dr. A. Henry (Nos. 2755, 3992,6625 A, 7262 ).
Folia $2 \frac{1}{2}-4$ poll. longa. Pedunculi $2-3$ poll. longi. Flores $\frac{1}{3} \frac{1}{2}$ poll. diam.

Differs from Holostemma in the corona and produced stigma. The corona of Metaplereis Stauntoni is nearly ideatical, but the corollalobes are strongly pilose within, and the style much more elongate.D. Oliver,

Fig 1. Æistivation of corolla. 2. Gynostegium, corolla removed. 3. Pollinia. Enlarged.


## Plate 1971.

## HENRYA AUGUSTINIANA, Hemsl.

## Ascleplades. Tribe Cynanchee.

H. Augustiniana, Hemsl. in Journ. Linn. Soc. xxvi. 111 ; volubilis caule glabro striato, foliis ovato-lanceolatis basi cordatis acuminatis glabris v. costa supra obsolete pilosula, floribus flavis graciliter pedicellatis in cymis divaricatis paniculatis axillaribus dispositis, calyce parvo 5-partito, lobis ovato-lanceolatis obtusiusculis marginibus subhyalinis, corolla rotata profunde 5 -fida, segmentis ovato-ellipticis obtusis venulosis æstivatione dextrorsum obtegentibus calyce 3-plo longioribus, corona 0 , gynostegio parvo tubo corollæ subæquilongo, filamentis breviter coalitis, antheris membrana reniformi inflexa terminalis, stigmate bilobulato antheras vix superante.

Hab. China, Prov. Hupeh, near Ichang, Dr. A. Henry (No. 4252).
Folia $3-4 \frac{1}{3}$ poll. longa ; petiolus $\frac{1}{2}-\frac{3}{4}$ poll. longas. Flores $\frac{1}{4}$ poll. diam.-D. Oliver.

Fig. 1. Estivation of corolla. 2. Flower. 3. Corolla, from above. 4. Gynostegium. 5. Pollinia. Enlarged.


TS. del.etith
Buddleia offomalis, Max

## Plate 1972.

## BUDDLEIA OFFICINALIS, Maxim.

Loginiacee

B (Neemda) officinalis, Muxim. in Mél. Biol. x. 675; frutex, ramalis foliis subtus et inflorescentia dense cano- vel cinnamomeotomentosis, foliis ovali- vel lanceolato-oblongis acutis sæpe acuminatis integris denticulatisve breviter petiolatis, thyrsis terminalibus sæpe angustis, floribus in cymis pedunculatis plurifloris congestis brevissime pedicellatis, bracteolis calyce brevioribus lineari-lanceolatis, calyce corolla 4-plo breviore campanulato tomentoso breviter et obtuse 4-dentato, corolla extus tomentella, tubo leviter incurvo, limbi brevis lubis rotundatis intus glabris tubo intus parce pilosulo, antheris «blongis subsessilibus tubi triente superiore insertis, ovario ellipsoideo tomentoso in stylum attenuato.

Hab. China, Provs. Shensi and Kansuh (ex Maximowicz) : Hupeh, Ichang, Watters, Maries, Dr. A. Henry (Nos. 1117, 1291, 1447, 15:27 : 110, j363) ; Szechwan, Faber.

Folia: lamina $2 \frac{1}{2}-3 \frac{1}{2}$ poll. longa, $\frac{3}{4}-1 \frac{1}{2}$ poll. lata; petiolus $2-6 \mathrm{lin}$. longus. Fhres $\frac{1}{3}-\frac{1}{2}$ poll. longi. Capsula crustacea oblongo-tllipsoidea, calyce duplo longior.-D. Oliver.
'This is one of the two sources of the Chinese drug known as mêng-luuu or mi-mêng-luua. Piasezki, who found this plant in Shansi and Kansuh, says that the flowers are sent from these provinces to Hankow for sale as a drug, in Chinese, "mun-chua" (Mél. Biol. x. 676 ). This species of Budlleia is common about Ichang, but is not atilised there as a drug. The Hower-buds are used, and a comparison of a specimen of Porter Smith's (of mêng-hua) in the Pharmaceutical Maseum establishes the correctness of Piasezki's information.

> LAt Ichang the name meng-huer is applied to Edyeworthia chrysenthe, Lindl. ; and a specirnen in the Pharmaceutical Museum from Hong Kong is undoubtedly the flowers of this species.
'There is an export from Hankow of 20 tons of meng-huc; and the two preceding articles (which are probably referred to in $P^{\prime}$ ' $n T s^{\text {s }}$ ' $\ell$ o Kung $\boldsymbol{T} u$, xxxri. 69) are included under the same name. The Suddleia flower-buds are obtained from Shensi and Kansuh; while the flowers of the Edgeworthia are got from shrubs cultivated in Hupeb.'-A. Hevry.

Fig. 1. Flower. detached. 2. Calyx, laid open, and pistil. 3. Corolla, laid open. 1. Anther, back and front. i). Transverse seution of ovary. Einlarued.


NBAn et ith
Androsace Henryi Giv:

## Plate 1973.

## ANDROSACE HENRYI, Olic:

## Primulacrie. Tribe Primulef.

A. Henryi, Olic. (sp. nov.) ; perennis, foliis omnibus radicalibus longe petiolatis rotundatis basi profunde cordatis lobulatis lobulis crenatodentatis precipue in nervis pilosulis, petiolis parce pilosis, scapis folio longioribus, umbellis $10-30$-floris, involucri bracteis linearibus $v$. lineari-subalatis pilosulis pedicello 2-4-plo brevioribna, calycis 5 -fidi tubo campanulato lobis ovato-lanceolatis acutiusculis, corolla calycem superante albida, segmentis limbi late obovatis emarginatis, tubo ore leviter constricto, capsula subturbinata truncata calycis tubum interdum subæquante apice albida subcartilaginea 15 -20-sperma.

Har. China, Prov. Hupeh, District South Patung ; Dr. A. Henry (Nos. 4868, 5364).

Foliu: lamina $1 \frac{3}{3}-3 \frac{1}{2}$ poll. lata; petiolus $3-7$ poll. longus. Seupi 1-3, laxe pilosi.

The nearest ally to this species would seem to be $A$. geraniifolia, Watt (Hooker, Fl. Brit. Ind. iii. 497), of the Himalaya. Mr. Faber collected what may be a form of $A$. Henryi in fruit, wn Mount Omei, in the Province of Szechwan.-D. Oliver.

[^17]


IAMErt!ia stemopiytia, Balrer

## Plate 1974.

## HAWORTHIA STENOPHYLLA, Baker.

## Liliacere. Tribe Aloinere.

H. stenophylla, Balier (sp. nov.) ; bulbo ovoideo, tunicis paucis ovatis, fibris radicalibus cylindricis, foliis circiter 4 rigide erectis anguste linearibus marginibus revolutis integris, pedanculo foliis longiore, racemo laxo simplici, pedicellis brevibus erecto-patentibus medio articulatis, bracteis parvis superioribus ovatis inferioribus lanceolatis, perianthii tabo cylindrico, segmentis linearibus falcatis tubo brevioribus, genitalibus in tubo inclusis.

Hab. Transvaal ; grassy mountain slopes of the Saddleback range near Barberton, Galpin, No. 858.

Folia 7-8 poll. longa. Pedunculus subpedalis. Ritcemus 3-4pollicaris. Perianthium 6 lin. longum.

There are only two other species known with these long narrow, leaves, both discovered recently, viz. H. tenuijutia (Engler, 'Jaholuch,' x. 2, t. 1), a native of Bechuanaland, and H. Saunclersice (Baker, inedit.), a native of the Transvaal.-J. G. Baker.

Fig. 1. Detached flower, 2. Stamens and pistil. 3. Pistil. Enlarged.


Inula racemosa. Hk.f

## Plate 1975.

INUIA RACEMOSA, Hook. $f$.

## Composite. Tribe Inuloidee.

I. racemosa, Hook. f., Flora Brit. Ind. iii. 292; herba 2-5-pedalis, caule erecto leviter angulato v . sulcato pilosulo interdum scabrido, foliis superioribus ovato- $\nabla$. lanceolato-oblongis acutis dentatis supra scabridis subtus molliter tomentosis sessilibus amplexicaulibus, capitalis 2-3 poll. diam. in axillis foliorum superioram solitariis sessilibus v. breviter pedunculatis, involucri bracteis exterioribus herbaceis extus tomentosis apice recurvis interioribus longioribus scariosis sæpe glabratis discum sæpe superantibus, radii corollis angustissime ligulatis longitudinaliter 5 -nervosis, disci corollis acute 5 -dentatis, pappo ovario $2-3$-plo longiore setaceo setis inæqualibus minute barbellatis, ovario glabro angulato longitudinaliter striato.

Hab. Western Himalaya, Dr. Fulconer, Dr. Thumson; China, Prov. Hupeh, Patung District (cultivated as a drug), Dr. A. Henry (No. 4928).

Folic radicalia (in spp. himal.) $1-1 \frac{1}{2}$-ped. longa in petiolum subrequilongum angnstata; folia superiora capitulifera 4-6 poll. longa sessilia. Comolla ligulata radii 1-1 $\frac{1}{4}$ poll. longa.

