NOTES ON ACACIA, No. IV, (WITH DESCRIPTIONS OF NEW SPECIES).

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With Plates X – XVII.

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SYNOPSIS:

Pungentes (Uninerves).
nigripilosus n. sp.

Pungentes (Spicatæ).
oxycedrus Sieb.

Calamiformes (Plurinerves).
Helmsiana n. sp.
triptycha F.v.M., and var.
tenuis n. var.
subflexuosa n. sp.
Sowdeni n. sp.
Havilandi n sp.

Calamiformes (Uninerves).
tenuior n. sp.
Pilligaensis n. sp.

Uninerves (Spinescentes).
oxyclada F.v.M.
spinosissima Benth, (Syn. *A. leptacantha* Pritzel)
ulicina Meissner
ferocior n. sp.
Basedowii n. sp.

Uninerves (Racemosæ).
Hamiltoniana n. sp.
Chalkeri Maiden
Kettlewelliæ Maiden
Clunies-Rossiæ Maiden
brachybotrya Benth.
argyrophylla Hook.
Spilleriana J. E. Brown

Plurinerves (Triangulares).
deltoidea A. Cunn. (Syn. *A. stipulosa* F.v.M.
Luehmanni F.v.M.
Froggattii n. sp.

Plurinerves (Microneura).
eremea n. sp.
Loderi n. sp.

Julifloræ (Stenophyllæ).
Coolgardiensis n. sp.
oncinophylla Lindl. var.
Fauntleroyi n. var.

Julifloræ (Falcatæ).
doratoxylon A. Cunn. and var.
angustifolia var. nov.
proxima Maiden
Shirleyi n. sp.
sparsiflora n. sp.
rhodoxylon n. sp.
argentea Maiden
Burrowi n. sp.
oncinocarpa Benth. (Syn. *A. oligoneura* F.v.M.)

Julifloræ (Dimidiatæ).
holosericea A. Cunn, var.
glabrata Maiden

Bipinnatæ (Pulchellæ).
Mitchelli Benth.

To the bibliography given in this series of papers, this Journ. XLIX, p. 465, add "The secretion of nectar by extra-floral glands in the genus *Acacia* (Wattles)." W. M. Carne in "The Australian Naturalist" (Sydney) April 1913, ii, 198.

Pungentes (Uninerves).

A. NIGRIPILOSUS n. sp.

Frutex parvus. Phyllodiis nitentibus, lineare-subulatis, rigidis, apice acute acumine, planato-angularibus, ad 6 cm. longis, glandula prominente basin versus. Pedunculis minus 5 mm. longis, capitulis breviter oblongis, vel floris in bracteis imbricatis deciduis, scariosis inclusis. Sepalis lobis angustissimis spathulatis, apice paucis pilis, petalora ca. dimidio æquantibus. Petalis pilis subfuscis vel nigrescentibus parte superiore. Ovario glabro. Legumine stipitato, moniliforme, 6 cm. × 5 mm. Seminibus longitudinaliter dispositis, ovatis, funiculo breve, in arillum irregularem carnosum crassatum.

A shrub four feet high, branchlets slightly angular.

Phyllodia shiny, linear-subulate, rather rigid, sharply pointed at the apex, flattish-angular, with a strongly marked central nerve on both sides, and a prominent nerve on each side; up to 6 cm. long (the collector says 2·5 – 7·5 cm.), prominent gland near the base.

Stipules almost aristate, brown, scarious, only seen on the young shoots.

Peduncles solitary or in pairs, under 5 mm. long, bearing each a shortly oblong head of about twenty-one flowers, mostly 5-merous, enclosed in imbricate early deciduous scarious bracts.

Sepals frail, with very narrow spathulate lobes separated almost to the base, early deciduous, and carrying a few hairs at the tips, about half the length of the petals. Petals frail, united about half way up with brownish or blackish hairs on the upper half, and conspicuous also in the bud. Ovary glabrous.

Pod (Kellerberrin specimen) not seen quite ripe, stipitate, moniliform, about 6 cm. long and 5 mm. broad, seeds longitudinally arranged, ovate, a shortish funicle thickened into a somewhat irregularly shaped fleshy aril.

Type. Cowcowing, Western Australia (Max Koch, No. 1030 (in part), August 1904).

Affinities.

1. With *A. Prainii* Maiden, this Journ. LI, 238. These two species are closely allied; the pods and seeds of *A. Prainii* are not available. *A. Prainii* has shorter phyllodes, more rigid and with straight points, longer and more numerous peduncles, and, apparently, an absence of bracts. The petals are quite glabrous in *A. nigripilosus*.

2. With *A. inaequiloba* W. V. Fitzgerald. *A. nigripilosus* was doubtfully referred to *A. inaequiloba*, this Journ. LI, 241. In *A. inaequiloba* the central nerve is less prominent on both sides, and the gland is round, not oblong as in *A. nigripilosus*. In *A. inaequiloba* the gland causes an outward bend of the phyllode when it occurs; not so in *A. nigripilosus*. In *A. inaequiloba* the calyx is irregular in shape, and there is an absence of the hairs which are prominent in *A. nigripilosus*.

3. With *A. triptycha* F.v.M. There is some general similarity between the two species as regards the phyllodes, which are, however, longer and with more numerous though fainter striæ in *A. triptycha*. In *A. triptycha* the striæ can only be seen under a lens, but in *A. nigripilosus* the prominent vein or rib gives the phyllode a quadrangular appearance. The heads of flowers in *A. nigripilosus* are elongated rather than strictly spherical. The two species are also sharply separated by the narrower pods of *A. triptycha*.

A. suaveolens Willd., *A. iteaphylla* F.v.M., *A. Graffiana* F.v.M., and *A. Lindleyi* Meissn., are also species with prominent bracts.

Pungentes (Spicatæ).

A. OXYCEDRUS Sieb.

Mr. A. J. Campbell has sent this plant from the Grampians, Western Victoria, with almost straight phyllodes up to 6 cm. long. Mueller (Pl. Vict.) describes those of the species as $\frac{2}{3} - 1\frac{1}{3}$ inch (say 2 to 3·5 cm.) long. A plant from Gosford N.S.W., shows them 4 cm. long.

Mr. Campbell's plant appears at first sight so different from the Sydney or Blue Mountains form (the type), that I thought we had at least a variety, but, in addition to the increased length of the phyllodes, with the possible exception of more deciduous and less rigid stipules, all the characters appear to agree with the normal form. Mr. Campbell tells me that he saw the species 15 feet high and "base of trunk about a foot through," which is a much greater diameter than I have seen.

Mr. Cambage and I found it a straggling spreading shrub of 4–5 feet near Linden, and a bushy shrub 10 feet and very abundant at the old Numantia, close to Linden. The following description of pod and seed from Faulconbridge, a third Blue Mountain locality, was drawn up from perfectly fresh specimens.

Pod almost terete, seeds longitudinally arranged. Valves brown, rims of valves thickened and very marked. Seed intensely shiny black. Funicle filiform, suspending the seed just out of the pod. Arillus white, not clavate, almost cylindrical, on the top of the seed.

Calamiformes (Plurinerves).

A. HELMSIANA n. sp.

Frutex pumilus, breve tomento tecto, gummi exudans. Phyllodiis numerosis, lineari-teretibus 2 nervis immersis, paullo falcatis, apice recurvatis, 1 cm. longis. Pedunculis ca. 8 mm. longis, capitulis parvis globosis ca. 20-floris. Calyce valde lobato, mar-

gine ciliato vel granulato, petalis ca. dimidio aequilongo. Petalis glabris praeter apices. Ovario pruinoso. Stylo longissimo. Legumen ac semen non vidimus.

A numerously branched, probably dwarf shrub, largely covered with a very short tomentum, and, particularly the young shoots, exuding a gummy substance.

Phyllodia numerous, linear-terete, with two not very marked sunk nerves, slightly curved, recurved at the point in a slightly rostrate manner, 1 cm. long.

Stipules deciduous and rarely found. They have the similitude of minute thorns, one on each side of the phyllode attachment, and are embedded in a gummy secretion.

Peduncles singly or in pairs, about 8 mm. long, bearing each a small globular head of about twenty flowers mostly 5-merous. Bract capitate. Calyx deeply lobed, attached about half-way up, ciliate or granular at the edges, about half as long as the petals. Petals glabrous except at the tips. Ovary hoary or with fine tomentum. Style very long.

The type is from Camp 42, Elder Expedition (R. Helms).

Range.

We only know it from Western Australia, and from Camps 42 and 54 of the Elder Expedition. These were in the Victoria Desert (R. Helms, No. 12). Labelled *A. Bynoeana* Benth. by Tate. The position of Camp 43, reached on the following day, was Lat. 27° 36′ 10″, and say Long. 126° 40′. Camp 54, 17th September, 1891. Victoria Desert (R. Helms, No. 12). Camp 54 was in Lat. 29° 33′ 25″ and in Long. 124° 30′. Camp 54 is placed in the leader's journal under 18th September, and there is often this discrepancy (easily accounted for) between the numbers of the camps and dates, as entered in the journal and herbarium labels. Evidently they were in botanically very

interesting country, as on the 17th Mr. Helms found ten, and on the 18th fifteen plants new to him.

Affinities.

With *A. Bynoeana* Benth. This is its closest affinity, and it is worthy of note that Mr. R. Helms collected both species at Camp 42. The new species has, however, 2-nerved phyllodia in contradistinction to the five nerves of *A. Bynoeana*, longer and quite glabrous peduncles, more deeply divided calyx-lobes, and a hoary ovary. The bracts are spathulate in *A. Bynoeana*.

For some notes on *A. Bynoeana* see my paper in this Journ, XLIX, p. 501 (1915), and that by J. M. Black, Journ. Roy. Soc. S.A., XLII, 45 (1918).

A. Helmsiana is placed in the section Plurinerves of Calamiformes, because of its obvious affinity to *A. Bynoeana*, but it has only two nerves. The sections require revision.

A. TRIPTYCHA F.v.M.

This is briefly and imperfectly described in B.Fl. ii, 337, and instead of stating (on Mueller's behalf) what the type really is, four specimens are quoted, viz.:—(1) Drummond (4th Coll.?) No. 132; (2) 5th Coll. No. 5; (3) Kalgan River, Oldfield; (4) Termination Rock, Maxwell.

Through the kindness of Prof. Ewart I have seen, from Mueller's Herbarium, No. (1). This is not *A. triptycha* and is the same as No. (2) which I received from the British Museum many years ago. It is a new species, which I have named *A. subflexuosa*. No. (3) is *A. triptycha* typica. No. (4) is *A. triptycha* with the phyllodes a little broader than No. 3. He also lent me "Cape Arid, W.A. (John Forrest, 1870)" which is similar to No. 3.

No. 3 is very well figured in Mueller's "Iconography" plate of *A. triptycha*, showing that it satisfied his idea of his own species. The plate, however, shows phyllodia

swollen near the tips, doubtless owing to insect action. I have not seen the specimen so drawn, and it is well to note that swellings in *A. triptycha* are quite accidental.

Emphasis should be laid on the fact that the phyllodes of *A. triptycha* are rigid and pungent. It is not correct to say (as in B.Fl. ii, 337), that they are flexuose, but Drummond's (4th) No. 132 and (5th) No. 5, are, and these are *A. subflexuosa* n. sp., as already stated.

The head of flowers in *A. triptycha* may be up to 30. The sepals have the upper portions hairy. The pods are shortly stipitate, 5–6 cm. long, and 2 mm. broad, the seeds longitudinally disposed, the valves raised between the seeds, the margins of the valves slightly thickened. Funicle very short and expanded into a narrow arillus obliquely embracing the seed.

Synonym.

A. triptycha F.v.M. var. *pungens* Pritzel, in Engler's Bot. Jahrb., xxxv, 293. In the Stirling district, near the Kalgan River (D. 4596). I have not seen D. 4596, but I collected near the Kalgan River, and my specimens are close to No. 3 (Oldfield) from the same locality, and Pritzel's description of his supposed variety applies to them well.

Range (of the typical form).

It appears to be confined to Western Australia,—in its typical form—between King George's Sound and Esperance Bay.

Typical form.—"Spreading scrub, 3 feet. Sand Plains, Kalgan River" (Oldfield). Co-type. Small pungent shrub, Kalgan Plains (J.H.M.) Esperance Bay (Herb. Melb.)

Mullewa near Geraldton (C. R. P. Andrews, Aug. 1903, through W. V. Fitzgerald, as *A. leptoneura* Benth.). Has long curved tips to the apices which are golden-hairy. This plant, a fragment in flower only, may, in the absence of

complete material, be looked upon as a connecting link between *A. triptycha* and *A. leptoneura*.

Var. *tenuis* var. nov.

This is a form readily picked out from normal *triptycha*. The phyllodes are more slender and usually shorter, the young tips golden pubescent, the pistil densely tomentose. The Tammin specimens (J.H.M., Sept. 1909) may be taken as the type.

Range (of the Variety).