The specimen described in detail above is the Chinese one. Dr. Henry supplies the subjoined note.-D. Oliver.
' Inulf racemosa, Hk. f., is cultivated in the mountains of Hupeh as a sabstitute for putchak, the root of Aplotaxis auriculata, DC., which is so largely imported into China by way of Calcutta and Bombay from Cashmere. The name given to Inula racemusa, Hk. f., is k'uany mu hsiang, i.e. Canton (bat inland in Hupeh, meaning foreign) putchuk.
' In Japan, Elecampane (Tuula Helenium, L.) is cultivated under the name of $t^{\prime \prime} u$ mu-hsiun?, or local putchats.
'No doubt this plant also contains inulin in quantity; and it may have been introduced into cultivation in China by the overland route from India.'-A. Henry.

[^18]
## H0OKER'S

## ICONES PLANTARUM;

 or.FIGURES, WITH DESCRIPYIVE CHARACTERS AND REMARKS, OF NEW AND RARE PLANTS,

SEIMCTED FROM THE

## KEW HERBARIUM.

THIRD SERIES.

EDITED FOR THE BENTHAM THUSTEES BY
DANIEL OLIVER, F.R.S., F.L.S.
FMERITUS PROFESSOR OF BOTANY IN UNTVERSITY COLLEGE, LONDON: LATE KEIPER OE TEE

@uder the arntbority of the wirector of the Rogal Botanic Bardents. ©iero.

VOL. X.
OR VOL. XX. OF THE ENTIRE WORE

WILLIAMS AND NORGATE,
14, henrietta street, cofent garden, london ; ASD 20 , SOUTH FREDERICK STREET, EDNBCRGH.
R. FRIEDLÄNDER UND SOHN, 11, CARLSTRASSE, BERLIN.
1891.


MS.del, et. lith

## Plate 1976.

## PITHECOLOBIUM BALANSA, Oliv.

## Leguminoser. Tribe Ingee.

P. Balansæ, Oliv. (sp. nov.), arbuscula, 20-30 pedalis inermis, pinnis bijugis, foliolis amplis 4.jugis oblongo- vel obovato-ellipticis breviter obtuse apiculatis glabratis costa nervisque primariis subtus prominalis breviter petiolalatis, stipulis obsoletis, paniculis folio brevioribus ferragineo-tomentosis in axillis superioribus dispositis, floribus ferragineis capitatis, capitulis breviter pedunculatis, calyce irregulariter fisso, petalis calyce longioribus extus ferrugineo-hirsutis, staminibus $\infty$ inferne in tubum coalitis, antheris parvis late rotundatis dorso mediofixis inappendiculatis, ovario glabro breviter stipitato, ovulis c. 10-12 biseriatis, legamine recto turgido subtereti 1 -oligospermo, valvis crassiusculis rigidis, seminibus magnis lævibus (in leguminibus dispermis truncato-turbinatis), testa crassa indurata.
$H_{A B}$. Tonkin, forests of Mont. Bari ; Balansa (Nos. 2298, 2299).
Fotia 14-18 poll. longa; foliola 4-5 (3-7), poll. longa $1 \frac{1}{2}-2 \frac{1}{2}$ poll. lata; petiolulus $\frac{1}{6}-\frac{1}{4}$ poll. longus. Legumen $4-7$ poll. longum ; semina $1 \frac{3}{4}$ poll. longa, basi truncata $1 \frac{1}{3}$ poll. lata.
The sections of this large genus were provisionally left by Mr. Bentham in his Memoir on the Mimoseæ, in the 'Transactions of the Linnean Society,' vol. xxx., in the anticipation that some modification might become expedient with better knowledge. As they now stand I suppose this plant may be regarded as an exceptional member of the section Samanea.-D. Oliver.
Fig. 1. Expanding flower. 2. Calyx. 3. Corolla laid open, showing carpel. 4. Anther, back and front. 5. Orary laid open. Enlarged.


MS.del etlith.

## Plate $197 \%$.

## C届SALPINIA PAUCIJUGA, Benth.

## Leguminoser. Tribe Eccasatpinief.

C. (§ Libidibia) paucijuga, Bentham MS. in Herb. Kew; pinnis sæpius bijugis cum impari, foliolis $4-5$-jugis ellipticis v. obovatis obtusis tenuiter coriaceis glabris brevissime petiolulatis, floribus racemosis, racemis axillaribus simplicibus v . paniculatis puberulis, bracteis ovatis acntis $\nabla$. acuminatis deciduis, ealycis tabo oblique campanulato limbo subequilongo, lobis obtusis elliptico-oblongis lobo antico galeato, petalis calycem superantibus elliptico-lanceolatis postico paulo majore intus setuloso, filamentis glanduloso-setulosis, ovario glabro breviter stipitato, ovalis e 10 , legumine oblongo compresso.
Hab. Only known to us from the Botanic Garden, Trinidad; sent by Mr. Prestoe. It occurs also in St. Thomas; introdaced from Trinidad, Eggers (No. 134).
Fotiola 5-8 lin. Jonga, $2 \frac{1}{2}-5$ lin. lata. Bractece $1-1 \frac{1}{2}$ lin. longæ. Pedicelli calyce florifero subbreviores, paberuli. Legumen breviter stipitatum, rectum, valvis lævibus, $2 \frac{3}{4}-3$ poll. longum, $9-11$ lin. latum.-D. Ouiver.

Fig. 1. Bud. 2. Vertical section of calyx, showing insertion of stamens and carpel. 3 and 4. Petals. 5. Longitudinal section of ovary. 6. Legume. 1-5 enlarged.

## Plate 1978.

## pedicularis vagans, Hemsl.

## Scrophulartacee. Tribe Euphrasie.e.

P. (§ Rhyncholophæ) vagans, Hemsl. in Journ. Linn. Soc. xxvi. 218; herba perennis insignis siccitate nigrescens, caulibus elongatis gracilibus debilibus vagantibus $\nabla$. seandentibus, foliis radicalibus amplis longe petiolatis bipinnatisectis omnino filiciformibus papyraceis parcissime setulosis, oblongo-lanceolatis, pinnis confertis decurrentibus pinnatifidis, lobis ultimis circiter $13-17$ sursum gradatim paucioribus leviter oblique deltoideis, caulinis suboppositis nodis distantibus oxyacanthoideis, distincte graciliterque petiolatis, ovali-oblongis $\nabla$. interdum fere orbicularibus sæpius inæqualiter alte 5 - 7 -lobatis simul setuloso-denticulatis, floribus in axillis foliorum dense fasciculatis, brevissime pedicellatis bracteis foliaceis stipitatis subtendentibus, glabris, calyce tubuloso leviter ventricoso tubum corollæ æquante 9nervoso inæequaliter breviter 5 -lobato, lobis acuminatis integris v . paucidenticulatis, corollæ tubo sursum gradatim expanso, labiis subæquilongis, superiore rostrato incurvo inferiore patente late 3-lobato, lobis subæequalibus rotundatis, staminibus inclusis, filamentis filiformibus glabris, ovario compresso ovoideo glabro, capsula ignota.Maxim. Mél. Biol. xii. 937, t. vii., fig. 188.

Hab. China, Prov. Szechwan, Mt. Omei, 4,000-乞े,000 feet, Faber.

## Folia radicalia pedalia et ultra; caulina cum petiolo $1 \frac{1}{2}-2$ poll. longa. Mores vix pollicares.

The fern-like radical leaves and slender climbing or trailing stems characterise this remarkable species.-W. B. Hemsley.

Fig. 1. Flower. 2. Anther, hack and front. 3. Immature capsule. Enlarged

M.S del et lith

Scævola hainanensis, Hance

## Plate 1979.

## SCTTOLA HAINANENSIS, Hance.

## Goodenovier.

8. (§ Crossotoma) hainanensis, Hance, in Journ. Bot. 1878, 229 ; frutex caulibus diffusis prostratis nunc radicantibus cortice suberoso obductis, foliis alternis inferne fasciculatis, lineari-spathulatis obtusis carnosulis glabris axillis breviter lanatis, floribus axillaribus solitariis albidis foliis subbrevioribus brevissime pedicellatis, bibracteolatis, bracteolis carnosis lineari-spathulatis ad basin calycis insertis alabastro brevioribus, calyce glabro limbo brevi breviter 5 -dentato dentibas obtusis tabo 3-4-plo brevioribus, corolla extus glabra carnosula oblique fissa, segmentis obovatis v. primo adspectu marginibus tenuibus inflexis ovali-oblanceolatis.

Hab. Circa Hoi-hau, Ins. Hainan, Bullock; Dr. A. Henry (No. 8159).

Ramuli ultimi pance hirtelli $\nabla$. setulosi. Folia $\frac{1}{2}-1$ poll. longa. Corolla 4-5 lin. longa. Antherce lineari-oblongæ inappendiculatæ.

Nearly related to S. spinescens, R. Br., as observed by Dr. Hance; a species restricted to Australia, where, however, it is widely distributed. It is very interesting as another instance of extension to China of a characteristically Australian type.-D. Ouiver.
Fig. 1. Flower. 2. Anther, back and front. 3. Inferior ovary, laid open; style and stigma. Enlarged.


MSder ilutin
Lysimacha Hernsl syara, Maxam

## Plate 1980.

LYSIMACHIA HEMSLEYANA, Maxim.