In drier country. It has been obtained from the Wongan Hills, 132 miles north of Perth, thence from Cunderdin to Coolgardie along the railway line, thence to Camps 56 and 61 of the Elder Expedition, say 200 miles north east of Coolgardie. Specific localities are Wongan Hills (Dr. A. Morrison). Cunderdin (W. V. Fitzgerald as *A. leptoneura*). Small shrub, Tammin (J.H.M.). Spreading shrub, 2–4 feet, Kellerberrin (W. V. Fitzgerald). Coolgardie (L. C. Webster, 1900).

Shrub of three feet, on sandhills, Camps 56, 59, 61, Victoria Desert. Elder Exploring Expedition 1891 (R. Helms). Camp 56, 19th September, is Lat. 29° 54′ 35″; Camp 59, 22nd September, specimen No. 9; Camp 61, 25th September (Queen Victoria Spring), is Lat. 30° 25′ 38″. I see no reference to this small prickly wattle in the journal, which is not surprising. Mueller and Tate, in their account of the botany of this Expedition (Journ. Roy. Soc. S.A., XVI, 351), refer to this wattle as "*A. triptycha* F.v.M. (?)," showing that they noted its difference from the normal species, but I cannot make up my mind to give it specific rank.

A. SUBFLEXUOSA n. sp.

Frutex paullo pruinosus pubescens. Phyllodiis lineari-subulatis subrigidis, fere teretibus, flexuosis ad 7 cm. longis, tenuiter striatis, ca 6 nervis, apice breve innocuo, obliquo. Stipulis brevibus sublatis, scariosis. Pedunculis ca. 2 mm. longis, hirsutis, capitulis

globosis ca 15 floris. Bracteis longis, falcatis. Sepalis angusto-spathulatis, apice ciliatis, petalis plus dimidio aequilongis. Petalis laevibus. Ovario glabro. Legumen ac semina non vidimus.

Doubtless a shrub, branchlets slightly angular, slightly hoary pubescent like the phyllodia.

Phyllodia linear-subulate, rather rigid, nearly terete, flexuose, up to 7 cm. long, finely but clearly striate with about six nerves, with a short, innocuous oblique point, the base terminating in a short, rounded, scarcely decurrent process. Stipules short, broadish, scarious.

Peduncles short (say 2 mm.), hirsute, bearing each a globular head of about 15 flowers mostly 5-merous. Bracts long, falcate.

Sepals narrow-spathulate, divided to the base, fringed with hair at the top, two-thirds as long as the petals. Petals smooth, free. Ovary glabrous.

Pods and seeds not seen.

The type is Drummond's 5th Collection (1849), No. 5. A co-type is Drummond's 4th Coll. (?) No. 132.

Range.

This species occurs in Western Australia, and is only known from Drummond's 5th and (? 4th) collections. His 5th Collection was probably made mainly in the southern part of the State, but it is not possible to speak of a definite locality and the attention of local botanists may be invited to so well marked a species.

Affinity.

With *A. triptycha* F.v.M. It was included with this species by Bentham (B. Fl. ii, 337), as to specimens with "flexuose" phyllodia. The two species can be sharply separated by the absence of that character in *A. triptycha*, and also by the base of the phyllodes, annular and non-decurrent in *A. triptycha*. The flowers are also more numerous in the latter species, being twenty and over.

A. Sowdeni n. sp.

Frutex patens vel arbor parva, phyllodiis junioribus gracilibus argenteis. Phyllodiis linearibus, in apicem longum infirmum terminantibus, 6 – 8 cm. longis, 3 mm. latis, crassis, tenuissime striatis, nervis parallelibus. Nervis primum tomento tectis, deinde distincte definitis. Pedunculis minus 5 mm. longis, hirsutis, capitulis globosis ca. 25-floris. Sepalis spathulatis vel fere linearibus apicibus pilosis, corollæ ca dimidio aequilongis. Petalis laevibus pilis sparse tectis. Ovario hirsuto. Legumine pallide-fusco curvato ca 11 cm. longo, 5 cm. lato, chartaceo, reticulato. Seminibus fuscis, ovoideis longitudinalibus, funiculo longo, semen semi-circumcingente et in arillum brevem terminante.

A somewhat spreading shrub or small tree, consisting of many stems of rather small diameter. Neat in habit and very handsome with its youngish silvery foliage; branchlets at first slightly angular.

Phyllodia linear, slightly curved towards the apex, and terminating in a long weak point, narrowed at the base, 6 – 8 cm. long, 3 mm. wide, thick, very finely striate with parallel nerves only to be seen under a lens. In the younger stages the venation is largely concealed by a close, silvery tomentum, but the mature glabrous phyllodia have the venation sharply defined, if minute, and consisting mainly of a midrib, two parallel veins and thickened margins, with finer intermediate veins. A slightly swollen gland near the base of the phyllode.

Peduncles in pairs or threes under 5 mm. long, and beset with short hairs, each supporting a globular head of about 25 flowers, mostly 5-merous. Bracts oblique-topped.

Sepals spathulate or almost linear, free or slightly connate, glabrous except at the tips which are tufted with hairs, about half as long as the corolla. Petals smooth, free, very sparsely besprinkled with hairs. Ovary hirsute, particularly the upper portion.

Pod pale brown, covered with a fine tomentum, broadish, curved, up to 11 cm. long and more, about 5 mm. broad, chartaceous, reticulate, convex over the seeds.

Seeds brown, ovoid, longitudinally arranged; funicle long, filiform-flattish, crimped, encircling the seed round the longer half, and terminating in a short aril.

This description has been drawn up, as regards habit, phyllodia and fruit, from the Port Augusta specimens (J.H.M.) which I constitute the type. The details of the flower have been described from the Eucla specimen.

This very interesting South Australian species has been named in honour of Sir William James Sowden, of Adelaide, President of the Australian Wattle Day League.

Range.

Its range appears to be confined to South and Western Australia. We know it from the head of Spencer Gulf in South Australia, then roughly following the Transcontinental Railway Line it extends just into Western Australian territory at Eucla. It is one of those species which on its foliage alone has been passed by as something else, and there has been so much confusion in regard to our Acacias that only the trained collector can pick out suitable material to collect and make appropriate notes. And our country is so vast, and the botanical workers so few, that it is but rarely the trained collector passes over our sparsely peopled areas.

South Australia.

Ten to fifteen feet or even twenty feet. Shapely, consisting of many stems, almost like a Mallee. Very handsome, with its silvery somewhat weak foliage. Port Augusta (J.H.M., Jan. 1907).

"Myall." North of Kingoonya, East West Railway to Commonwealth Hill, north east of Ooldea (Dr. H. Basedow, No. 95, April, May, 1917). Some valves and phyllodia.

Western Australia.

Eucla (J. D. Batt, from Dr. F. Stoward, who had received it from the Melbourne Herbarium). In flower and fruit.

Affinities.

1. With *A. papyrocarpa* Benth. The two species recall each other by the size and texture of their chartaceous pods, but the phyllodia of *A. papyrocarpa* are narrower, less flattened and more rigid, while in flower-details, the sepals of *A. papyrocarpa* are less narrow, and shorter in proportion to the corolla. It would seem, however, that *A. papyrocarpa* comes closest to *A. Havilandi.*

2. With *A. pendula* A. Cunn. So far as I have been able to learn, the new species has been looked upon as a Myall or a form of it. This is contributed to by a superficial view of the shape of the phyllodes and their often silvery appearance, and the often pendulous character of the branchlets. But reference to Plate 61, Part 16 of my "Forest Flora of New South Wales" will show that in flower details and in shape of the pods the two species are very different.

3. *A. Cambagei* R. T. Baker. This species is figured by the author at Plate xlii, Proc. Linn. Soc. N.S.W., xxv, (1900), and also by myself at Plate 121, Part 32 of my "Forest Flora of New South Wales." As compared with this species, it is a medium sized tree and is known for its unpleasant smell on the approach of rain. Its phyllodia are silvery, but much broader, and the venation more defined. The flowers are more hairy, and the calyx only about a third the length of the corolla. There are some similarities in pod and seed, but the pods of *A. Cambagei* are straighter and less reticulate.

A. Havilandi n. sp.

Frutex glaber pedes pauci altus. Phyllodiis fragilibus pecuariis edulibus, lineare-subulatis, subrigidis, fere teretibus, rectis circa

4 cm. longis, tenuissime striatis, 8 nerviis vix prominentibus, apice obliquo pungente. Pedunculis tenuissimis, 5 cm. longis, capitulis globosis 25 – 30 floris pallide flavis plerumque 4-meris. Sepalis angustis, fere spathulatis. calyce irregulariter lobato, apice hirsuto, sepalis dimidio aequilongo. Petalis laevibus. Ovario densissime piloso. Legumine lineare, recto vel falcato, ad 7 cm. longo, 2 mm. lato, inter semina valde constricto. Seminibus nigris, longitudinalibus. Funiculo longo pilo simile, in arillum obliquum carinosum dilato.

A glabrous shrub of a few feet high with somewhat brittle foliage, edible by stock; the branchlets scarcely angular. The thin bark roughish.

Phyllodia linear-subulate, rather rigid, nearly terete, straight or nearly so, about 4 cm. long, and very finely striate with up to eight scarcely prominent nerves, with a pungent, oblique point, and a very small gland often 1·5 cm. below it or near the middle of the phyllode.

Peduncles thread-like. 5cm. long, bearing each a globular head of about 25–30 pale-yellowish flowers, mostly 4-merous, but occasionally 5-merous. Bracts variable, boomerang-shaped to quadrangular.

Sepals narrow, nearly spathulate, the calyx irregularly lobed, united to a varying height, hairy at the apex and edges about half as long as the petals. Petals smooth. Ovary densely hairy.

Pod linear, straight or in one curve, up to 7 cm. long, 2 mm. broad, much contracted between the seeds, the valves embossed.

Seeds black, ovate, longitudinally arranged, with a long hair-like funicle, the last fold of which is dilated into an oblique, fleshy aril.

Type, Wong Suey's Paddock, Cobar, N. S. Wales (Rev. Archdeacon Haviland, 1917). Flowers September, fruit November.

Named in honour of Edwin Haviland (1823 - 1908), for notes and portrait see this Journ. XLII, p. 106, Plate 11; and of his son Archdeacon Francis Ernest Haviland, now of Coonamble, formerly of Cobar, N.S.W. Both have specialised in the fertilisation of Australian plants and have also worked at taxonomy and other branches of botany, and their contributions are mostly to be found in Proc. Linn. Soc. N.S.W. I was for long, in the early eighties, a weekly companion of the father in botanical excursions chiefly in the Port Jackson district, while the son has been a generous contributor to the National Herbarium of New South Wales, and specially brought this species under my notice.

Range.

It has been found over a rather extensive range in the drier parts of New South Wales from the Lachlan to the Pilliga and Angledool (close to the Queensland border). It also extends to the Mallee country of Victoria to the vicinity of Spencer's Gulf in South Australia.

Lachlan district (J. Duff, 1882) (as *A. juncifolia*). Cudgellico viâ Condobolin (G. Horan per E. Cheel). Upper Lachlan River (Rev. J. Milne Curran in Herb. Melb.)

Harvey Range, near Peak Hill (J.H.M., 1898).

Small tree (shrub), 5 or 6 feet high. Leaves fairly brittle. Bark rather rough. Nymagee (R. H. Cambage, 6th June, 1900). So far as I know, Mr. Cambage was the first to draw attention to the brittleness of the phyllodes.

Mount Hope (J. L. Boorman). Height four feet, very bushy; Shuttleton (P. E. Lewis, No. 6). Flowers 4-merous. On Devonian quartzite ridge. Shuttleton (Archdeacon Haviland No. 5),

"I have never seen an Acacia like this before." Wong Suey's garden, Cobar (L. Abraham, Nos. 47 and 141, 1911). Wong Suey's Paddock, Cobar (Archdeacon Haviland, 1917).

Noted under *A. juncifolia* in Proc. Linn. Soc. N.S.W., my error.

"A bush new to me. It is very like Punti (*A. Burkittii*). Mr. R. Mackay of Runnymede says it is edible, and that all stock are fond of it. He calls it Needle-bush." Runnymede Station, between Glenariff and Coolabah (A. W. Mullen L.s., No. 2).

Pilliga Scrub (Dr. J. B. Cleland). Forest Reserve 41288, Pilliga Scrub, vicinity of Goona Creek, Co. of White (Forester T. W. Taylor, No. 57). Merimborough, Pilliga Scrub (E. H. F. Swain, No. 28). Shrub of seven feet, Rocky Creek, Pilliga Scrub (W. A. W. de Beuzeville, No. 3). A tall weak-growing shrub of 6–8 feet, having thin stems and a pendulous habit, growing in moist sandy places near the banks of a creek, and at times in the small islands the result of floods. Cuttabri, Pilliga Scrub (J. L. Boorman).

Angledool (Miss Newcomen, in Rev. Dr. Woolls' herbarium).

Victoria.

Gerang (J. Lanyon, through H. B. Williamson).

South Australia.

Mount Livingston (Mr. Langley. Said to have been determined by Prof. Tate as *A. papyrocarpa* Benth.)

Affinities.

1. With *A. rigens* A. Cunn. Its nearest affinity appears to be with this species, but the most obvious differences appear to be as follows:—*A. Havilandi* is a smaller plant, with more brittle phyllodes, which have more numerous, less prominent nerves and paler flowers, and a boomerang-shaped bract and a straight or curved pod, in contradistinction to the capitate one and the smaller twisted or curly pod of *A. rigens*. The flowers and flower-details and seeds are very much alike.