## Primulacere. Tribe Lisimachiex.

L. Hemsleyana, Maximowicz MSS. in litt. Habitu L. Christince, caule prostrato parce pilosulo $\mathrm{\nabla}$. glanduloso-hirto, foliis cordiformibus . late ovatis obtasis petiolatis glandulis immersis inconspicuis sparsis precipue marginem versus numerosioribus, pedunculis 1 -floris axillaribus folio sæpius brevioribns, flore pedicello breviore, lobis calycinis lineari-lanceolatis corolla brevioribns, corolla aurantiaca campanulatorotata lobis ellipticis apicem versus glandulosis glandulis parvis rotundatis breviter oblongisve (hand longe linearibus ut in L. Christince), tubo stamineo extus puberulo.
Hab. China, Prov. Hupeh, near Ichang, Dr. A. Henry (Nos. 489, 1381, ex parte).
Folia $\frac{3}{4}-1$ poll. longa; petioli $\frac{1}{4}-\frac{1}{3}\left(-\frac{1}{2}\right)$ poll. longi. Calya lobis $3-3 \frac{1}{2}$ lin. longis.
Included under Lysimachia Christince, Hance, in Mr. Hemsley's Enumeration (Journ. Linn. Soc. xxvi. 49), to which species it is very closely allied, differing in being more or less minutely hairy, the stem always so, and the leaves often scabrid above or minutely ciliolate, the calyx-lobes proportionally longer, and the gland-dots round or very shortly oblong, not linear-D. Oliver.

[^19]
tein -
Lysimacha ruo: grrosa. Hemsl

## Plate 1981.

## LYSIMACHIA RUBIGINOSA, Hemsl.

Primulacee. Tribe Lysimachiee.
L. rubiginosa, Hemst. in-Journ. Linn. Snc. xxvi. 56. Herba erecta $\nabla$ adscendens pilosula, foliis oppositis petiolatis ovato-lanceolatis acutis basi rotundatis in petiolum breviter angustatis glandulis linearibus punctiformibus intermixtis immersis notatis, floribus flavis in cymas bracteatas 2 3-flores axillares $\nabla$. quasi terminales breviter pedunculatas dispositis v . solitariis, bracteis ovatis cam flore subæquilongis, segmentis calycinis linearibus $v$. anguste ovalibus acutis parce pilosulis glabratisve corolla profunde 5 -fida brevioribus, corollæ lobis ellipticis $\nabla$. ovali-oblongis acutiusculis, staminibus inæqualibus tubo extus puberulo.

Hab. China, Prov. Hupeh, Patung District; Prov. Szechwan, So. Wushan ; and Prov. Hanan, Shih-mên, Dr. A. Henry (Nos. 1823, $2440,4680,4945,6244,7559)$.
Caulis $1 \frac{1}{2}-2$ pedalis. Folia parce pilosula, lamina $2-3$ poll. longa, $\frac{2}{3} \frac{1}{2}$ poll. lata; petioli $\frac{1}{3}-\frac{3}{4}$ poll. longi. Pedunculus $\frac{1}{6}-\frac{1}{3}$ poll. longus ; pedicelli calyce breviores v. flores subsessiles.-D. Oliver.

Fig. 1. Flower front calyx, lobe removed. 2. Andræcium. 3. Pistil. Enlarged.


Un: $-\quad$ : phatforme, Franc:

## Plate 1982.

## LYSIMACHIA PARIDIFORMIS, Franchet.

## Primulacer, Tribe Lysimachiex.

L. paridiformis, var. elliptica, Franch. in Bull. Soc. Linn. Paris, 1884, 433 ; ramis florentibus strictis erectis glabris apice foliferis, ob nodos approximatos foliis amplis quasi verticillatis, scapo inferne internodiis elongatis foliis squamiformibus tantum per paria instructo, foliis sæpius 4 -uis ellipticis breviter acuminatis cuspidatisve breviter petiolatis crassiusculis glabris punctis oblongis $v$. linearibus sparsis notatis, floribus luteis terminalibus inter folia umbellatim congestis, bracteis lineari-subulatis, pedicellis flore brevioribus, lobis calycinis lineari-lanceolatis acutis rigidiusculis basi margine scariosa ciliata rotundato- . ovato-dilatatis, corolla profunde 5 -fida lobis ovalioblongis v. ellipticis calycem saperantibas, filamentis tubo corollæ longioribas in tubum connatis apice liberis, ovario sub-globoso, capsula globosa calyce fructifero 2-plo breviore.
Hab. China, Prov. Kwei-chau, Perny; Hupeh, near Ichang, Dr. A. Henry; Szechwan (Nos. 3500,4202 ), Min River, Faber.

Rami floriferi 10-18 poll. longi. Folia $3 \frac{1}{2}-4 \frac{1}{2}$ poll. longa, 2-2 $\frac{2}{3}$ poll. lata; petioli $\frac{1}{4}-\frac{1}{3}$ poll. longi v. folia interdum subsessilia. Inforescentia 1-2 poll. diam. Calyx segmentis $4-5$ lin. longis.

Excepting two specimens collected by Faber on the Min River, all the specimens which we have received from Hupeh and Szechwan belong to the broad-leaved variety described above. M. Franchet has obligingly sent us a specimen of his variety stenophylla, in which the leaves in the pseudo-verticil immediately under the flowers vary in number to eight or ten, and scarcely exceed half an inch in breadth. Faber's specimens referred to above are identical with this. In none of our native specimens of the var. elliptica do the leaves exceed four. M. Franchet's specific name well expresses the aspect of this curious plant. Since the above description was drawn up, this plant has flowered, from seeds sent by Dr. Henry, in the Royal Gardens. The leaves sometimes occur in verticils of three; and in one specimen the flowers are raised on a peduncle of $1 \frac{1}{2}$ or 2 inches above the upper leaves.-D. Oliver.

[^20]
M. S del et lith

Lysimachia Fordiana, Oliv.

## Plate 1983.

## LYSIMACHIA FORDIANA, Oliv.

Primulaceet. Tribe Lisimachiee.
L. Fordiana, Oliv. (sp. nov.) babitu floribusque I. paridiformis sed foliis ex nodis caulinis superioribus dissitis haud squamiformibus et punctis glandulosis nigris parvis rotundatis haud oblongis linearibusve.

Hab. China, Prov. Kwangtung, Ford.
Folia 4-6 poll. longa, $2 \frac{1}{4}-33_{4}^{3}$ poll. lata; petioli $\frac{1}{3}-\frac{3}{4}$ poll. longi. Calyx segmentis oblongo-lanceolatis acutiusculis dense punctatis. Corolla calyce duplo longior, lobis ovali-oblongis obtusis, nigro-punctatis.

The leaves of the pseudo-verticil immediately ander the inflorescence are like those of the preceding species in all respects excepting the form of their minute immersed glands, which are very numerous, and do not pass into the oblong or linear form of the sparse glands of L. puridiformis. The leaves of at least the upper node below the psendo-verticil are similar to those around the flowers, not minute or squamiform, and conspicuously petiolate.-D. Oliver.

[^21]
M. S. del et lith.

Dipsacus asper, Wall

## Plate 1984.

## DIPSACUS ASPER, Wall.

## Dipsacere.

D. asper, Wall. Cat. 428; DC. Prodr. iv. 646; caule erecto sulcato sepins parce aculeolato, foliis inferioribus basin versus pinnatisectis, lubo centrali grosse serrato-dentato acuminato, setulososcabridis, superioribus lanceolatis deltoideo-dentatis apicem versus integris brevissime petiolatis, floribus in capitulis globosis longe pelunculatis dispositis, bracteis linearibus setulosis capitulo brevioribus, calyculis 4 -dentatis calyce panllo brevioribus glabris dentibus ovatodeltoideis obtusiusculis ore diseo subelausis, calycis tubo glabro incluso dentibus limbi ciliatis brevıbus, corolla calyce 3-4-plo longior basi angustata extus breviter retrorso-lirsuta, genitalibus exsertis.

Haß. K'hasia ; 4,000-6,000 feet, Wullich, Hooker and Thomson, and others; and China, Prov. Hupeh, Dr. A. Henry (Nos. 160, 2:267, 2941, 4792).
Cupitula florifera $1-1 \frac{1}{2}$ poll. diam. The plant is figured and described from Chinese speeimens.-D. Oliver.
Dr. Henry supplies the following note: 'Dipsacus asper, Wall. occurs wild in the mountainous parts of Hupeh and Szechwan. The root is used as a drug, as much as a hundred tons yearly being exported from the port of Hankow. The native name is hsii-tuan, by which the plant is fignred and described in Chito wn Ming, xi. 32. It is also known frequently as chuan-tan. A smaller quantity-about 15 tons annually-coming from the province of Kwangsi, is exported from Canton. Whether this is the product of the same plant I am not now in a position to state. In Japan hisii-tuan is given by some authorities as the name for Lamium album; but Metsumura in his latest book does, not confirm this. See Porter Smith, "Contr. Mat. Med. China," 1. 6.4, where a wrong identification of the Hankow drug is given.'

Fig. 1. Flower with involucel. 2. Inrolucel, laid open. Enlarged.