2. With *A. juncifolia* Benth. In this species the phyllodes are up to 17 cm. in length, with a midrib, and with a bend about half an inch from the base, and subtended by a gland. The lobes of the calyx are divided to the base, and their edges are ragged. Ovary smooth and shiny. Very small arillus. There are other differences between this and *A. Havilandi.*

3. With *A. Menzelii* J. M. Black. Its affinities are less close.

Calamiformes (Uninerves).

A. TENUIOR, n. sp.

Frutex probabiliter. Phyllodiis linearibus subulatis paullo planatis 13 – 14 cm longis, costis vel nervis numerosis prominentibus, apice in acumen molle, angustato, breviter villosis. Stipulis brevibus, latis, breviter ac dense villosis. Pedunculis solitariis vel geminis, 1 – 1·5 cm. longis, gracilissimis, villosis, capitulis majusculis globosis 24 – 30 floris, plerumque 5-meris. Sepalis spathulatis, villosis, corollæ dimidium aequantibus. Petalis planis, longitudinis dimidio conjunctis. Ovario dense villoso. Legumen ac semen non vidimus.

Presumably a shrub, with slender branches, almost terete, and well marked by the decurrent lines of the phyllodes.

Phyllodia linear-subulate, somewhat weak, slightly flattened, with numerous (about 8) raised ribs or nerves, 13 or 14 cm. long, the base swollen with annular markings, the apex gradually drawn out into a weak point, the whole sparingly besprinkled with short hairs, but plentifully so towards the base and along the point.

Stipules short, broad, densely covered with short hairs.

Peduncles solitary or two together, 1 – 1·5 cm. long, very slender, and more or less besprinkled with hairs, each bearing a rather large globular head of from 24 to 30 flowers, mostly 5-merous.

Sepals spathulate, free, besprinkled with hairs, half as long as the corolla, the floral-bract simulating a sepal in shape and vestiture. Petals smooth, destitute of a prominent midrib, united for about half their length. Ovary densely hairy. Pod and seed not seen.

The type was collected by Dr. H. Basedow on the "South Australian Govt. North West Expedition," 1903, No. 254, and has been distributed to a limited extent as *Acacia cyperophylla* by the finder. It came from the Musgrave Ranges, Northern Territory, where *A. Basedowi* was also found. I have not seen a second specimen.

Affinities.

1. With *A. prælongata* F.v.M. in Melbourne "Chemist and Druggist," August 1883. This would appear to be its closest affinity, and the species differs from *A. prælongata* in the very much longer glabrous phyllodes of that species, in the fewness of the ribs and in the racemose inflorescence.

2. With *A. Alleniana* Maiden, in Ewart and Davies' "Flora of the Northern Territory," p. 330, with figures. *A. Alleniana* has much longer and fewer-ribbed glabrous phyllodes with numerous conspicuous bracts and with a glabrous ovary.

A. Pilligaensis n. sp.

Frutex glaber Phyllodiis linearo-subulatis, 2 – 2·5 cm. longis paullo planatis, in acumen tenue recurvum angustatis, enerviis vel uninerviis. Stipulis aristatis. Capitulis globosis, solitariis, ca. 20 – 25 floris, pedunculo villoso 5 mm. longo. Calycis lobis brevibus latis truncatis. Petalis laevibus calycem triplo superantibus. Ovario laeve. Legumine at 7 cm. longo, recto vel leniter recurvo, ca. 3 mm. lato, inter semina paullo constricto. Seminibus oblongis, longitudinalibus, in arillum longum clavatum carnosum apice crassatis.

A "shrubby bush," glabrous, the young branchlets angular and glandular-hairy, the phyllodia spreading, or appressed to the stem.

Phyllodia linear subulate, 2 – 2·5 cm. long, slightly flattened, tapering to a fine recurved point, nerveless or with a single nerve. Stipules aristate. Flower-heads globular, about 6 mm. in diameter, solitary, supported in the axil by a peduncle of 5 mm., more or less besprinkled with golden hairs. Flowers 20 – 25 in the head, 5-merous.

Calyx thin and translucent-yellowish, with short, broad, truncate lobes. Petals similar in colour and texture to the calyx, smooth, thrice as long as the calyx. Ovary smooth.

Pod up to 7 cm. long, straight or only slightly curved, about 3 mm. wide, scarcely contracted between the seeds, the valves chartaceous and convex over the seeds. Seeds oblong, longitudinal; funicle bent once or twice, thickened at the end into a long clavate or shortly turbinate fleshy aril.

The type from Ph. Cumbill, Co. Baradine (flower, October 1918). Ph. White, Co. White, 30 miles south of Narrabri (fruit, December 1918). (Forester T. W. Taylor).

Range.

So far, this species has not certainly been found out of New South Wales, though it will probably be found in dry sandy soil in Queensland.

With the exception of the aberrant form from Gulgong (possibly not a correct locality), near Mudgee, perhaps 70 miles south of the Pilliga, most of the specimens come from the Pilliga Scrub. Besides the locality of the type, the National Herbarium, Sydney, has it from the following localities.

Deep sandy soil, Apple tree (*Angophora*) and Pine (*Callitris*) country, Baradine Creek, Pilliga Scrub. (Dr.

H. I. Jensen, No. 78, August, 1911). Also Bohena Creek to Narrabri (Dr. Jensen, August, 1911). On poor lands, Ph. Lloyd, Pilliga; (E. H. F. Swain, No. 38, August, 1913). South-east Pilliga (E. H. F. Swain, No. 21, August 1913). Central Pilliga (E. H. F. Swain, No. 27, September, 1913). Goona Creek, Pilliga Scrub (W. A. W. de Beuzeville, No. 7, July 1915). Pilliga Scrub (Gordon Burrow, No. 22, August 1915). Pilliga Scrub (Dr. J. B. Cleland, October, 1918).

"Three to four feet high, much branched and interlaced like a clump of *A. juniperina*." Home Rule near Gulgong, (J. L. Boorman, October, 1916). A stronger growing plant than the type and with shorter, broader phyllodes. [Mr. Boorman, on a later visit to Home Rule, was unable to find this plant, so I consider that a doubt attaches to the locality for this species].

In addition to the above, the following three specimens, in bud only, are allied to *A. Pilligaensis*, but what the relations are cannot be stated until flowers, pods and seeds are available. All three appear to be more open in habit than *A. Pilligaensis*, whose branchlets and phyllodes are more appressed.

New South Wales.—1. Ticketty Well, twelve miles N.W. of Wallangra, the latter being forty-five miles N.W. of Inverell (Forest Guard A. Julius). Perhaps this locality is not far from the following.

2. Between the Gwydir and McIntyre Rivers (Co. Burnett), near Warialda (E. H. F. Swain, No. 41, July 1911). Nos. 1 and 2 have the phyllodes narrower and longer. The inflorescence is slightly more glabrous, as also are the young branchlets.

Queensland.—3. "A small shrub of about five feet high, or even seven feet, growing in the desert country around Jericho. The whole plant has much the appearance of the

Port Jackson *A. linifolia* when growing (J. L. Boorman). No. 3 differs from *A. Pilligaensis* in the glabrous or non-hirsute branchlets and peduncles, and in the broader (more spathulate) phyllode. The phyllode of No. 3 is longer than that of Nos. 1 and 2.

Affinities.

1. With *A. uncinella* Benth. Although the phyllodia are described as mostly about 1 inch long, I have seen a specimen collected by Maxwell, and determined by Bentham, with phyllodes of the same length, and remarkably similar in appearance, to those of the type of *A. Pilligaensis.* They are also appressed to the stem as sometimes seen in *A. Pilligaensis.* The structure of the flowers of the two species is, however, very different, the sepals of *A. uncinella* being narrow-spathulate. I have not seen pods.

Only one specimen of *A. uncinella*, the type, is known, and it is very desirable that we should collect it again. Prof. Ewart has lent me the original, and it bears the label "Rocky places, west tributary to Oldfield. One to two feet, low shrubby plant (Maxwell)." Augustus Oldfield was Mueller's collector, but the reference seems to be to a river or creek. Maxwell only collected for Mueller on the south coast of Western Australia.

2. With *A. ericifolia* Benth. The phyllodes of *A. ericifolia* are always shorter and often broader, sometimes almost spathulate, and with less persistent stipules. The calyx has narrow-spathulate lobes; those of *A. Pilligaensis* are short and broad. The pods of *A. ericifolia* are narrow and tend to be circinate.

3. With *A. juncifolia* Benth. *A. Pilligaensis* has probably been distributed a good deal as *A. juncifolia;* certainly some of it has been so named by me. This partly arose from confusion as to what *A. juncifolia* really is; I have tried to set the matter clear in Ewart and Davies'

"Flora of the Northern Territory," pp. 319 and 330. The two species can be readily separated by the comparatively short phyllodes of *A. Pilligaensis*, the fewness of flowers in the head, the short broad calyx in contrast with the narrow spathulate sepals of *A. juncifolia*, and the more enveloping arillus of *A. Pilligaensis*.

Uninerves (Spinescentes).

A. OXYCLADA F.v.M., A. SPINOSISSIMA Benth. (*leptacantha* Pritzel), A. ULICINA Meissner, A. FEROCIOR n. sp.

This is, in my view, the proper sequence of the four species dealt with. Bentham groups *A. oxyclada* in Calamiformes (Uninerves), but I think it is better to put it in the Uninerves.

A. OXYCLADA F.v.M., in B. Fl. ii, 341.

I am indebted to Prof. Ewart for a loan of the type. It comes from the Murchison River, W.A., and only one specimen is known. Oldfield's label (of about 1860) reads:

"Round shrub, three to four feet, rocks south of Oolingarrah, No. 984." The Surveyor-General of Western Australia obligingly informs me that this name was probably a local one, and cannot now be traced.

Evidently Mueller did not agree with Bentham's decision to recognise his own MS. name, for, on examination, it appears that it is figured as the left hand twig in Mueller's Iconography plate of *A. ulicina* Meissn. This is not the first time that Mueller's plates in this work have been shown to be composite, and the difficulty of botanists is increased because no particulars of the origin of the specimens figured are given.

None of the details of the plate belong to *A. oxyclada*, except perhaps No. 1, the tip of the phyllode. The point is in the middle of the phyllode as in *A. oxyclada* (in *A. ulicina* it is oblique turned to the side), but the peculiar

and rare central gland at the top (found also in *A. Basedowi*) is not shown.

The material is sparse, and as Bentham saw no flowers his description of the species may be added to and amended as follows:

The phyllodes crowd the short spinescent branches. The gland on the phyllode has already been referred to. The flowers are 5-merous, 7 in the head, each with a very short pedicel. The calyx broad, short, truncate, jagged or with short hairs on the top, about one-third (or less) the length of the free, glabrous petals. Ovary smooth. The valves deeply embossed by the seeds, which are covered, as far as their diameter, with a hood-like arillus.

A. SPINOSISSIMA Benth.

(Syn. *A. leptacantha* Pritzel).

A. spinosissima was described with Drummond's 5th Coll. No. 51 (which is before me) as the type. Mueller forgot the type and labelled a specimen from near Lake Wagin, W.A. (Miss M. Cronin) by that name, which I have called *A. ferocior*. Dr. E. Pritzel, probably misled by this specimen, labelled an identical plant (his 706), *A. spinosissima* also. He then had his D. 3987 on hand, and, having a wrong idea of what *A. spinosissima* is, he looked upon it as new, and described it under the name of *A. leptacantha*. As a matter of fact, his *A. leptacantha* is *A. spinosissima* Benth. and not a new species.

A. leptacantha Pritzel in Engler's Bot. Jahrb., XXXV, 296, (1905).

The author obtained it in the Avon district, which would include York, Cunderdin, and the surrounding country. The author states that it differs from *A. ulicina* in having pungent phyllodes, and in its smaller size and numerous rectangularly spreading branches.

I collected excellent specimens in my 1909 tour of W.A., and my specimens are labelled Perth, but I would like to see this locality confirmed or corrected, as it is quite possible that the locality was confused in the many sendings of my material to Perth.

Mr. Fitzgerald's Cunderdin specimen (see also under *A. ulicina*) was originally labelled by him *A. ulicina*, and I believe that determination to be correct. At the same time an unpublished note of Mr. Fitzgerald says:—"*A. leptacantha* E. Pritzel. Victoria Plains (Diels et Pritzel), Cunderdin (W.V.F.). Of spreading intricate habit, 1–2 ft. high; in ferruginous sandy soil." This may refer to the specimen of *A. ulicina* collected by him from Cunderdin, which I have seen, or it may refer to an undoubted specimen of *A. leptacantha* from that locality, which I have not seen. A brief note like this on plants of this habit could refer to either *A. ulicina* or to *A. spinosissima (leptacantha).*

A. ULICINA Meissn.

This species was described by Meissner in Pl. Preiss. ii, 202, from Drummond's (2nd Coll.) No. 147, which is before me. The only other specimens quoted by Bentham (B. Fl. ii, 345) are two of Oldfield's, and I have a fragment of the South Hutt River one sent to me by Dr. F. W. Stoward, then of W.A., who received it from the Melbourne Herbarium. Its label says "South Hutt. Straggling shrub up to twelve feet, leaves rigid." A second specimen, Bowes River, I obtained from Prof. Ewart. In addition, Diels and Pritzel (Engler's Bot. Jahrb. xxxv, p. 299) quote it from the Irwin district, near the Greenough River (D. 4211), while I have a specimen from Cunderdin (W. V. Fitzgerald, Nov. 1903). These various localities bring us from the vicinity of Northampton (north of Geraldton) to a few miles east of Northam, as the known range of the

species. I know no other authentic specimen, and I speak from experience when I say that such pungent shrubs are difficult to collect, and a collector may easily be in a position in which it is practically impossible to secure flowering or fruiting specimens from a porcupiny mass. I am confident that these porcupiny species have a much greater range than is attributed to them.