## Plate 1985.

## ARENGA LISTERI, Beccari.

## Palmacee. Tribe Arecee. Subtribe Caryotidee.

A. Listeri, Beccari MISS. in litt.; subacaulis, frondium segmentis linearibus vel apicem versus anguste cuneatis apice denticulato-erosis V. in segmentis terminalibus obtasis breviter bilobatis spinulosodentatis, basi attenuatis exauriculatis, subtus in costa furfuraceis, rhachi furfuracea basi vaginante fibris longis stipata, spadicibus amplis ramis arcuat-d vergentibus primum graclibus subteretibus simplicibus, floribus of binis $\frac{1}{3}$ poll. longis $20-35$-andris, sepalis breviter rotundatis $r$. subreniformibus coriaceis late imbricatis, petalis crasse coriaceis calyce multoties longioribus oblongis concavis basi brevissime coalitis, filamentis subulatis liberis; fl. \& sepalis late rotundatis, petalis deltoideis coalitis coriaceis incurvis ovario ovoideo trigono æquilongis. Didymosperma sp., Hemst. in Journ. Linn. Soc. xxv. 359.

## Hab. Christmas Island, J. J. Lister, 1887.

Segmenta frondium majora $15-30$ poll. longa, segmenta latiora plus minus apicem versus dilatata $1 \frac{3}{4}$ poll. lata (segmentum terminali cuneatum bilobum 3 poll. latam) subtns minutissime incano- $\begin{array}{r} \\ \text {. sericeo- }\end{array}$ tomentella, punctis minutis raris brunneis nigrescentibusve notata. Panicuice rami fl. © gerentes crassitie pennæ corvinæ, tempore fructifero pennæ cygui, 10-20 poll. longi.
The pistillate flower, originating between the staminate ones, is at the time of expansion of the latter in a quite rudimentary stage, nor would it he reasonable, from our specimens alone, to infer that both $\delta$ and of flowers originate from the same rachis, as Sig. Beccari points out is the case in the other species of Arenga and Carymtu, the flower-bearing branches of the spadix being much stouter and longer in those which bear the expanded-or, in our specimen, the more adranceri-pistillate flowers (without perceptible trace of the lateral fallen males), than the branches bearing expanded males. At the same time it is true, as noted above, that a rudimentary pistillate flower is present between the males in our specimens.-D. OLiver.
Fig. 1. Staminate flower. 2. Calyx of same. 3. A nther, back and front. 4 and 5. Pistil flower. 6. Vertical section of ovary. Enlarged.

M.S del et lith.

Catostemma fragrans, Benth

## CATOSTEMMA FRAGRANS, Benth.

## Malvace $e$. Subtribe Matisiee.

C. fragrans, Benth. in Hook. London Journ. Bot. ii. (1843) 365 ; Icones Plantarum, Pl. 1793.

Hab. British Guiana, banks of rivers, Schomburgk (No. 280); Lower Demerara river, Jenman (No. 4336). Received in flower and fruit from St. Vincent's, where it still survives in the old Botanic Garden, Powell, 1891.

Fructus monospermus ellipsoidens, 3-4 poll. longus ; pericarpium crasse coriaceum 3 -valve; valvis concavis extus parce tomentellis. Semen oblongam subcylindricum $\nabla$. plas minus obovoideum, læve, rubrum, albuminosum, $2 \frac{1}{2}$ poll. longum, $1 \frac{1}{4}-1 \frac{1}{3}$ poll. diam. ; testa cellulosa cystis mucilaginosis copiosis predita; albumine tenui; cotyledones crassm plas minus conferruminatæ, cystigeræ.

I have little to add to the general description of this remarkable tree as giveu in the works above named. The specimens sent by Mr. Powell show that the leaves may vary to a length of 7 or 8 ins. with a petiole of $3-3 \frac{3}{2}$ ins. They are obtuse and mucronate, but scarcely retuse as in some of the indigenous specimens. Catostemma was originally referred by Mr. Bentham to Ternstremiaceæ. In 'Genera Plantarum,' i. 180, it was rejected from this Order and found provisional place, with a few other anomalous genera, at the end of Myrtaceæ, on the ground of the marked perigyny of the petals and stamens. Mr. Hemsley, on comparing the recently received specimens with a view to determine its affinity, was led to look into Malvales and there found the genus Scleronema, first published by Mrr. Bentham in the 'Journal of the Linnean Society', vi. 109, based upon specimens of Mr. Spruce's, collected on the Rio Uaupès, in North Brazil (No. 2548), which he rightly regards as congeneric with Cutcostemma; which latter name, having priority, must stand. Mr. Spruce's plant ( $S$. Spruceuna, Benth. 1.c.) differs at sight in the elliptical or obovate leaves with a distinct apiculas and prominent trausverse venation.

Although I do not know any member of the order Malvacea presenting such marked perigyny of the petals and stamens, I think its nearest relationship is here with IIumper and its allies where Mr. Bentham placed his Scleromema. The filaments cohere in phalanges; the anthers are unilocular. The calyx has a campanulate tube, at length circumsciss near the base, and the limb splits irregularly into 2. to 5 ovate-deltoid, or broader, segments; which of course are in no way imbricate, as Mr. Bentham thought the calyx might be, in the absence of an unopened bud.-D. Oliver.

Fig. 1. Bud. 2. Petal. 3. Stamen, back and front. 4. Vertical section of ovary and calyx, howing perigyny of corolla and stamens. Finluryed.


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Meuwiedia veratrifolia. B1.

## Plate 1987.

## NEUWIEDIA VERATRIFOLIA, Bl.

Orchidet. Tribe Crpripedies.
N. veratrifolia, Blume in Hoeven and de Vriese, Tijitschr. (Amster. dam) i. 142, foliis nervoso-plicatis ovali-lanceolatis tenuiter acuminatis basi in petiolum longiuscalum attenuatis, racemo terminali spiciforme multifloro foliis breviore, bracteis gradatim minoribus anguste lanceolatis herbaceis glabratis inferioribus flores superantibns, floribus glabris, sepalis subæqualibus lineari-lanceolatis cum apiculo subapicali, petalis lateralibus oblongo-lanceolatis sepalis requilongis, labello lineari oblongo incurvo apice concavo cum apiculo, antheris oblongis inapperdiculatis. Ann. Sc. Nat., sér. 2, ii. 94 ; Rolfe in Journ. Linn. Soc. xxv. 231 (where additional references are given).

Hab. Java, Blume ; Borneo, Sarawak, Beccari (No. 1147).
Folia cum petiolo $1 \frac{1}{4}-1 \frac{1}{2}$ ped. longa, $1 \frac{3}{4}-2 \frac{1}{4}$ poll. lata. Racemus 6-8 poll. longas.

We only possess at Kew a drawing of Blume's type specimen which was kindly lent us by the authorities of the Leyden Herbarium. Mr. Rolfe, who has made a careful study of the Apostasiex, feels confident in his identification of Sig. Beccari's specimen (for the use of which for the purpose of this plate we are indebted to that distinguished botanist) with Blume's plant. The species of this genus are nearly allied to each other, and their general facies, excluding $A_{\text {. }}$. Griffithio, is the same.-D. Oliver.
Fig. 1. Fluwer, 2. Anther, back and front. 3. Transrerse section of orary. Enlarged.


MS ie $\quad \therefore$

Prododsarua Caicmivylordesi, Benth

## Plate 1988.

## ENDODESMIA CALOPHYLLOIDES, Benth.

## Hypericinee. Tribe Vismiee.

E. calophylloides, Benth. Gen. Plant. i. 166; arbuscula v. frutex glaberrimus, foliis oppositis petiolatis coriaceis ovali- vel oblongolanceolatis longe et obtusiuscule acuminatis, venis lateralibus crebris parallelis, impunctatis, floribus flavis in cymis pauci-vel plurifloris corymbiformibus subsessilibus dispositis, pedicellis crassis basi articulatis calyce sæpe brevioribus, calycis 5 -partiti segmentis ovato- $\nabla$. lanceolato-oblongis acatis, persistentibus, petalis calyce duplo longioribus, æstivatione contorto-imbricatis, carnosulis $\nabla$. medio coriaceis, oblique obovatis latere interiore reflexo, loho reflexo basi auriculato, phalangibus intus antheriferis, 5-polyandris, in tubum truncatum coloratum coalitis, antheris plus minus stipitatis p . maximum partem inclusis parvis ovatis apiculatis, gyneecio monocarpico subulato glabro, stylo elongato indiviso, ovario 1-loculare, ovulo solitario prope apicem cavitatis inserto pendulo, fructu oblique oblongo v. ovoideo, pericarpio coriaceo, albumine 0 , cotyledonibns oblongis plano-convexis carnosis, radicula minuta supera, pedicello fructifero incrassato. Oliv., Fl. Trop. Afr. i. 157.
Hab. West Tropical Africa; Cameroon and Gaboon Rivers, Mann.

Ramuli graciles teretes, novelli glaucescentes. Folia $2 \frac{2}{2}-3$ poll. longa, $\frac{2}{3}-\frac{-3}{4}$ poll. lata; petiolus $\frac{1}{8}-\frac{1}{6}$ poll. longus. Flores $\frac{2}{3}-\frac{3}{4}$ poll. diam. Semen $\frac{7}{7}-8$ lin. longum.

Of this very interesting monotype, pecaliar to the Biafra region of the Gulf of Guinea, it is remarkable that no specimens have reached us since the splendid collections of Gustav Mann, some thirty years ago. I leave the genus where it was first placed by Mr. Bentham, though in its monocarpellary gynœecium and solitary pendulous ovule it differs from any other member of the Order Hypericineer as yet known to us.-D. Oiliver.

Fig. 1. Petal. 2. Androscium. 3. Phalange of same, from within. 4. Anther, lack and front. 5. Ovary. 6. Vertical section of same. 7. Longitudinal section of seed. Enlarged.


## Plate 1989.

## CARPINUS LAXIFLORA, Bl., var. macrostachya.

Cupuliferts. Tribe Coryles.
C. laxiflora, Blume, Mfus. Bot. i. 309; foliis e basi rotundata $\nabla$. subcordata ovato- vel oblongo-lanceolatis acaminatis inæqualiter dupli-cato-serratis subtus præcipue in costa parce sericeo-pilosis glabratisve, spicis fructiferis recarvis folio longioribus, squamis involucri rigidulis e basi concava ovata lanceolatis basi breviter et inæqualiter 3 -fidis v. uno latere serratis altero basi tantum 1-dentatis, nuce late ovoidea longitudinaliter 6-8 nervosa glabra.

Hab. China, Prov. Hupeh, North Patung, Dr. Henry (No. 7013).
Fotia sæpius 2-3 poll. longa; petiolus gracilis $\frac{1}{2}-\frac{3}{4}$ poll. longus. Strobili fructiferi $3 \frac{1}{2}-4$ poll. longi; bracteæ involucrantes $7-8 \mathrm{lin}$. longæ.

Mons. Franchet reports C. laxiflora, in 'Plantæ Davidianæ,' i. 279, as occurring near Kinkiang.-D. Oliver.
Fig. 1. Young fruit. 3. Same, with inrolucre. Enlarged.


MS ite et lith
Microgynoeciumi: ubetreum, Hk f

## Plate 1990.

## MICROGYNGECIUM TIBETICUM, Hook. f.

## Chenopodiacee. Tribe Camphorosmee.

M. tibeticum, Hook. f., Fl. Brit. Ind. v. 9. Sp. unica.

Hab. Gurwhal ; Topidunga, Strachey and Winterbottom: Kamaon; Kunti-Yangti Valley, Duthie (No. 5952) : Sikkim; Tungu, J. D. Hooker; always from 12,000 feet to 15,000 feet alt.

Herba annua monoica, pusilla 2-4 poll. e basi ramosa foliosa parce papilloso-farinosa. Folia alterna petiolata ovata deltoideo-ovata v. ovato-lanceolata acuta integra vel utrinque 1-dentata sape parce farinoso-papillosa tenuiter carnosula $\frac{1}{4}-\frac{1}{2}$ poll. longa; petiolus $\frac{1}{6}-\frac{1}{3}$ poll. longus. Flores minutissimi, inter folia absconditi, superiores sæpius masculi solitarii $v$. glomerulati bracteati. Fl. ठ : perianthiam hyalinum 5-dentatam dentibus deltoideis $\nabla$. deltoideo-lanceolatis; stamina 1-2-3, exserta, anthere subdidymæ. Fl. of minutissimi bracteati, bracteis lanceolatis linearibasve ; stylus brevissimus v . obsoletus; stigmata 2 capillaria a basi v. fere a basi libera. Utriculus erectus compressus late ellipticus $\nabla$. obovatus, maturitate nigrescens, apicem versus parce tuberculatus. Semen verticale; embryo hippocrepicus albumen cingens.

In general appearance like small specimens of some varieties of Axyris amaranthoides, but without the characteristic indumentum of that plant, resembling in this respect the less farinose speeies of Atriplea, as noted by Sir Joseph Hooker. I fail, however, to find the lateral bracteoles associated with each of flower, as stated in Gien. Plant. iii. 56. The flowers appear to me associated with lanceulate or linear bracts, in some cases, at least, subtended by them and overtopped by the larger. The of flowens are either solitary or glomernlate at the ends of the axillary ramuli.-D. Oliver.
Fig. 1. Portion of flowering braneh. 2. Inflorescence, including one staminate flower. 3. Staminate tlower. 4. Pistil. 5. Fruit. 6. Vertical section of same, shuwing embryo. Enlurgid.
(n)

## Plate 1991.

## PHANOSPERMA GLOBOSA, Munro.

## Gramineie. Tribe Tristeginee.

P. globosa, Munro; Benth. in Journ. Linn. Soc. xix. 59 ; elata glabra, foliis elongatis anguste lanceolato-linearibus longe acuminatis basi angustatis planis v. longitudinaliter plicato-striatis subtus glaucescentibus scabriusculis, ligulis conspicuis rigidis apice scariosis, panicula maxima folia superantia pyramidali, ramis sæpius $5-12$ pseudo-verticillatis, gracilibus sæpius simplicibus adscendentibus inæquilongis levibus v. minute seabriusculis, spiculis brevissime pedicellatis, floriferis ovalibus, caryopside obovoidea V . ellipsoidea leviter rugnlosa.Franchet, Pl. David. Sin. 326.

Hab. China; Prov. Kiangsi, Kiukiang, David, Shearer; Prov. Iupeh, Ichang and 'Nan-t'o and mountains to northward.'-Dr. A. Henry (Nos. 62 6, 1943, 2073, 3966, 3968).

Culmi 3-5 ped. alti, striati. Folia 1-2 ped. longa, majora $\frac{2}{3}-1$ poll. lata. Spiculce pedicello $3-5$-plo longiores vel interdum subsessiles, floriferæ $1 \frac{3}{4} 2$ lin. longæ. Gilume inæquales persistentes, exterior spicula dimidio brevior oblongo-lanceolata obtasiuseula l-nervis, superior spicula subbrevior ovato-lanceolata subtrinervis ; glama florifera ovato-lanceolata acutiuscula sub $\overline{5}$-nervis palea binervosa marginibus inflexis æquilonga. Lodiculoe 3 hyalinæ lanceolatæ acutæ, 2 breviores basin prope leviter incrassatæ. Caryopsis libera glumis paullo superantibus, pericarpio tenui separabile; testa indurata colorata: albumen farinaceum ; embryo minatus.

Perhaps from the imperfect material then available, Mr. Bentham, in 'Genera Plantarum' iii. 119, describes the glumes as four in number, but the palea proper as wanting. M. Franchet, however (l.c.), describes it as I find it; it is distinctly provided with two lateral nervures only, nbtuse, with inflexed margins. General Munro, who in 1876 recognised this plant as a new genus, allied, he thought, to Milium and Oryzopsis, from the character of the albumen, thought it ought to yield good flour, and might be worth cultivating on that account. Neither Dr. Henry nor M. Franchet makes any reference to an economic applieation. I have left the genns in the tribe to which JIr. Bentham referred it, though I think Gen. Munro may have been right in his view of its affinity.-D. Oliver.
Fig. 1. Detached spikelets. 2 and 3. Emply glumes. 4. Flowering glume. 5. Palea. 6. Stamens and lodicules. 7. Pistil. 8. Caryopsis and enelosing glumes 9. Vertical section of caryopsis. Enlarged


MS.del, et lith,
Alafia Barteri, Oliv.

## Plate 1992.

## ALAFIA BARTERI, Oliv.

## Apocynacee. Sabtribe Euechitidee.

A. Barteri, Oliv. (sp. nov.) ; sarmentosa glabra, foliis breviter petiolatis tenuiter coriaceis oblongo- vel oblanceolato-ellipticis obtuse apiculatis basi cuneatis $v$. leviter rotundatis supra læte viridibus subtus pallidioribus venulis ultimis obscuris, cymis maltifloris termiualibus corymbiformibus peduncalatis, bracteis parvis deltoideo-ovatis, pedicellis flore brevioribus, calycis 5 -partiti segmentis ovatis obtnsis, corollæ rotatæ limbo cum tubo æquilongo, tubo extas glabro medio leviter dilatato ore contracto, limbi lobis oblique rotundatis ciliatis, estivatione dextrorsum obtegentibus, antheris mediam versus tubi insertis inclusis lanceolatis acuminatis basi auriculis brevibus circum stigma conniventibas.
Hab. Nigritania, Onitsha, Barter; expedition to interior of Yoraba, Millson.

Folia $2 \frac{1}{2} 3 \frac{1}{2}$ poll. longa, $1 \frac{1}{2}-1 \frac{3}{4}$ poll. lata; petiolus $\frac{1}{6}-\frac{1}{4}$ poll. longus. Flores albi, fragrantes, $\frac{1}{3} \frac{1}{2}$ poll. diam.

For excellent specimens of this plant we are indebted to H.E. Sir A. Moloney, Governor of Lagos, who forwarded to Kew last year the interesting collection made by Mr. Alvan Millson in the Yoruha region, which included the curious new genus Cyanastrum, already figured in this volume (Pl. 1965).-D. Oliver.
Fig. 1. Bud. 2. Calyx and pistil. 3. Corolla, laid open. 4. Anther, back ant frout. 5. Transverse section of ovary. Enlarged.

M. S. delethith

Marsdenia crinita, Oliv.

## Plate 1993.

## MARSDENIA CRINITA, Olic.

## Ascleptader. Tribe Marsdeniee.

M. crinita, Oliv. (sp.nov.) ; volubilis, caule patentim ferrugineo-piloso, foliis petiolatis membranaceis ovato-ellipticis ovatisve breviter acuminatis basi rotundatis cordatisve, supra parce subtus præcipue in nervis venisque setuloso-pilosis, cymis pluri-multifloris breviter pedunculatis extra-axillaribus v. quasi-terminalibus, bracteatis, bracteis linearibas sabulatisve, pedicellis flore sæpius longioribus pilosis, calycis 5-partiti segmentis anguste lineari-lanceolatis extus hispidis, corollæ rotatæ tubo calyce dimidio breviore, campanulato ore leviter contracto, limbi lobis patentibus oblongo-lanceolatis obtusis marginibus reflexis, gynostegio cum tubo corollæ æquilongo, coronæ squamis dorso antherarnm insertis ovatis obtusis inferne carnosulis centro depressis marginibus liberis leviter reduplicatis.