Mueller figures it in his Iconography, but the left hand top corner plant (including fig. 1) belongs to *A. oxyclada*, while the rest is probably *A. ulicina;* but the general view of the plant and the details are more or less unsatisfactory. In Drummond's specimen the stipules are setaceous throughout, and the buds striate.

A. FEROCIOR n. sp.

Frutex patens *Ulex* similis, ramis brevibus, rigidis, divaricatis in spinas validas terminantibus. Phyllodiis planatis, subulatis, falcatis, ca 1 cm. longis et 1 mm. maxima latitudine, glandula latere dorsale. Pedunculis glabris, 5 mm. longis, capitulis globosis ca 7 floris. Calyce turbinatis, margine ciliato, petalis minus dimidio æquilongo. Petalis glabris. Ovario elongato, glabro. Legumines ac semines non vidi.

A *Ulex*-like spreading shrub with short, stout, rigid, divaricate sulcate-striate branches, terminating in stout pungent thorns.

Phyllodia flattened club-shaped falcate, terminating in an oblique blunt point, about 1 cm. long and 1 mm. in greatest width, distinctly or obscurely one-nerved, gland on the dorsal side, about one-fourth up from the base.

Peduncles glabrous, up to 5 mm. long, bearing each a globular head of about 7 flowers, mostly 5-merous. Bracts incurved circular. Stipules very deciduous, membranous, only present in the very young shoots.

Calyx turbinate, the edge somewhat irregular and ciliate, not half as long as the petals. Petals glabrous. Ovary elongated, glabrous. Pods and seeds not seen.

The type is E. Pritzel, No. 706.

Synonym.

A. spinosissima F.v.M., also Diels and Pritzel, non Benth.

Range.

This species has only been found in Western Australia. Lake Wagin, its northern locality, is a few miles east of Wagin, a railway station on the Great Southern Railway 150 miles from Albany (King George's Sound). Cranbrook is 70 miles from Albany. The Stirling Range is a few miles to the east of Cranbrook.

A fragment given me by Mr. J. G. Luehmann of the Melbourne Herbarium bears the label "*Acacia spinosissima* Bentham" (in Mueller's handwriting), "Bunkin, near Lake Wagin, W.A., Miss M. Cronin, 1890," in his own.

With a spreading habit. In the Stirling district near Cranbrook, in sandy country with Eucalyptus scrub (Diels 4514, Pritzel 706). Diels and Pritzel in Engler's Bot. Jahrb. XXXV, p. 299). The label of Pritzel's No. 706 says, North-west Plantagenet district in scrub on the sides of hills, Stirling Range.

Affinities.

1. With *A. ulicina* Meissn., which seems its closest affinity. Indeed its general appearance reminds one more of *Ulex* than *A. ulicina* does.

Mr. Luehmann, in sending me a piece of the Lake Wagin specimen, added the note "differs from *A. ulicina* in the short truncate calyx as well as in fruit." There is no fruit in my specimen, and I suggest that, through short-sightedness, he may have mistaken a phyllode for it.

The differences between *A. ferocior* and *A. ulicina* appear to be as follows. *A. ulicina* has longer, more subulate phyllodes, those of *A. ferocior* are club-shaped to falcate. *A. ulicina* has 25 flowers in the head, calyx irregularly lobed and more hairy; *A. ferocior* 7 in the head with a truncate calyx.

2. With *A. oxyclada* F.v.M. The two species are very different in habit and phyllodes, but have resemblance in the few (7) flowers in the head, in the morphology of the flowers, including the bracts.

In order to make the statements concerning these three species clear, it is necessary, in addition to the enclosed table, to give some detail drawings. See the Plates.

OXYCLADA.	SPINOSISSIMA *(leptacantha)*	ULICINA.	FEROCIOR.
Branches terminated by fine thorns	"Smaller than *ulicina*, and differs also in its rectangularly spreading branches" of that species. (Pritzel).	Rigid spreading shrub.	A shrub more strongly resembling *Ulex* than does *A. ulicina*.
Phyllodia. Linear, short, hardly striate. Symmetrically mucronate. Terminal gland.	Linear, not striate, obliquely mucronate.	Linear, striate, obliquely mucronate.	Flattened club-shaped, not striate, 1 main nerve, obliquely mucronate, gland a little way up from base.
Flowers. 7 in the head, Petals free, smooth, small calyx with ragged lobed edges. Ovary smooth. *Foliaceous bracts*	20 in the head. Petals smooth, free. Very small calyx with an inflated appearance, ragged edge. Ovary smooth. *No floral bracts found.*	20 in the head. Petals smooth, divided half way down, calyx irregularly lobed, ciliate. Ovary smooth. Large coarse floral bracts.	7 in the head, petals free, 4 or 5. Calyx turbinate with irregular edge, shortly ciliate. Large bract apparently enclosing the flower head. Ovary smooth.
Pods. Moniliform. Seeds globose, ridged and with an arillus covering one side.	Moniliform. Seeds too immature to draw or describe.	Moniliform, with globular seeds with a marked ridge opposite the arillus.	Not seen.

A. Basedowii n. sp.

Probabiliter frutex divaricatus, spinosus, ramulis gracilibus, teretibus in spinam terminantibus. Phyllodiis augusto-spathulatis, obtusis, glandula minuta proxime infra mucronem brevem, pilis brevibus albis tectis, ca. 1 cm. longis, 2 mm. maxima latitudine, obscure 3-nerviis. Stipulis aristatis, pluribus basi phyllodiorum. Pedunculis solitariis vel geminis, 1 cm. longis, capitulis globosis ca. 30 floris. Calyce obtuse lobato, lobis pilis albis dense fimbriatis, corollæ minus dimidium æquante. Petalis sparse villosis. Ovario glabro. Legumen ac semen non vidimus.

Evidently a divaricate thorny shrub, but no particulars available as to size, etc. The few specimens available show slender terete branches, white with a pellicle and sparingly besprinkled with short white hairs, terminating in spines.

Phyllodia narrow-spathulate, obtuse, with a minute gland immediately beneath the short mucro. Closely besprinkled with short white hairs. Not much more than 1 cm. long and about 2 mm. in the widest part, obscurely 3-nerved, with intermediate secondary nerves. Stipules aristate, several at the base of each phyllode.

Peduncles singly or in pairs, about 1 cm. long, each bearing a globular head of about 30 flowers, 5-merous, the buds closely packed.

Calyx obtusely lobed, the lobes densely fringed with white hairs, less than half as long as the corolla. Petals sparingly besprinkled with hairs. Ovary glabrous. Pods and seed not seen.

Type, Musgrave Ranges, Northern Territory (Dr. H. Basedow 1903, No. 70).

Dr. H. Basedow, Musgrave Ranges, Government North West Expedition, 1903, No. 70 (received labelled as *A. erinacea* and a few specimens distributed under that name).

Synonym.—*A. ulicina* Meissn. var. *oxyclada* Mueller and Tate, Herb.

A. Basedowii is identical with a specimen sent to me by Tate from the Adelaide Herbarium labelled "*A. ulicina* var. *oxyclada*, McDonnell Range. W. H. Tietkens, July 6, 1889." There is no record of this plant in Tietkens' Diary in his Journal of the Expedition, nor in the catalogue (furnished by Mueller) of the plants collected, at the end of the Journal.

It is, however, recorded twice in botanical literature, viz.:

1. "Report on Horn Exped. (Botany)" p. 155, March, 1896. Name only, and "West of McDonnell Range (Tietkens)."

2. W.A., Skirmish Hill. Mueller and Tate, "Report on Botany of Elder Expedition." (Trans. Roy. Soc. S.A., XVI, 351, June, 1896).

As I could not find any published record of the variety, I wrote to Professor Ewart of the Melbourne Herbarium, and he informed me that he also cannot trace any.

Affinities.

1. With *A. oxyclada* F.v.M. Both species have narrow phyllodes (those of *A. oxyclada* are the narrower), and each has a short central mucro, close to which is a central circular gland, (apparently not common in the genus), but the phyllodes of *A. oxyclada* are glabrous and those of *A. Basedowii* slightly pubescent. The flowers are very different, the calyx, with very hairy upper portion, being long and conoid, that of *A. oxyclada* being short and very much shorter in comparison with the petals than is *A. Basedowii*. The pod of the latter is unknown.

2. With *A. erinacea* Benth. The phyllodes of the two species are different in shape, those of *A. erinacea* being obovate-oblong or lanceolate, with a very small gland about half way up on the curved margin. The flowers in *A.*

erinacea are fewer, and the calyx very short and scarcely hairy, and about one fourth of the length of the petals, being very much shorter proportionately than those of *A. Basedowii*.

Uninerves (Racemosæ).

A. Hamiltoniana n. sp.

Frutex erectus dumosus, 5 – 6′ omnino glaber, ramulis angularibus. Phyllodiis lanceolatis, in acumen tenue angustatis, plerumque 4 – 4·5 cm. longis 5 mm. latis, coriaceis, uninerviis, marginibus crassis nervis similibus, venulis inconspicuis, glandula (quum praesente) basin versus. Racemis multis capitulis ca. 20 floris, 5-meris. Sepalis crassis, spathulatis, angularibus, apice et angulis pubescentibus, corollæ dimidium æquantibus. Petalis glabris. Ovario plano. Legumine 8 mm. lato inter semina contracto, valvis marginibus crassatis, seminibus longitudinaliter dispositis. Arillo clavato, funiculo breve.

An erect bushy shrub of 5 or 6 feet, quite glabrous, exhibiting a bluish-green cast when growing, branchlets angular.

Phyllodia lanceolate, straight or a little curved, sometimes tending to be spathulate, terminating in a fine point, the end of the phyllode sometimes bent obliquely, usually $1\frac{1}{2}$ to $1\frac{3}{4}$ inches long, rigidly coriaceous, one-nerved, with thickened nerve-like margins, the veinlets inconspicuous, with or without marginal glands, the gland when present being about one-fifth of the way up from the base.

Racemes not exceeding or equalling the phyllodes, with numerous heads of about twenty flowers, all 5-merous.

Sepals thick, spathulate, angled, fringed at the top and along the angles with fine hairs, half as long as the corolla. Petals glabrous. Ovary smooth.

Pod $\frac{1}{4}$ inch broad, the valves with a raised rim along the margin, the pod contracted between the seeds, which are longitudinally arranged.

Seed with a club-shaped aril and a funicle short or as long as the seed, but not encircling it.

Type from Leura, Blue Mountains, N.S.W. (A. A. Hamilton) in National Herbarium of New South Wales. Identical with Sieber's No. 464, which is figured at Plate 181, Part XLVIII of my "Forest Flora of New South Wales."

The history of the species, and a description in English, will be found at Part XLVIII, p. 153 of my "Forest Flora of New South Wales."

Synonyms.—1. *A. crassiuscula* Sieber. This name, however, is barred by reason of the earlier *A. crassiuscula* Wendl. (See my Forest Flora, Part XLVIII, p. 153).

2. *A. obtusata* Sieb. var. *Hamiltoni* Maiden (*loc. cit.*)

Range.

This species is at present only known from the higher parts of the Blue Mountains. N.S.W., viz., from Leura to Clarence Siding, and I invite the attention of observers to extend records of its habitats. There seems no doubt that this rare species is a disappearing one, and that it is displaying a greater tendency to assume the vegetative method of reproduction. It is becoming difficult to get ripe seeds, and people who have it in their ground at Leura find that it largely spreads by underground stems.

Affinities.

It is very closely allied to *A. obtusata* Sieb., figured in my "Forest Flora of New South Wales," Part XLVIII, Plate 177, in flowers.

Mr. R. H. Cambage informs me that the seedlings of *A. Hamiltoniana* have more bipinnate leaves than *A. obtusata*, and that the internodes are shorter. Mr. Cambage has described the seedlings of *A. obtusata* in this Journ., Vol. LII, p. 424 (1918), and will shortly furnish a description of those of *A. Hamiltoniana*.

If Plate 181 (*A. Hamiltoniana*) and Plate 177 (*A. obtusata*) of my "Forest Flora of New South Wales" be compared, it will be seen that the funicle is much shorter and the disposition of the seed more longitudinal in the former species, while the phyllodes of the two species are very different. Those of *A. obtusata* are usually almost spathulate with a prominent marginal gland about a third of the way up from the base, which has the effect of causing a deflection of the margin on the side opposed to the stem. Those of *A. Hamiltoniana* are narrow-lanceolate, almost symmetrical, rigidly coriaceous, acuminate, one-nerved, with thickened nerve-like margins, a gland about one-fifth of the way up from the base.

A. CHALKERI Maiden, this Journ. XLIX, p. 482.

Mr. R. H. Cambage gave me flowering specimens (December) from the type locality, showing that they are bright yellow in colour and strongly and sweetly scented. The species was then in full bloom.

A. KETTLEWELLIÆ, this Journ. XLIX, p. 484.

Mr. W. A. W. de Beuzeville, Forest Assessor, Forest Department, gives the following useful notes on a little known species:—

"A shrub varying from two feet to fifteen feet high, usually about the former height when growing in thick scrubs and attaining the latter when growing under more or less isolated conditions. Erect in habit, reminding one rather of *Acacia decora* in appearance but more compact. Blooms very freely, in fact produces a more luxuriant crop of blossoms than any other Acacia that I have seen in this locality; greatest diameter I have seen is about three inches. It favours generally rough granite hillsides, on the higher slopes, often to be seen in the deep rough gullies where it seems to attain its greatest height growth growing in company with *Daviesia corymbosa* generally at an elevation of more than

3,000 feet, though I have seen it occasionally at 2,000. It is undoubtedly the most handsome Acacia to be found in these mountains." [He is writing from Batlow, and is speaking of the Batlow Forest Reserve, a new locality.]

A. CLUNIES-ROSSIÆ Maiden, this Journ. XLIX, p. 486.

This has hitherto only been recorded from the Kowmung district, N.S.W., and so a second locality, Cox's River, foot of Mount Solitary, via Wentworth Falls (D. W. C. Shiress) which is a number of miles to the north (it is difficult to measure distances in this broken country) is worthy of record.

(*a*) A. BRACHYBOTRYA Benth. (*b*) A. ARGYROPHYLLA Hook. (*c*) A. SPILLERIANA J. E. Brown.

In Plate 200, Part LIII of my "Forest Flora of New South Wales," these forms are figured. In bringing (*b*) under (*a*) I followed Bentham and Mueller, and in bringing (*c*) under (*a*) I followed Mueller, but I have arrived at the conclusion that they should be kept as distinct species. They seem sufficiently dealt with in the work in question.

Plurinerves (Triangulares).

A. DELTOIDEA A. Cunn.
(Syn. *A. stipulosa* F.v.M.)

In B. Fl. ii, 379, Bentham, speaking of *A. stipulosa*, says "Very near *A. deltoidea*, differing chiefly in the flowers twice as large, and in the proportion of the calyx and corolla." In my experience there are no important differences in the size of the flowers. But a specimen is before me (Fitzroy River, A. Forrest) with a head of flowers twice as large as normal, but they are swollen as the result of insect action. Mueller had not finally made up his mind as to specific differences, for in Fragm. XI, 117, speaking of *A. stipulosa*, he says, "species *A. deltoideæ* ulterius comparanda."

I have long doubted that they were separate species, but there were difficulties because of the scarcity of type material of *A. deltoidea*. I have lately undertaken the examination of certain North Western Australian Acacias collected by Mr. W. V. Fitzgerald, and found a memo by him "*A. stipulosa* not specifically distinct" (from *A. deltoidea*).

Mueller in his "Iconography" figures *A. stipulosa* but does not depict *A. deltoidea*. The flowers depicted are so unsatisfactory, a matter of great importance in Acacia, that the plate has contributed to the uncertainty of the relations of the two species, and I offer drawings which will be more satisfactory than the Iconography plate.

There seems to be nothing in the specimens of the *A. deltoidea-stipulosa* series that shows more than a little variation, hardly amounting to a variety, and I am of opinion that *A. stipulosa* is a synonym of the previously described *A. deltoidea*. In the Edkins Range specimen a glandular angle is almost imperceptible, there being a swelling curve from the gland to the apex. The flowers are 50 – 60 in the head. The pod is rather more than 1 cm. broad and 4 cm. long, with seeds transverse or oblique.

Range.

So far the species is only known from tropical Western Australia. The following localities are in the West Kimberleys. Edkins Range (W. V. Fitzgerald, No. 1421, April 1905). Packhorse Range (W. V. Fitzgerald, No. 999, May 1905). Sunday Island, West Kimberley (W. V. Fitzgerald, November 1906).

Then we have, practically from the same district, King's Sound (All. Hughan, see Fragm. XI, 117); Fitzroy River, which flows into the Sound (A. Forrest, 1879, comm. Dr. F. Stoward); also east of the Oscar Ranges, Humbert River (see Vol. LI, p. 100 of this Journal).

A. LUEHMANNI F.v.M. in Fragm. XI, 116. Figured in "Iconography."

The Iconography figure is somewhat diagrammatic as regards the flower, and a fresh drawing is submitted. A more important error is that of the ovary, which is shown as glabrous when, as a matter of fact, it is densely hairy. The ovary is not mentioned in the original description, and the figure referred to is probably a slip of the artist. I would point out that the type locality, Liverpool River, is really Northern Territory; the localities given in this Journ. LI, 108, belong to North Western Australia as so stated.

A. FROGGATTII n. sp.

Frutex valde ramosus, glanduloso-pilosus, ramis teretibus. Phyllodiis oblique curvatis, triangulare-ovatis, margine superiore valde curvato, acutis, 6 cm. × 3 cm., 5-nerviis, nervis marginalibus in acumen acutum continuatis. Stipulis aristatis, geminis. Pedunculis plerumque solitariis ca. 1·5 cm. longis, capitulis globosis ca. 25-floris. Calycis parte inferiore poculo simile formato, 5 lobis triangularibus, calyce triente corollam æquante, villoso. Petalis angustis partim villosis. Ovario plano. Leguminibus minus 4 cm. longis ac 5 mm. latis, valvis inter semina leniter levatis, glanduloso-hispidis. Seminibus longitudinalibus, ovoideis, funiculo filiforme in arillum carnosum duabus vel pluribus plicis dilatum.

A much branched, glandular-hirsute shrub, probably of no great height; branches terete.

Phyllodia obliquely curved, somewhat triangular-ovate, the upper margin especially curved; acute, 6 cm. long, by 3 cm. broad, three nerved for the most part, in addition to two marginal nerves which are continued into a sharp point, the upper margin with a small gland near the middle, but without a glandular angle. Stipules aristate, in pairs.

Peduncles usually single, about 1·5 cm. long, bearing each a globular head of about 25 flowers, mostly 5-merous.

Calyx cup-shaped in the lower part, surmounted by five triangular lobes; the calyx about one-third the length of the corolla, hairy. Petals rather narrow, hairy externally as far as the blunt lobes. Stamens very numerous. Ovary smooth.

Pods (but few seen) under 4 cm. long and 5 mm. broad, the valves only slightly raised between the longitudinally arranged seeds, glandular-hispid.

Seeds ovoid, the filiform funicle after two folds dilated into a fleshy aril of two or more folds.

Type. Woollybutt Creek, near Phillip's Range, North West Australia (W. V. Fitzgerald No. 981, May 1905).

Named in honour of Walter Wilson Froggatt, Government Entomologist of New South Wales, in recollection of his collecting tour in this district (Kimberley West). He is President of the New South Wales Branch of the Wattle Day League, and has long taken an interest in the national flower.

Range.

Woollybutt Creek near Phillip's Range (W. V. Fitzgerald, May 1905, No. 981).

Affinities.

1. With *A. deltoidea* A. Cunn. The phyllodia of *A. Froggattii* are dull green, in contrast with the more shiny yellow phyllodia, with shorter hairs and more prominent marginal veins, of *A. deltoidea.* The latter species has laciniate calyx-lobes, an ovary covered with short hairs, and a larger pod whose valves are lobed dorsally.

2. With *A. Luehmanni* F.v.M. The phyllodia of *A. Froggattii* are dull green as contrasted with the more shiny yellow of *A. Luehmanni.* Those of the latter are less hairy, except at the base, broader and more quadrilateral, with the gland in a glandular angle, and with broader stipules. The latter species also has a broader calyx, with shorter

calyx-lobes, which are hairy only at the tips of the lobes, and glabrous petals. Further it has a densely hairy ovary in contradistinction to the glabrous one of *A. Froggattii*, and also a long, narrow, glabrous pod.

Plurinerves (Microneura).

A. EREMEA n. sp.

Frutex erectus vel arbor parva. Phyllodiis pulchris, argenteis, lanceolatis, angustis, 5 – 7 cm. longis, 4 mm. latis, crassis, tenuissime striatis, nervis parallelibus. Pedunculis geminis vel pluribus, ca. 5 mm. longis, pilis aureis tectis, capitulis globosis ca. 30 floris. Sepalis spathulatis, pilis sparse tectis, corollæ minus dimidio æquilongis. Petalis per totum hirsutis, marginibus ciliatis. Ovario hirsuto. Legumine latuisculo, breve tomento tecto, reticulariter venoso, ca. 1 dm longo, 6 mm. lato; seminibus longitudinaliter dispositis. Semina non vidimus.

An erect shrub or small tree with beautiful silvery foliage, the result of a very short tomentum, branchlets at first slightly angular.

Phyllodia straight, or slightly falcate, lanceolate, narrow, tapering to both ends, with a rigid point, 5 – 7 cm. long, 4 mm. broad, thick, very finely striate with parallel nerves only to be seen under a lens. An ill-defined gland at the base.

Peduncles in pairs or more, covered with golden hairs and about 5 mm. long, bearing globular heads of about 30 flowers, mostly 5-merous. Bracts conoid-capitate.

Sepals spathulate, besprinkled with hairs, particularly towards the top, scarcely half as long as the corolla. Petals hairy all over, and ciliate at the edges, free. Ovary hirsute.

Pod of medium width, twisted (?), covered with a very short tomentum and very finely and reticulately veined, about 1 dm. long and 6 mm. broad, the valves moderately convex over the seeds, which are slightly contracted between them; seeds longitudinally arranged.

The type is Milparinka, N.S.W. (C. G. Ivey, September, 1906). In flower, but only one valve of a pod available, and that probably not quite ripe.

The specific name is given in reference to the dryness of the country in which it is found.

Range.

It is a dry country species, and, so far as we know at present, confined to the driest parts of New South Wales and Queensland. At the same time, I rather confidently expect it to be found in north-eastern South Australia or the Northern Territory, nearest to the New South Wales and Queensland localities.

New South Wales.

With the exception of the "Riverina" locality, which is too vague, the species is only recorded from the White Cliffs and Milparinka districts, trans-Darling localities on the route from Wilcannia to the extreme north-west of the State.

Riverina (L[ockhart] Morton). Labelled *A. homalophylla* by Mueller). In unripe curved pods; phyllodes rather broad.

"Nealie." E. P. O'Reilly, Public School, White Cliffs. In flower. "Nilyah," bushy, 14 miles south-west of White Cliffs. Inclined to follow damp courses (J. E. Carne through R. H. Cambage). Foliage only.

"Branches erect. The Nilyah has never been known to flower in this district. I am rather reticent as to whether this is the real Nilyah about here. It is pronounced Nilyah, Nelie and Nelia"(C. G. Ivey, Public School, Milparinka 1905). In flower.

Twelve feet high, branches pendent to the ground. *Acacia pendula*, Evelyn Creek, Sept. 1887 (Mueller's label). (The label of the collector, W. Baeuerlen, reads "Koorningbirry, Sept. 1887, William Baeuerlen, No. 176). The locality is

Lat. 30°, Long. 142° 7, a few miles south of Milparinka. In this specimen the flowers are from 2 to 7 in a node.

Queensland.

"Locally called Boree. Has silvery appearance." Thompson River, Longreach. (R. H. Cambage, No. 3971). In early pod, slightly falcate. Recorded provisionally as *A. homalophylla*.

Affinities.

A. homalophylla A. Cunn. *A. homalophylla* is a medium sized, erect tree, known as Yarran. The phyllodia present considerable external resemblance, except that those of *A. homalophylla* are not silvery. The sepals of that species are truncate-undulate, not spathulate, while the pods (see Plate 189, fig. E of my "Forest Flora of New South Wales") are straight not twisted, and not reticulately veined as in *A. eremea*.

A. lineolata Benth. If flowers are available, the two species can readily be separated, as the heads are almost sessile in *A. lineolata*. The pods of that species remain unknown. The phyllodes of the two species present a good deal of similarity in shape and texture, but those of *A. lineolata* are smaller and more glabrous.

	1 *rigens.*	2 *eremea.*	3 *Loderi.*	4 *Sowdeni.*
	A *Needle-bush* up to 10 or 15 feet. *Green.*	Erect shrub up to 15 feet. *Very silvery.*	A hoary or glaucous dense shrubby tree, up to 20 feet. Wood deep brown; bark flaky-fibrous.	Mallee-like small tree, up to 20 feet. *Very silvery when young.*
Phyllodia	*Filiform*, compressed, nearly terete, rigid. "About three-nerved." Finely striate. 3–4 inches (7·5–10 cm.) long, or 2 – 2½ (5-6·5 cm.) (Benth).	Straight, *lanceolate*. Rigid, very finely striate. 5–7 cm. long, 4 mm. broad.	Linear, finely striate with parallel nerves, besprinkled with short hairs. 10 or 11 cm. long, 2 mm. broad.	Linear. Moderately rigid. Finely striate with parallel nerves, besprinkled with short hairs when young. 6-8 cm. long, 3 mm. broad.