Hab. Niger Expedition, 1859, Oyo, Burter ; expedition to interior of Yoruba, 1890, Millson.

Folia $3 \frac{1}{2}-4 \frac{1}{2}$ poll. longa, $1 \frac{3}{4}-2 \frac{3}{4}$ poll. lata; petiolus $\frac{1}{2}-1$ poll. longus. Flores albi $\frac{1}{2}$ poll. diam.

Our fignre is taken from the capital specimen, forwarded to Kew by H.E. Governor Sir Alfred Moloney, collected by Mr. Alvan Millson, Assistant Colonial Secretary, Lagos. It appears to have been collected at the same locality where Mr. Barter fonnd it thirty years ago. It is allied to M. Schimperi, Dene., of Abyssinia, which differs at first sight in its short appressed tawny tomentum.-D. Oliver.
Fig. 1. Sepal. 2. Gynostegium, with corona. 3. Same, with apices of the coronal scales removed. 4. Pollinia. Enlarged.

M.S. del et lith.

## Plate 1994.

## BAUHINIA GALPINI, N. E. Br.

## Leguminoser. Tribe Bajhiniee.

B. (§ Phanera) Galpini, N. E. Brown in Gard. Chron. ix. (1891) 728; frutex subscandens, ramulis hornotinis parce ferrugineo-pubescentibus, foliis late rotundatis breviter et late bilobatis lobis apice rotundatis, basi truncatis subcordatisve c. 7 -nerviis supra glabris subtus minutissime sericeo-pubescentibus, floribus majusculis coccineis in racemis pauci- $\nabla$. pluri-loris (sæpius $3-7$ ) terminalibus $v$. folio oppositis dispositis, bracteis parvis subulatis deciduis, calycis tabo elongato cylindrico stipite ovarii adnato, limbo subspathaceo segmentis linearibus acuminatis, petalis longe unguiculatis lamina rotundata, staminibus 3 anticis antheriferis, ovario ferrugineo-pubescente stipitato exserto, ovulis c. $8-10$, leguminibus oblanceolato-oblongis c. 5 -spermis valvis lignosis acaminatis oblique striatis.

Hab. S. E. trop. Africa, Namuli, Makua conntry, J. T. Last ; near Barberton, Transvaal, Mrs. Saunders, E. E. Galpin (421) ; Spelunken, Nelson (No. 409).

Frutex 5-10-pedalis. Folia $1 \frac{1}{2}-2 \frac{1}{3}$ lata; petiolus $\frac{1}{2}$-pollicaris; stipulæ subulatæ, deciduæ. Calyx tubo $\frac{2}{3}-1$ poll. longo ; limbo $\frac{3}{4}$ poll. longo. Petala cam ungue $1 \frac{1}{4}-1 \frac{1}{2}$ poll. longa; lamina $\frac{2}{3}$ poll. lata. Legumen stipitatum compressum 3-4 poll. longum.

A fine species, well deserving cultivation, which first reached us eleven years ago from Mr. W. Nelson.-D. Oliver,

Fig. 1. Stamens and pistil. 2. Longitudinal section of ovary. 3. Legume. 4. Portion of valve of same, with seed. 1 and 2 enlarged.


## Plate 1995.

## HYMENOGYNE GLABRA, Haworth.

## Ficoides. Tribe Mesembryex.

H. glabra, Haw., Rev. Pl. Succ. 192; herba annua debilis glabra parum ramosa, foliis suboppositis longiuscule petiolatis carnosulis oblongo-spathulatis plus minus obtnsis petiolo basi dilatato semiamplexicaule margine hyalino, pedunculo terminali folio subæquilongo gracile, calycis lobis interioribus late scarioso-marginatis disco carnoso dorsaliter cornuto, ala nigro-venosa, lubis exterioribas late ovatis in apicalum elongatum terminalem productis, petalis flavidis, stylis 9-12 in disco late peltatim dilatato centro infundibuliforme coalitis, stigmatibus papilliformibus, ovario 9-12-loculare loculis biovulatis, capsula demum uniloculare. Mesembryanthemum glabrum, Aiton, Hort. Kew. (1789) ii. 193.

Hab. Near Capetown, on the Rapenburg farm, in sandy soil.$F$ Guthrie.

Herba 6 9-uncialis. Folia cum petiolo $1_{3}^{1}-2$ poll. longa, lamina 2-3 lin. lata. Flores c. pollicem diam.

Originally introduced by Mr. Masson over a century aro, this singular member of the group of Mesembryene has beeu wholly lost sight of until Professor Guthrie recently called the attention of Mr. Bolus to it, who was at once struck by the remarkable connation of the styles into a broad peltate disk bearing stigmatic papille apon the upper surface, in this respect differing so materially from all known species of Mesembryauthemum that, taking this character in connection with the binvulate cells of the ovary, there seems very good ground for the rehabilitation of Haworth's genus, which has been reduced by Harvey and Sonder (Fl. Cup. ii. 459), and is omitted by Bentham ar.it Hooker in 'Genera Plantaram.'

Fordetail as to the structure of the gy noceium we are indelited to a careful drawing by Mr. Bolus. The capsu es of our slecin.o..s, which clearly show the separation of the axile placentas as they mature, have unfortunately been spoiled by some boring insect; but llaworth, whose duecription appears to have been carefully drawn up fron fresh specimens, describes the sceds as ". . magna fusea rotonda planas. hine
convexula nuda nitentia, illine coneava ramentacea; membrana magna marginatas. alata.' The figure of M. glabrum, given by Andrews (Bot. Rep. i. t. 57), I have omitted purposely to cite under the above description. From the separate figure showing the ereet styles, either he has had some quite different plant in view or his figure is inaccurate. I have followed Haworth in accepting Aiton's name, though the description in 'Hort. Kew.' (l.c.) is too brief to be of any ase.-D. Olifer.

Fig. 1. Flower, the calyx-lohes and petals removed. 2. Outer, and (3) inner, calyx-lobes. 4. Petals. 5, 6, 7. Stamens. 8. A pex of ovary and stigma. 9. Tertical section of ovary. 10. Transverse section of same. Enlarged.


## Plate 1996.

## PODOPHYLLUM VERSIPELLE, Hance.

## Berberidacese. Tribe Berberese.

P. versipelle, Hance in Journ. Bot. 1883, 362 ; foliis caulinis sæpius binis subcentrice peltatis circumscriptione orbicularibus subquadratisve 5 -9-lobatis, lobis ovatis V . ovato-deltoideis V . rarius obovatis acutis apiculatisve subulato-denticulatis, glabris v. subtus parce pilosulis, inferiore longiuscule saperiore breviter petiolatis, cymis umbelliformibus sæpius 3-8 (12)-floris extra-axillaribus sessilibus, floribus cernuis pedicello glabro v. piloso brevioribus v. eodem interdum subæquilongis, sepalis membranaceis caducis cymbiformibus cvali-oblongis obtusis viridibus, petalis calyce paullo longioribus oblongo-ellipticis $\nabla$. oblongis obtusis subplanis purpurascentibus, antheris linearibus obtusis filamento glabro complanato 2-4-plo longioribus, fructibus ellipsoideis stigmate coronatis lævibus, pericarpio tenue.

Hab. Prov. Kwangtung, Lofaushan Mtns., Rev. B. C. Henry; Prov. Hupeh, various districts, and Szechwan, So. Wushan, Dr. A. Herry; Mt. Omei, Rev. F. Faber.

Folia 10-18 poll. diam. ; petiolus fol. inf. 6-8 poll., fol. sup. 1-2 poll. longus. Pedicelli sæpius simplices decurvi, 1-2 poll. longi. Flores $\frac{3}{4}-1$ poll. diam. ; petala $\frac{1}{2}-\frac{3}{4}$ poll. longa. Fructus $1 \frac{1}{2}$ poll. longus. Semina compressa immersa oblonga $\frac{1}{4}$ poll. longa.

The two Chinese species agree in their isostemonous stamens, differing from extra-Chinese species in their several-flowered inflorescence, and from each other in the size of the flowers and position of the inflorescence. In $P$. pleianthum the flowers are three to four times as large as in $P$. versipelle, and originate in the fork between the two leares which are borne on subequal petioles, while in the present species the floriferous axis is continnous with the upper leaf to about an inch or so below the lamina.-D. Oliver.
' This plant is common in woods and shaded situations in the mountainous regions of Western Hupeh and Eastern Szechwan. It is social in habit, sometimes a hundred or more specimens occurring in one spot. The name given to it by the Chinese in these parts is pro-chio-lien-i.e. "eight-angled Nelumbium," from the shape of the
leaf. The book name is kuei-chiu, or "devil's mortar," under which designation it is figured and described in the Chih-wu-ming, xxiv. 35. In the province of Kwangtung it is colloquially known as tu-chiolien, according to Mr. Ford in "China Review," xvi. 7. In Hupeh this latter name is applied to Ariscema heterophyllum, Bl.
'The Ichang gazetteer says that it was formerly sent as tribute from Hupeh to the Emperor. The root is occasionally used as a drug, but it does not apparently enter much into ordinary commerce. Porter Smith, "Contr. Mat. Med. China," p. 46, wrongly identifies the drug as Caladium.'-A. Henry.