	1 *rigens.*	2 *eremea.*	3 *Loderi.*	4 *Sowdeni.*
Peduncles	Very short.	In pairs, covered with golden hairs; 5 mm. long.	In pairs, densely hairy.	In pairs or threes. 5 mm. long.
Number in head	Twenty. *More or less viscid.*	*Thirty*	*Thirty-six.*	*Twenty-five.*
Bract	Conoid-capitate	Conoid-capitate.	Fan-shaped at top.	Oblique topped.
Sepals	Spathulate, hairy, but chiefly upper half.	Spathulate, hairy, but chiefly upper half. *More hairy than others.*	Spathulate, hairy, chiefly at top.	Spathulate or almost linear. Hairy at tips.
	About half as long as corolla.	Scarcely half as long as corolla.	Half as long as corolla.	About half as long as corolla.
Petals	Glabrous.	Hairy all over	Smooth.	Very sparsely besprinkled with hairs.
Ovary	Hoary-pubescent.	Hirsute.	Densely hairy.	Hirsute, particularly upper portion.
Pod	Narrow linear, *twisted, 7·5 cm. long;* 3 *mm. broad.* Slightly contracted between seeds. Puberulous.	Medium width, *twisted into a double curve.* Grey tomentum. *Reticulately veined.* 1 *dm. long,* 6 *mm. broad.*	*Markedly moniliform,* 8 *cm. long,* 4 *mm. broad.* Glaucous. *Much contracted between seeds.*	*Broadish,* curved, *chartaceous,* 11 *cm. long,* 5 *mm. broad. Pale brown, reticulate.*
Seed	Ovate, *black,* longitudinal.	Longitudinally arranged. (Not seen).	*Brownish-black,* ovoid.	*Brown,* ovoid.
Funicle	*Several folds,* turbinate almost cup-shaped aril.		*Pendulous,* with small arillus (like 4), encircling seed for half its length (like 4).	*Pendulous,* etc. (like 3).

A. Loderi n. sp.

Arbor parva, ligno brunneo, cortice lamelloso-fibrosa. Phyllodiis numerosissimis linearibus ca. 10 vel 11 cm. longis, 2 mm. latis,

tenuibus, pilis brevibus tectis, tenuissime striatis, nervis parallelibus. Pedunculis dense hirsutis, capitulis densis globosis in racemis, ca 36-floris. Sepalis spathulatis, apice hirsutis, corollæ dimidio æquilongis. Petalis lævibus. Ovario dense hirsuto. Legumine tomento tecto, prominenter moniliforme ca. 8 cm. longo, 4 mm. lato, super semina convexo. Seminibus brunneo-nigrascentibus, ovoideis, funiculo longo, filiforme, pendulo in arillum paullo ampliatum terminante.

A hoary or glaucous, dense shrubby tree, up to about twenty feet high. Wood deep brown, bark flaky-fibrous, and more or less furrowed, branchlets at first slightly angular.

Phyllodia linear, with a fine, hooked point, tapering towards the base, about 10 or 11 cm. long, 2 mm. broad, thick, besprinkled with short hairs, very finely striate with parallel nerves only to be seen under a lens, decurrent. A swollen gland at the base.

Peduncles in pairs or more, densely hairy, bearing dense globular heads of about 36 flowers, mostly 5-merous. In racemes as in *A. homalophylla*. Bracts fan-shaped at the top.

Sepals spathulate, free, hairy chiefly at the top, half as long as the corolla. Petals smooth, free. Ovary densely hairy.

Pod with a fine tomentum, narrow, markedly moniliform, up to 8 cm. long, 4 mm. broad, convex over the seeds and much contracted between them.

Seeds brownish-black, ovoid, with a distinct areole, with a long, thread-like pendulous funicle encircling the seed for half its length, and terminating in a slightly enlarged arillus at the top of the seed.

The type is Yancowinnia, Broken Hill district (A. C. Loder).

Range.

So far as we know at present it is confined to New South Wales, and mainly to the Broken Hill district, but so close to the South Australian border, that it is impossible for it not to occur in the latter State.

Thackaringa, west of Broken Hill, close to South Australian border (J. E. Carne, October 1907). In flower.

"Nelia," Mulculca Creek, twenty miles south-east of Broken Hill. (Assistant Forester Andrew C. Loder, No. 29, same tree as No. 17, January 1906). Phyllodes only, attacked by galls. Also flowers, October 1905.

Kars, some forty miles south-east of Broken Hill (A. C. Loder, January 1907).

"Nelia," Yancowinnia, Broken Hill district (A. C. Loder, November 1905). Flowers, wood and bark.

"Broken Hill Gidgee." Dense shrubby tree, hoary or glaucous. Twenty to twenty-two feet in extreme height. (E. C. Andrews, November 1918). Fruits and late flowers.

Ivanhoe viâ Hay. (K. H. Bennett 1886). In flower only and det. Mueller as *A. rigens*. These specimens accompanied the bark analysed as *A. rigens* in the second edition of my "Wattles and Wattle-barks." The specimens in my possession are not very good, and I invite attention to the district as a probable, not absolutely certain locality for the species.

Affinity.

With *A. Cambagei* R. T. Baker. This is the common "Gidgee," which is figured in Part XXXII of my "Forest Flora of New South Wales." It has odoriferous foliage, the phyllodes broader and the pods very different.

Juliflorae (Stenophyllae).

A. COOLGARDIENSIS n. sp.

Frutex fere glaber. Phyllodiis subresinosis, lineare subulatis, minute striatis, rigidis, nervis tenuibus parallelibus, acumine breve

pungente, 10 – 15 cm. longis. Spicis sessilibus, geminis, ovoideis vel oblongis, 6 vel 7 mm. Floribus 5-meris. Calyce spathulato vel angusto-lobato, apicibus pruinoso, corollæ dimidium æquante. Petalis planis, facile disjungentibus. Legumine stipitato, lineare, terete, inter semina vix constricto, ca. 8 cm. longo. Seminibus longioribus quam latis, longitudinaliter dispositis, funiculo longo, filiforme, arillo lato, oblongo.

An almost glabrous shrub, with scarcely angular branchlets, very soon terete.

Phyllodia slightly resinous or gummy, linear-subulate, rigid, with a short pungent point, 10 – 15 cm. long, terete and minutely striate, with very fine parallel nerves, scarcely visible without a lens, slightly wrinkled and hoary at the base.

Spikes sessile, in pairs, dense, ovoid or oblong, not above 6 or 7 mm. long.

Flowers 5-merous, the floral-bract capitate or spathulate, with a rugose apex.

Calyx spathulate or narrow-lobed, sometimes the sepals less divided to the base, rugose or hoary at the tips, thin, nerved, fully half as long as the corolla. Petals smooth, partly united, but easily separating. Ovary hoary.

Pod shortly stipitate, linear, terete, scarcely contracted between the seeds, smooth, slightly resinous, about 8 cm. long.

Seeds longer than broad, longitudinally placed in the pods, with a long filiform funicle (which suspends the seed when the pod is open), terminating in a broad hemi-ellipsoid to oblong arillus embracing the bottom of the seed.

Type, Coolgardie, Western Australia (1899 – 1900). Description of fruits from Kunonoppin (Dr. F. Stoward, No. 75). I have not seen the specimens, but it is probable that the pods and seeds described by the late Dr. A. Mor-

rison in the "Scottish Botanical Review" for April 1912, p. 99, under the name of *A. aciphylla* Benth. (Kunonoppin, F. E. Victor) belong to *A. Coolgardiensis*.

Range.

It is confined to Western Australia, and, so far as has been ascertained at present, only from the Watheroo Rabbit Fence to the vicinity of Kalgoorlie. The species with filiform, more or less terete, rigid leaves have been confused with each other more or less, and casual travellers and explorers (usually with little botanical knowledge), naturally look upon them as more or less alike, and hence do not frequently collect them. Botanists desire to invite the attention of collectors not so much to bizarre or "obviously different" plants, but rather to plants of a somewhat similar facies. The problem of the botanist is to discriminate those which superficially appear to be alike.

I have it from the following localities:—132 miles and upwards, Watheroo Rabbit Fence (Max Koch, 1338a, Sept. 1905). Kunonoppin (Dr. F. Stoward No. 75).

A tall shrub. Cowcowing (Max Koch No. 1025, Sept. 1904). Received as *A. leptoneura*.

Bruce Rock-Merriden district (Dr. F. Stoward Nos. 8 and 14).

Coolgardie (L. G. Webster) received as *A. aciphylla*, Kurrawang (Dr. J. B. Cleland).

Affinities.

1. With *A. aciphylla* Benth. The type of *A. aciphylla* is Drummond's 4th Coll. No. 14, which I have seen; Mueller has not figured the species in his "Iconography." The outstanding differences between the two species are the thicker, more rigid and decurrent phyllodia, with a different striation, the very shortly lobed turbinate calyx and the "about 1 in. long" (2·5 cm.) pod of *A. aciphylla*. The

present species has been, by some competent Australian botanists, who have not seen the type, referred to *A. aciphylla*.

2. With *A. Burkittii* F.v.M. This is figured in Part LIX of my "Forest Flora of N. S. Wales," and differs from *A. Coolgardiensis* in the phyllodia. In the former species they are ribbed, almost quadrangular, with a weak, tapering point which is very hairy. The fruits of the two species are very different, those of *A. Burkittii* being comparatively broad and moniliform, with a larger, less elongated seed. There are also differences in the flower.

3. With *A. leptoneura* Benth. This species (one of the Calamiformes, sometimes confused with *A. Coolgardiensis*) also has narrow sepals, and is referred to at Vol. LI, p. 261. It differs from *A. Coolgardiensis* in the long, fine phyllodes, and the flattish translucent pods of *A. leptoneura*.

4. With *A. filifolia* Benth. The phyllodia of *A. filifolia* are not terete; they are quadrangular with prominent nerves and some hoariness between them; those of *A. Coolgardiensis* are terete. The calyx of *A. filifolia* is turbinate-truncate and the other details of the flower are different.

A. ONCINOPHYLLA Lindl. var. FAUNTLEROYI n. var.

A tall thin-stemmed shrub, locally called "Fibre-bark Wattle," because of the peculiar way in which the bark peels off in numerous thin, narrow layers of curly bark, useful for stuffing or packing purposes.

The plant is so viscid that it sticks to paper on being pressed, like some other species. The resinous substance gives the plant a delightful turpentinous odour.

The branchlets somewhat angular, the extremities covered with a short white pubescence which is shortly succeeded by a thin flattish, flaky, brownish bark, which later on peels off in curly flakes.

Phyllodia aromatic, covered with short white hairs, linear, straight or slightly curved, with an oblique or hooked point, 10 – 20 cm., 3 – 4 mm. broad, flat, but thick and rigid, with seven or more nerves, the central one usually more prominent, a gland sometimes seen near the base, often concealed by the indument.

Spikes mostly in pairs, with hairy peduncles of 5 or 6 mm., dense, short, about 1·5 cm. long, and under 1 cm. broad. Flowers mostly 5-merous. Bracts spathulate, ciliate on a long slightly curved slender stipes quite as long as the calyx.

Calyx cylindroid, irregularly lobed, the upper portion covered with long hairs, more than half as long as the corolla.

Petals sparingly besprinkled with hairs, particularly in the upper portion; united to the lobes. Ovary enveloped in long white hair.

Pod stipitate, linear, straight or very slightly curved, about 1 dm. long and 5 mm. broad, densely villous with silvery hairs.

Seeds ovate, with an areole of the same outline, obliquely arranged in the pod, with a long suspensory funicle, terminating in a fleshy arillus.

"Grows on the granite in cracks to a fair size, has a pretty way of shredding its bark. I have not seen it off the granite rocks." (C. A. Fauntleroy, Uberin Hill, Dowerin, W.A., in a letter to Mr. W. C. Grasby, "Western Mail," Perth.)

A tree forming a dense thicket. Yarrigin. Flowers only. (Dr. F. Stoward, No. 155).

Affinity.

With *A. oncinophylla* Lindl. (typical form).

This species is so imperfectly known, that I have considered it desirable to describe the variety at length, and to contrast it with its species.

A. oncinophylla.	Var. *Fauntleroyi.*
Phyllodes 3-nerved, one on each side of central nerve. Gland removed from base $\frac{1}{4}''$.	A coarser plant. Phyllodes 5–7 nerved, usually three nerves on each side of central nerve. Gland, when found, at extreme base. Longer and broader.
Petals glabrous, the calyx cleft to the base. Hairy. Large bract. The peduncle to the flower spike is usually very short.	Petals hairy, calyx truncate, irregularly lobed, hairy. Large floral bract differing in shape from *oncinophylla* (typical), (and with more slender stipes). The peduncle to the flower spike is sometimes as long as the spike itself. Spike thicker.
The pod is golden pubescent.	The pod covered with a mat of silver hair, and very much longer; also broader.

Juliflorae (Falcatae).

A. DORATOXYLON A. Cunn.

This species is figured and described at Part XXXVII of my "Forest Flora of New South Wales. It has become necessary to re-examine material of it contained in the National Herbarium, Sydney. The type came from the vicinity of the Lachlan River, about half way between the modern Cowra and Forbes. The following specimens are very close to the type. I think it convenient to separate some of the material into a variety *angustifolia*. We have, however, intermediate forms, and, on the other hand, I

have seen the species (Wyalong) with phyllodes up to 7 mm. broad.

New South Wales.—"Currawang," Bedooba and other stations; common in Lachlan district (J. Duff). Euabalong, Lachlan River (R. H. Cambage). Cobar (Archdeacon F. W. Haviland). Wagga Wagga (J.H.M., T. H. Patterson, No. 201). "Currawang," Wyalong (District Forester Osborne; J. E. Carne, with phyllodes up to 7 mm. broad). Temora (Revd. (now Bishop) J. W. Dwyer, Nos. 130 and 997; No. 654 with phyllodes up to 6 mm. broad). "Currawang," Forbes (Forester H. W. Garling). Gungal near Merriwa (J. L. Boorman).

Queensland.—Trees of 20–30 feet. Inglewood (J. L. Boorman). Near Dalby (Col. Botanist of Queensland).

Var. ANGUSTIFOLIA var. nov.

A shrub eight feet in height with narrow phyllodes of about 2 mm. Eidsvold, Queensland (Dr. T. L. Bancroft, No. 32, with photo.)

In its typical form this is so striking as to puzzle people who know the normal form of *A. doratoxylon*. At the same time, *A. doratoxylon* sometimes produces specimens which have narrow or intermediate phyllodes almost as narrow as those of var. *angustifolia*.

The Jack's Creek, Narrabri, N.S.W., specimen is figured at G, Plate 141 of my "Forest Flora of New South Wales." Following are some localities:

New South Wales.—Bogan Gate (J. L. Boorman). "Currawang," "Boree," Bowan Park, near Cudal (W. F. Blakely). Harvey Range, Peak Hill (J. L. Boorman). Tree of 20–30 feet, Coolabah (J.H.M. and J. L. Boorman). An intermediate form. "Large shrub, growing on sandy loams and poor sand." Parishes of White and Cocaboy, Co. of White, 30–40 miles south of Narrabri, within Pilliga Scrub

(Forest Guard T. W. Taylor). Goona, Pilliga Scrub (W. A. W. de Beuzeville, No. 6). Bohena Creek to Boggabri (Dr. H. I. Jensen). 6–10 feet. A very rare plant in the district, growing on the side of Jack's Creek, Narrabri (J. L. Boorman). Warialda (W. A. W. de Beuzeville, Scrub No. 1).

Queensland.—Near Goondiwindi (Dr. John Shirley). Eidsvold (Dr. T. L. Bancroft).

A. PROXIMA Maiden, this Journ. LI, 105.
(Syn. *A. camptoclada* Pritzel).

It is a tropical congener of *A. doratoxylon.* I have not yet seen satisfactory pods, and some differences between the two species have already been gone into (*loc. cit.*) It may be added that *A. proxima* has a shorter calyx, only half the length of the petals, whereas the proportion is one third in *A. doratoxylon.* The ovary is much more densely hairy in *A. proxima.*

Additional localities in North West Australia are Broome, West Kimberley (No. 126), and near junction of Lennard and Barker Rivers (No. 1546). (Both collected by W. V. Fitzgerald).

A. SHIRLEYI n. sp.

Arbor erecta altitudinem 50′ attinens, diametro 1′. Cortice inæquale, sulcata, lamellis fibrosis. Phyllodiis angusto-lanceolatis, falcatis, breviter acuminatis, 12 – 15 cm. longis, 5 mm. – 1 cm. latis, nervis numerosis tenuibus parallelibus, nervo medio prominentiore. Spicis breviter pedunculatis, solitariis vel fasiculatis 5 – 6 cm. longis, angustis, interruptis. Calyce breve, sinuato-dentato, corollæ minus dimidium æquante. Petalis revolutis. Ovario dense piloso. Leguminibus breviter stipitatis, rectis vel fere rectis, 3 – 4 mm. latis, 10 – 11 cm. longis, super seminibus convexis, valvis sublignosis. Seminibus ovoideis. Funiculo bis curvato et in arillum parvum poculo similem expanso.

An erect, medium sized tree, attaining a height of fifty feet with a trunk diameter of one foot. Bark thin, rugged,

furrowed, flaky-fibrous, almost stringy. Timber long-grained, splits readily; brown with a tinge of red, and with a pleasing figure.

Glabrous, sometimes with an ashy hue, branchlets at first acutely angular, but soon terete, except for the decurrent processes from the bases of the phyllodes.

Phyllodia narrow-lanceolate, falcate, shortly acuminate, and often with oblique or recurved points, 12 to 15 cm. long, 5 mm. to 1 cm. broad, narrowed towards the base, moderately thick, with numerous fine parallel nerves, the central one more prominent.

Spikes shortly pedunculate, solitary or clustered, 5–6 cm. long, narrow, interrupted. Flowers mostly 5-merous.

Calyx shallow, sinuate-toothed, not half as long as the corolla, densely hairy. Petals revolute, with slightly prominent midribs. Ovary densely hairy.

Pods shortly stipitate (stipes under 1 cm.), linear, straight or nearly so, 3 or 4 mm. wide and 10 or 11 cm. long, convex over the seeds, somewhat contracted between them, the valves somewhat thick and woody.

Seeds ovoid, with a small areole, longitudinal, the funicle bent twice and dilated into a small cup-shaped basilar arillus under the seed.

Type from Mount Rose, Eidsvold, Queensland (Dr. T. L. Bancroft, No. 14).

Speaking of the local trees, Dr. Bancroft says—"In a big forest of Lancewood, the average would be nine inches, some twelve or over. The wood is very brittle and splits so readily as not to be of much use as a cabinet wood or for making boxes etc. The saplings are used for outsheds, fowl houses, last well in the ground and are not attacked by white ants. Wood has no smell. Splinters are said to cause bad and painful wounds. I have heard it said that a

splinter of Lancewood is as bad as a snake bite. I think that's an exaggeration." Would this be owing to the presence of a saponin?

Named in honour of John Shirley, D.Sc., Principal of the Teachers' College, the University, Brisbane, and a well-known Queensland botanist. He has helped me to get specimens for my Acacia researches.

Range.

This is a native of Queensland and the Northern Territory. It occurs from Eidsvold to the Gulf of Carpentaria. Additional localities will be available as its differences from *A. doratoxylon* become known.

Queensland.—"Considered by me to be Lancewood, but said by some timber-getters not to be true Lancewood, but to be Bastard Lancewood. A fair-sized tree, good timber." Fruits only. Mount Rose, Eidsvold (Dr. T. L. Bancroft, No. 14 of 7th November, 1912). Flowers, March 1918.

"Lancewood," Rockhampton. Fruit only (Engineer-in-Chief for Railways, October, 1906, through C. T. White).

"Lancewood," Gilbert River. Fruit only (E. W. Bick, February 1914, through C. T. White).

Northern Territory.—"Mulga." Fruit only. Track (from Darwin to Katharine) near Bacon Swamp. (Prof. W. Baldwin Spencer, July – August, 1911).

MacDonnell Range (Tietkens' Camp 25 of 9th August, 1889). Flowers only. Distributed by Prof. Tate as *A. doratoxylon*. There is some confusion here. Camp 25 was 11th May at Watson's Range, south of the Macdonnell Range, Long. 131, Lat. 24. (The day before the Expedition had travelled fifteen miles through Desert Oak, Mallee and Mulga). 9th August was spent at Camp 80, where there was a "little Mulga channel." This camp was near the

end of the journey, at no great distance from Charlotte Waters.

Affinities.

1. With *A. doratoxylon* A. Cunn. This is the species with which *A. Shirleyi* has long been confused.

A. doratoxylon is a tall shrub or small tree with range from the Lachlan River, N.S.W., to Southern Queensland. I am of opinion that Bentham had mixed material when (at B.Fl., ii, 403) he described *A. doratoxylon; e.g.*, I doubt his Northern Australian specimen (as indeed he does himself), and his Upper Maranoa, Q. (Mitchell) specimen might be re-examined.

A. Shirleyi attains a size far greater than *A. doratoxylon* attains. It is more glaucous than *A. doratoxylon*, the spikes are much longer and the flowers more interrupted, the calyx more shallow, the corolla densely hairy and the petals longer, the ovary densely hairy, the pods broader, flatter, more moniliform and more woody, the seeds broader and smaller, being only about half the length of those of *A. doratoxylon*.

2. With *A. proxima* Maiden. The chief points of difference are as follows. Phyllodes more falcate, gland raised, not depressed circular as in *A. proxima*, and usually more distant from the base. Spikes borne on a very short common peduncle (which is unusual); flowers more distant and the calyces golden pubescent, not hoary as in *A. proxima* and *A. doratoxylon;* rachis glaucous, not resinous. Pods larger, flatter and more woody.

A. SPARSIFLORA n. sp.

Arbor alta erecta, cortice sulcata, trunco 2′ diametro. Ramulis gracilibus, angularibus quum immaturis. Phyllodiis glabris, perviridibus, angusto-lanceolatis, falcatis ad 16 cm. longis, maturis ca. 8 mm. latis, 2 vel 3 venis tenuibus prominentioribus. Spicis

interruptis, angustis, pedunculatis, 5 vel 6 cm. longis, rache glabra. Calyce truncato, margine sublobato, pubescente parte superiore petalis minus dimidio æquilongo. Petalis valde recurvatis, ciliatis. Ovario hirsuto. Leguminibus rectis vel paullo curvatis, linearibus, 13 cm. longis, 4 mm. latis, valvularum marginibus pallidis, inter semines constrictis. Seminibus longitudinalibus, elongato-oblongis, funiculo breve pendulo, tenuissimo arillum paullo crassatum formante.

A tall, erect tree, with a hard furrowed bark and a trunk diameter of two feet. Timber brown. Branchlets slender, angular when young, but soon becoming terete.

Phyllodia glabrous, bright green, narrow-lanceolate, falcate, narrowed at both ends, up to 16 cm. long, about 8 mm. broad in mature leaves, coriaceous, with two or three fine nerves rather more prominent than the numerous fine veins between them.

Spikes interrupted, narrow (with peduncles of 5 mm. to 1 cm.) up to 5 or 6 cm. long, solitary or in pairs, rachis glabrous. Flowers bright yellow, mostly 5-merous.

Calyx truncate, with the margin somewhat lobed, pubescent in the upper part, about a third as long at the petals. Petals very recurved; also ciliate. Ovary hirsute, particularly on the upper part.

Pod shortly stipitate, straight or slightly curved, undulate, linear, up to 13 cm. long, 4 mm. broad, valves with slightly thickened, pale-coloured margins, narrowed between the seeds.

Seeds longitudinal, embossing the valves moderately, shining, black, elongate-oblong, without an areole, sometimes slightly ridged, with short pendulous, thread-like, pale-coloured funicle which, after one or two folds, forms a slightly thickened arillus, enveloping the top of the seed.

Type, Dr. T. L. Bancroft's No. 5, Eidsvold, Queensland.

Range.

I only know the type specimen, which came from Eidsvold, a district west of Maryborough. It is there a sturdy tree, and I have no doubt that it will be found in many other parts of Queensland. There has been a good deal of confusion in regard to the Acacias in the series to which the present species belongs, and it is more than likely that it has been recorded under one or more names.

Affinities.

1. With *A. Solandri* Benth. The two species have a good many similarities, *e.g.*, in phyllodes, interrupted spikes, ovary and recurved petals. The trees appear to differ in size, though this is uncertain, but they do differ in the hirsute calyx in *A. sparsiflora*, in the remarkable ciliate margins of the petals, in the straight pods, and also in the seed and funicle.

2. With *A. julifera* Benth. The resemblances to this species are far less close. The phyllodes are very much alike, but in *A. julifera* the spike is dense, the calyx-lobes are spathulate and the pod is coiled.

3. With *A. leptostachya* Benth. This species has very angular branchlets, is "hoary or silvery-white with a very minute pubescence or nearly glabrous." The phyllodes are shorter and straighter, the spikes shorter, the pod moniform, covered with a fine tomentum, but not seen ripe. The two species have, however, certain similarities in the details of the flowers.

4. With *A. linearis* Sims. This is a slender shrub with pale-coloured flowers, whose affinities to the proposed new species are more distant.

A. RHODOXYLON n. sp.

Arbor mediocriter alta, ligno pretioso, cortice nigricante lamellis crispatis. Phyllodiis cineraceis sed glabris, oblongo-falcatis, apice

obtuso, ca. 7 vel 8 cm. longis, $1\frac{1}{2}-2$ cm. latis, striatis, venis numerosis tenuissimis, 3 – 5 prominentioribus. Spicis 3 cm. longis, pedunculis 2 cm. rache glabra. Calyce truncato, irregulariter sinuato, dense tomentoso, petalis dimidio æquilongo. Ovario pruinoso. Legumine recto, lineare, 3 – 4 mm. lato ca. 3 cm. longo. Seminibus oblique dispositis, elongato-ovoideis, nigris, funiculo arillum parvum seminis apice mox formante.