Fig 1. Anther, back and front. 2. Transverse section of ovary. 3. Longitudinal gection of seed. 4. Fruit. 1 to 3 enlarged.

M. S.del. et lith

Dapania scandens, Stapf.

## Plate 1997.

## DAPANIA SCANDENS, Stapf.

## Geraniacere. Tribe Oxalidere.

Dapania scandens, Stapf. ( $n .$, sp.); arbor alte scandens, glabra, foliis alternis coriaceis ovato-ellipticis acuminatis basi rotondatis, breviter petiolatis, petiolo medio articulato; inflorescentia racemosa, racemis solitariis v. plerumque $2-3$-fasciculatis axillarilus rhachide tenui puberula, floribas bractea minuta ovata ciliata suffultis subsessilıbus, calyce membranaceo ad medium lobato, lobis obtnsis latis ciliolatis, petalis liberis oblongis obovatisve obtusis calyce duplo longioribn*, staminibus 10 alternatim longioribus filamentis in tubum comatis, antheris dorso medio affixis, ovario profunde quinqne-sulcato, lohis plerumque lateraliter apicem versus utrinque subalatis, stylis liberis longitudine dimidii vel trientis ovarii, apice incrassatis ; ovula in loculo quoque bina oblique saperposita; fractus ignotus.
$H_{A B}$. State of Perak; alt. 300 m . ( $\mathrm{N} 0,2724$ ), C. Curtis.
Folia $3-5$ poll. longa, $1 \frac{1}{4}-1 \frac{3}{1}$ poll. lata; petiolus $\frac{1}{4}-\frac{1}{3}$ poll. longus. Racemi $1 \frac{1}{2}-3$ poll. longi. Flores parvi, $1 \frac{1}{2}-2$ lin. lati.
The genas Dapania was described by Korthals in the 'Nederlandsech Kraidkundig Archief,' iii. 381 (1-0゙5). In the same year Planchom (Ann. Sc. Nat. sér. iv. ii. 266) brought the genus Japania close to Averrhou, but without adding new particulars. Drpmeniu found its place in the 'Genera Plantarum' after Cimnurropsis with a query, the anthors not having seen Korthals' plant. Dinumia differs from Cumaropsis, as far as it can be seen from Korthals' description, only by the single ovule and bilabiate aril, whereas Cimner $\eta$ isis has two ovules in each cell and no aril. When I examined the present plant from Perak, I had, through Director Suringar's kindness, the opporturity of comparing it with a type specimen of Daqunin rocemmsis, Korthals. This had no flowers, but merely the rachis of the raceme npon it ; but the similarity of Korthals' plant with ours is in all other respects su great that I am inclined to assume that both belong to the same genus. in spite of Korthals' clear assertion that his plant has a single ovmle and a bilabiate aril, and I should on the greond of this similarity even gor as far as to consider both to belong to the same -pecies, if horthals did not and that $I$ rureminsm has a lifided seale at the lase of the lemger
filaments and a glabrous rachis, which latter character is well seen in the type. A confusion of specimens in the Herbarium of Leyden is not probable, as the type seut agrees as far as it goes entirely with the description in Korthals' paper. The only probable suggestion seems to be that Korthals was mistaken in attributing to his plant characters which would bring it clearly to Connaraceæ. He may have mistaken a second abortive ovule for an aril. I, therefore, am of opinion that the present plant from Perak belongs to the same natural group as Korthals' Dapania racemosa and a few other species of the Malayan flora which have been collected by Beccari, but are still undescribed. It differs from $D$. racemosa only by its climbing growth, finelypubescent inflorescence, and the want of scales at the base of the longer filaments. Such scales are present in a closely similar plant collected by Beccari in Sumatra (No.900) ; also No. 2951 of Beccari from Sarawak, a similar plant, has the scales, but in a very rudimentary form. Both, howerer, appear to me sufficiently different from D. racemosu and D. scomlens. On the other hand, the varions degrees of development, or total absence of those scales, wonld scarcely constitute a character of generic value. But if we concede that $D$. scandens belongs really to the geuus proposed by Korthals, and if we assume that his assertion that Dupania has solitary ovules and arillate seeds was a mistake, theu we can no longer maintain the genus Connaropsis, which was not published until 1 rif (Bentham and Hooker, 'Genera Plantarum,' vol. i. p. 277), and its species should be brought under Dapania.-O. Stapf.
Fig. 1. Flower. 2. Same, fully expanded. 3. Vertical section of same. 4. Stamens and pistil. 5. One carpel detached and laid open dorsally. 6. Trausverse section of ovary, upper part. 7. Ditto, lower part. Enlaryed.


MS dee. et 7uth

Touroulia Semmanı, Oliv.

## Plate 1998.

## TOUROULIA JENMANI, OTiv.

Guttiferese. Tribe Quineme.
T. Jenmani, Oliv. (sp. now.), sp. fructiferum ; foliis 4-natim verticillatis simplicibus petiolatis oblongo-ellipticis breviter acuminatis hasi in petiolum cuneatim angustatis, glabris minutissime et remote denticulatis, costa subtus nervisque primariis utrinque $17-22$ prominulis, venulis ultimis tenuissimis arcte parallelis indistinctis, fructibus lignosis oblique obovoideis apice depressis longitudinaliter sulcatis multi(11-14)-locularibus, seminibus in loculis 2-4 superpositis dense ferrugineo-lanatis albuminosis, albumine copioso carnoso, embryone albumine subrquilongo, cotyledonibus foliaceis late ellipticis radicula apice leviter dilatata obtusissima 3-4-plo longioribus, pericarpio crasso lignoso, mesocarpio lacunoso cavitatibus resinosis radiatim, in sectione transversali, dispositis, epicarpio suberoso-furfuraceo.

Hab. British Guiana, Issorooroo River, Jenman (No. 5178).
Although I have no hesitation in referring this to Aublet's imperfectly known and very inadequately described genus Touroulia, I am not able to refer it to the speries figured by him, even after reasonable allowance for obvious blunders in his description. It seems quite clear that Touroulia ought not to be referred to Quiina. Both Mons. Planchon and Triana (in Ann. Sc. Nat. sér. iv. 15゙, 315) and Dr. Engler (in Mart. Flor. Bras. xii. pt. i. 485) agree as to this, though the material in their hands was very imperfect. They describe the seeds as solitary, following Aublet. That may be the case in Aublet's plant, but not in Mr. Jenman's.* Again, the sperimens sent us by Mr. Jenman show that the seeds have a copious albumen, in which respect they differ from Quiina, so far as has been observed. They are, however, externally very similar to the 'velvet seeds' of Jamaica, the produce of Quiinu jamaicensis, Gris., clothed with the same long ferruginous indumentum, and strung by the Indians, as beads, for necklaces.

I found the bad of a pistillate flower in which was no trace of stamens; this showed a calyx of four sepals in decussating pairs, seven broadly imbricate petals, and a shortly columnar longitadinally

[^22]striate gynœecium, crowned by a sessile peltate stigma, with from twelve to fourteen radiating stigmatic lines. I conclude, therefore, the flowers are diclinous. The leaves of T. guyanensis, Aubl, are described (Engler, l.c.) as with solitary interpetiolar stipules; Planchon and Triana query whether these may not rather be abortive stipuliform leaves. In the young terminal foliaceous buds of our specimens I observe four of these rigid subulate stipuliform organs alternating with as many undeveloped leaves, and apparently inserted at the same level, but I think they may more rightly be regarded as belonging to a reduced cataphyllary outer whorl.

If good flowering specimens reach us it may be well to devote another plate to them. -D. Oliver.

Fig 1. Bud. 2. Orary. 3. Fruit. 4. Transrerse and (i) longitudinal section of fruit. 6. Longitudinal section of seed at right angles to plane of cotyledons. 7. Same in the cotyledonary plane, showing also indumentum of the testa. Except the fruit. cnlarged,


## Plate 1999.

ANGELICA POLYMORPHA, Mrim, var. sinensis.

## Umbelfiferes. Subtribe Angelicer.

A. polymorpha, Maxim. in Mél. Biol. ix. 187, var. sinensis, Oliv ; caule glabro tenuiter striato, foliis inferioribas triternatim pinnatifidis superioribus interdum simpliciter pinnatis, segmentis ovatis $v$. ovato-lanceolatis inferioribus trifidis dentato-incisis, dentibus obtusiuscalis breviter apiculatis venulosis subtus glabris $v$. nervis parce papillosis, petiolo longe vaginante, umbellis sæpe longe pedanculatis 9 -13-radiatis, radiis inæqualibus facie interiore scaberulis, involacri bracteis rudimentariis $v$. obsoletis, umbellulis plurifloris, involucelli bracteolis paucis anguste linearibus, pedicellis gracilibus fructiferis cremocarpio sæpins longioribus, carpophoro ad basin bipartito brachiis gracillimis, mericarpiis valde compressis oblongo- v. subquadratoellipticis basi profunde retusis $v$. cordatis apice rotundatis interdum leviter emarginatis, jugis dorsalibus 3 approximatis elevatis haud alatis, lateralibus in alas nucleo requilatas dilatatis, vittis vallecularum 4, commissuralibas 2.

Hab. China, Prov. Hupeh, Fang district; Prov. Szechwan, No. Wushan, Dr. Henry (cultivaterl, Nos. 6897, 7143). Possibly the same plant, but inadequate, from banks of the North River, Ford.

Fructus $3 \frac{1}{4}-3 \frac{1}{2}$ lin. longns, $2 \frac{1}{2}$ lin. latus.
This plant is evidently nearly allied to $A$. monqulica, described by M. Franchet, in his valuable 'Plantæ Davidianæ (Mongrol.),' 141 , and of which he has kindly favoured me with fragments for comparison. Were it not for the total, or all but total, absence of involucre to the umbels, I should have referred this plant to that species. Fividently in Japan and E. temperate Asia there is a group of closely allied forms belonging to the section Gomphopetalum of the genus Angelica.-D. Oliver.

Dr. Henry supplies the following memorandum :-'Tang-luei is a drug much used by the Chinese and Japanese in the treatment of rliseases of women; bat apparently two or more different roots are included under this name. In Japan, according to Matsumura, Ligusticum ne'utilolnn, s. \& Z., furnishes tung-kuei; while another kind,
known as t'u-tang-kuei, is supplied by Aralia cordatr, Thunb. See Hanbury, "Science Papers," p. 260, and Porter Smith, "Contr. Mat. Med. China," p. 20.
"We find, from the Chinese Customs "List of Medicines," that there are exported annually from:-

Tientsin-produced in Chili $\quad$. Shantang . . 451 piculs
Chefoo- 80 "
Ichang and Hankow, produced in the provinces of Hupeh, Szerhwan, and Shensi 12,24:3 ,

Some is also imported into Shanghai from Japan.
'The source of the drug from the Northern Provinces has not been determined as yet. I found small cultivations of the drug in the mountainous regions of Hupeh, specimens of which were forwarded by me, Nos. 6897 and 7143. This plant is, at any rate, the source of the great bulk of the drug exported from Ichang and Hankow. The root is dug up in the second year of growth, before the plant comes into flower.'-A. Henry.

Fig. 1. Ripe fruit, the mericarps separate, showing lipartite carpophore. 2. Tralisverse section of a mericarp. Enlarged.

M.S.del etlith.

Eranthemurn polyanthum, $\because R C$

## Plate 2000.

## ERANTHEMUM POLYANTHUM, O. B. Clarke.

## Acanthacee. Subtribe Eranthemes.

E. polyanthum, C. B. Clarke, MSS. in Herb. Kew.; foliis ellipticis v. oblongo-ellipticis breviter acuminatis basi in petiolum longiusculum attenuatis, supra obsolete puberulis subtus precipue in venis venulisque minutissime crispato-setulosis, inflorescentia multiflora spiciformi brevissime pedunculata, floribus in cymulis plari (3-7)-floris sessilibus v . subsessilibus dispositis, calycis pubescentis 5 -partiti segmentis lineari-subulatis inæqualibus v. subæqualibus, corollæ hypocrateriformis tubo gracili elongato limbo e. 3-plo longiore, labio superiore bifido lobis oblongis obtusis, inferiore 3-partito lobis æquilongis lobo centrali latiore, lateralibus oblongo-ellipticis, antheris 2 breviter exsertis minate mucronulatis loculis parallelis fere æqualibus, filamentis cum anthera subæquilongis ad apicem tubi insertis, staminodiis 0 , ovario fere glabro in stylum attenuato, ovulis geminatis superpositis adscendentibus.

Hab. 'Nempean in the Patkye Mountains, between Assam and Burma,' Griffith. Shan States, alt. 3,000 feet, Lord Lamington.

Falling outside the area included by Sir Joseph Hooker in his ' Flora of British India,' this species, though named in MS. by Mr. Clarke (who worked up Acanthacee for the 'Flora') has remained unpublished hitherto. It appears to be the plant rudely figured in the posthumons 'Icones Plantarum Asiaticaram' (iv. t. 426) of Griffith, edited by McClelland, but unaccompanied by any description in his 'Notulæ.' The figure represents the upper lip of the corolla as merely bidentate, and the calyx-segments as longer than in Lord Lamington's plant. But the upper lip in Griffith's original specimen is distinctly bifid, though the calyx-lobes in the same are longer and more subulate than in the plant we figure. Still as Griffith's specimen is more advanced, I think this need not have much importance attributed to it. It would seem a species well suited for introduction as a copiously flowering stove plant. I do not find any note of the colour of the corolla.D. Oliver.

Fig. 1. Calyx and pistil. 2. Anther, side and front views. 3. Ovary. 4. Longitudinal section of same. Enlarged.

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[^0]:    vol. x . third series.

[^1]:    VOL. X. THIRD SERIES.

[^2]:    'Jacquin's work is dated 1806 on the title-page, but was issued in five parts, and the part containing this plate could not hare been issued until 1812 or later, isf Haworth's Synopsis is quoted for this plant.

[^3]:    * These hairs have heen aceidentally nmitted in the plate. They are rather short. and hare nearly all fallen off from the dricd tlowers.

[^4]:    Fig. 1. Cosona. 2 and 3. Segments of outer corona. 4. Pollinia. All enlarged.

[^5]:    A very distinct and well-marked species, unlike any other known to me. I have not seen it alive, and describe the coloar partly from Prof. Mac-Owan's notes and partly from Lady Barkly's drawings; the ground-colour is described by MacOwan as greenish-white, but in his admirably dried specimens and Lady Barkly's drawing the colour FOL. X. THILI SERIES.

[^6]:    Of the section Tromotriche no specimens were collected by Sir Henry Barkly. YOL. X. THIRD SERIES.

[^7]:    voL. X. PAR'T 1t.

[^8]:    M S Sel ein ith.

[^9]:    Fig. 1. Flower. 2. Stamen. 3. Flower, petals and stamens removed. 4. Transrerse section of ovary. 5. Vertical section of same. 6. Base of enlarged calyx-lobe of sterile flower. Enlarged.

[^10]:    Fig. 1. Petal.
    2. Stamen, front and back.
    3. Carpul. Enlaryed.

[^11]:    ' In Japan a drug of the same name occurs, which is identified by Matsamura as Uncaria rhynchophylla, Miq.
    'There are specimens in the Pharmaceutical Museum of both the Chinese and Japanese drug.'-A. Henry.

    Fig. 1. Astivation of corolla. 2. Flower, Itetached. 3. Corolla. laid open. 4. Anther, back and front. Enlarged.

[^12]:    'Trang-eft' is the generic name of an inaportant Chinese drug, of which there are several kiuds, loubtless afforded by different plants.

[^13]:    NS de subly

[^14]:    ' 1 . We find a kind exported from Tieutsin, distinguished as LI-T'ANG (meaning t'ang-shên, from the La-an prefecture in Shansi). This is perhaps the root of Campanumcecs pilosula, Fr., which Père David collected near Peking, and noted the use of the root as a valuable Chinese remedy (Plienter Davidience, i. 193).
    '2. Ichang and Hankow are the other ports from which the drug is exported-to the amount of 5,00 tons annually-the provinces of prodluction being Hupeh, Szechwan, and Shensi.

    - In the Fang District of Hapeh I collected in the mountains three species of Codonopsis or Cumpumunna; of these, my No. fif.51 was not ntilised as a drug. The chief source of the fong-shim was my No. fittix,

[^15]:    'Dulbergia hupeana, Hance, is the $t^{\prime}$ con tree of the central provinces of China, and is figured in the Chilh wu ming, xxxv. 24. A kind, known as the wild or yellow t'an tree, is figured in the same volume, folio 17. This species of Dulbergia is a common tree in Hupeh, in the flat country, and its wood, being hard and durable, is much used for making rammers of oil-presses, wheel-spokes, tool-handles, and the blocks and palleys used on the native craft. A pulley made out of the wood was sent by me to Kew, and is in the museum there. A paper is manufactured at Wuhu out of the bark of the $t^{6}$ an tree; bat I am not quite certain as to this being Dalbergia hupeana.'-A. Henry.

    This is the pai-t'en of Ningpo, of which wood specimens have been sent by Consal Cooper to the Kew Museum.

[^16]:    Fig. 1. Spikelet and lower part of rachis with empty glumes. 2. Flowering glume. 3. Palea. 4. Lodicule. 5. Essential organs. 6. Pistil. Enlarged.

[^17]:    Fig. 1. Involueral bract. 2. Corolia, laid upen. 3. Anther, buek aud frunt. 4. Ovary. 5, 6. Fruit. Enlarged.

[^18]:    IFig. 1. Ray-floret. Enilaigere.

[^19]:    Fig. 1, Flower. 2, Andrecium. 3. Ovary. Enlarged.

[^20]:    Fig. 1. Calys and pistil. 2. Corolla, laid open. 3. Anthor, badk and front. 4. Capsule and calyx. Enlarged.

[^21]:    Fig. 1. Flower and bract. 2. Pistil. Enlarged.

[^22]:    * Mr. Jenman has anotler plant (No. 5196) of which he sent a single fruiting specimen, evidently also a Touruulia, and with solitary seeds (and radicle inferior). We may hope for flowering specimens both of this and T. Jenmani.