A medium sized tree, say 15 metres (say 50 feet) high, with a stem-diameter of 6 – 9 inches. Wood very heavy, more or less interlocked, often ringy and then specially ornamental, colour rich reddish-brown on seasoning, but of a more or less umber-tint when fresh, giving a yellowish cast to the section; obviously a very high class timber. "The most magnificent (timber) of any wattle; has a lovely smell" (Bancroft). May I offer a plea for the conservation of this timber? Bark dark coloured, thin, curly-flaky, like a French fowl.

The foliage ashy-grey but glabrous; the young branchlets moderately angular and sometimes shiny with a gummy exudation.

Phyllodia oblong-falcate, narrowed at both ends, apex blunt, mostly about 7 or 8 cm. long, and about $1\frac{1}{2}$ to 2 cm. broad in the middle, coriaceous, striate with numerous very fine nerves, three to five rather more prominent, all free from the lower margin from the base.

Spikes single on peduncles up to 2 cm., usually 3 cm. long. Rachis glabrous. Flowers moderately closely packed, 5-merous.

Calyx truncate, irregularly sinuate, densely tomentose, about half the length of the petals, floral bract capitate. Petals glabrous, slightly keeled. Ovary hoary or mealy.

A shy fruiter and the pods not seen fully ripe.

Pod shortly stipitate, straight, linear, 3—4 mm. broad and about 3 cm. long, valves smooth or finely granular on the surface, the margins thickened, the thickening sometimes grooved.

Seeds obliquely arranged in the pod, elongate-ovoid, shiny black, funicle soon thickening into a double fold forming a small arillus disposed at the top of the seed.

Type, Dr. T. L. Bancroft, No. 19, Eidsvold, Queensland.

Range.

It appears to be confined to Queensland, and probably extends over a far larger area of that State than is known at present. Specific localities are—

1. Eidsvold, west of Maryborough (Dr. T. L. Bancroft).

2. "Ringy Rosewood" (Bailey's Queensland Hardwoods, No. 139 B), Gladstone. Labelled *A. glaucescens* (?) on poor material. It is interesting that, later on, Dr. Bancroft drew attention to the ornamental "ringy" character of this timber.

3. "Rosewood." "Very like *A. aulacocarpa*, but without pods cannot say." (Note by the late F. M. Bailey). Subsequently named by him *A. glaucescens*. Rockhampton (J. Edgar).

4. Duaringa, 63 miles west of Rockhampton (J.H.M.)

5. Clermont 229 miles west of Rockhampton, (Forest Ranger Gorman). For a view of Nos. 2, 3, 5, I am indebted to Mr. C. T. White, Government Botanist of Queensland.

Affinities.

Its closest relations are *A. Burrowi* n. sp., *A. argentea* Maiden, and *A. glaucescens* Willd., and their differences may be stated in the following table. It has usually been considered to be *A. glaucescens* by Queensland botanists hitherto.

	rhodoxylon.	*argentea.*	*Burrowi.*	*glaucescens.*
	Medium sized tree, erect. Open forests.	*Shrub* of ten feet.	Medium sized tree, erect. Open forests.	Medium sized tree, scrambling. River banks
Timber	Deep reddish-brown, inclined to be ringy.	...	Fissile, deep brown.	Hard inlocked, dark brown.
Bark	Dark, *curly-flaky*, like a French fowl.	...	Thin, furrowed tough-fibrous.	Furrowed.
Phyllodia	Oblong falcate 7 - 8 cm. long, 1½–2 cm. broad. nerves very fine. 3–5 more prominent.	Lanceolate, hoary. 5 - 6·5 cm. long, 1 - 1½ cm. broad. Nerves very fine, 2 or 3 more prominent. *Gland at base.*	Narrow lanceolate to lanceolate, falcate or straight. 4 - 8 cm. long, ·15 to 1 cm. broad. Nerves very fine, 3 rather more prominent.	*Falcate*, glaucous, three prominent nerves.
Spikes	Single. On *peduncles of* 2 cm. 3 cm. long. Rachis resinous, otherwise glabrous.	Mostly in pairs, peduncles under 5 cm. 2 cm. long. Hairy.	Sometimes clustered, upper axils shortly pedunculate. 2–2·5 cm. long.	Peduncles of 1 cm. *large*, 5 *cm. long, broad*, rachis pubescent.
Calyx	Truncate, densely tomentose. half length of petals.	Cup shaped, sinuous ragged edge, less than half length of petals.	Truncate or sinuate-toothed *Pubescent near tips.*	Truncate, shallow, densely tomentose. Quarter length of petals.
Petals	Bract capitate. Petals glabrous, slightly keeled.	Glabrous, recurved.	Bract capitate. Glabrous.	*Bract foliaceous, sessile, hairy.*
Ovary	Hoary or mealy	Hairy.	Hairy.	Hairy.
Pod	3 mm. wide, 3 cm. long (?). Valves with thickened margins, sometimes grooved.	2 - 3 mm, 6 cm. (?). Straight, linear.	2–3 mm. Linear 5–6 cm. Straight linear.	4 mm. wide, 10 *cm. long. Valves hairy.*
Seed	Black, *oblique* in pod. Arillus in double fold, small, at top of seed.	*Brown*, longitudinal in pod. Arillus in double fold, ribbon like, small (?) at top of seed.	Black, longitudinal in pod, Arillus folded on itself several times, forming thickish arillus top of seed.	Black, longitudinal in pod. Arillus in double fold, small, at top of seed.

4. With *A. aulacocarpa* A. Cunn. The present species resembles *A. aulacocarpa* very much in foliage, except that that of the latter species is larger as a rule. It is, however, sometimes difficult to separate the species on that character. The pods of *A. aulacocarpa* are, however, quite different, being coarse and broad. The timbers of the two species are very different.

A. ARGENTEA Maiden, Proc. Roy. Soc. Q., XXX, 41.

I have received this species from Eidsvold, in the Maryborough district, Queensland, which brings its range considerably farther south.

Dr. T. L. Bancroft (No. 33) describes it as a weak shrub, six feet in height. His pods are linear-lanceolate, about 6 cm. long and 2 mm. wide, of a resinous or waxy lustre, the margins of the valves slightly thickened, the valves deeply embossed by the longitudinally arranged seeds, which are pale brown and have no areole. The funicle is filiform and long, and terminates in an arillus which forms a shallow oblique cap on the seed. Also from the Bowen district, Queensland (J. E. Young, through C. T. White).

A. BURROWI n. sp.

Arbor mediocriter alta, cortice tenue, sulcata, ligno fissile, brunneo. Phyllodiis angusto-lanceolatis vel lanceolatis, falcatis vel rectis, 4 – 8 cm. longis, ·15 – 1 cm parte media, coriaceis, striatis, nervis numerosis tenuissimis, 3 prominentioribus. Spicis breviter pedunculatis, 2 – 2·5 cm. longis, floribus dense confertis. Calyce truncato vel sinuato-dentato, loborum apicibus pubescentibus, corollæ ca. dimidium æquantibus. Ovario hirsuto, petalis glabris. Leguminibus linearibus, 5 – 6 cm. longis, 2 – 3 mm. latis, rectis, valvis profunde bullis ornatis, seminibus longitudinaliter dispositis. Seminibus nigris, oblongis funiculo angusto ter vel quater plicato.

A medium-sized tree up to 30 or 40 feet high, with a stem diameter up to a foot. Bark thin, furrowed, tough-

fibrous, timber fissile, deep brown, and probably a useful furniture wood. The branchlets angular.

Phyllodia narrow lanceolate to lanceolate, falcate or straight, narrowed at both ends, but tapering more towards the base, mostly 4 to 8 cm. long, ·15 to 1 cm. in the middle, coriaceous, striate with numerous very fine uniform nerves, three rather more prominent, all free from the lower margin from the base.

Spikes shortly pedunculate, often clustered in the upper axils, 2 – 2·5 cm. long, rachis almost glabrous. Flowers rather densely packed, mostly 5-merous. Bract capitate.

Calyx truncate or sinuate-toothed, pubescent near tips of the lobes, about half the length of the corolla. Petals glabrous, each marked with a faint line. Ovary hirsute.

Pods shortly stipitate, linear 5 – 6 cm. long, 2 – 3 mm. wide, straight or nearly straight, valves deeply embossed to receive the seeds, which are longitudinally arranged.

Seeds shiny, black, oblong, with a deep central areole, with a narrow funicle folded on itself several times, forming a thickish arillus slightly enveloping the top of the seed.

Type from the Pilliga, N.S.W. (Gordon Burrow).

Range.

The species is known so far from moderately dry parts of New South Wales and Queensland. It is known from the Bogan district (Nyngan to Coolabah), and it is plentiful in the Pilliga district. In Queensland the typical form is only known from Inglewood.

The slightly anomalous form from Chinchilla, Taroom and Eidsvold brings it more northerly. I have no doubt that search will find many other localities, particularly in Queensland.

New South Wales.

Coolabah and Girilambone (R. W. Peacock). "Small trees of 12 – 20 feet, growing in rough, stony places at the

foot-hills near the Railway Station. Much resembles Yarran (*A. homalophylla)* in general appearance." Girilambone (J.H.M. and J. L. Boorman). "Currawang," "A scrub, short leaf, Mallee-like growth, Nyngan," (Forest Guard E. F. Rogers).

Ph. Euligal etc., Co. Baradine (Forest Guard T. W. Taylor No. 77, also No. 34). "Small tree, up to twenty feet, generally grows in dense scrubs; trunks from 1–5 inches in diameter and about fifteen feet high. Known in Pilliga as Yarran." (Assistant Forester Gordon Burrow No. 3). "Known in Pilliga as Yarran, though it does not much resemble *A. homalophylla.* It usually grows in dense scrubs, but I have seen trees of from 30–40 feet in height and up to 12 inches in diameter." Pilliga District (Forest Guard Simon through Mr. Gordon Burrow, No. 1C). Pilliga Scrub (Dr. J. B. Cleland). "Yarran, on Broom Plain, Coormore Creek, Central Pilliga (E. H. F. Swain, No. 28). Yarran or Curracabah, forming dense thickets on ironbark ranges. Central Pilliga (E. H. F. Swain No. 31).

Queensland.

"Tall plants of 12–20 feet, fibrous bark, distinctly arboreal in habit," Inglewood, on the South Western Line between Warwick and Goondiwindi (J. L. Boorman).

The following specimens I refer to this species, although they differ somewhat from the type. They have longer phyllodes, the more prominent nerves of which are usually five or six. Only three of the nerves are more prominent than the others in typical *A. Burrowi.*

"Small tree, somewhat resembling Lancewood, Eidsvold (Dr. T. L. Bancroft, with photo., No. 15). Eidsvold is west of Maryborough, and a few miles north of Mundubbera Railway Station. Taroom to Chinchilla (Dr. J. Shirley, Nos. 2 and 3, October, 1917).

The Queensland form displays the following interesting morphological character. The flower falls from the rachis without a calyx; in other words the corolla comes out "clean." This appears to be caused by a fusion of the truncate calyx with the floral bract. This forms a ferruginous honey-comb like membrane (membrana favosus), which surrounds the flowers on the rachis, and separates into irregular pieces, becoming deciduous some time after the flower (corolla) has fallen.

Affinities.

Its closest relations are *A. argentea* and *A. glaucescens.*

1. With *A. argentea* Maiden in Proc. Roy. Soc. Q., xxx, 41. *A. argentea* is a slender shrub up to ten feet high; *A. Burrowi* is a small or medium sized tree; the petals of the former species are reflexed and the calyx completely hairy; the seeds in the former are brown, in the latter black. While the species are undoubtedly different, there may be a good deal of similarity in the phyllodes and also in the pods.

2. With *A. glaucescens* Willd. This is figured at Plate 145, Vol. iv, of my "Forest Flora of New South Wales." The species are allied, but in *A. glaucescens* the phyllodes are, as a general rule, larger and more glaucous, the calyx is smaller in proportion to the petals, both calyx and petals are more hairy, the floral bract is different, the spikes are larger and the valves hairy.

3. With *A. Kempeana* F.v.M. This species is figured in Mueller's "Iconography of Acacias." The phyllodes of the two species are a good deal similar, particularly the bluntly lanceolate Girilambone specimens of *A. Burrowi*, but the calyx in *A. Kempeana* is much smaller in proportion to the petals, the ovarium is smooth, while the broad pod and arrangement of the seeds in *A. Kempeana* are sharply different from those of *A. Burrowi.* In the absence of

pods, the western New South Wales specimens have gone under the name of *A. Kempeana.*

4. With *A. homalophylla* A. Cunn. This species is figured at Plate 133, Part xxxv, of my "Forest Flora of New South Wales." (The pod is wrong, but is corrected at Plate 189, Part L). *A. homalophylla* is the true Yarran, (a name under which *A. Burrowi* sometimes passes); it will be seen that *A. homalophylla* belongs to the Plurinerves, while *A. Burrowi* belongs to the Julifloræ. The two species differ in every important particular.

A. ONCINOCARPA Benth.

In Hook. Lond. Journ. Bot. i, 378 (1842).

(*A. oligoneura* F.v.M. is a synonym).

Following is a translation of the original description of *A. oncinocarpa* :—

"Glabrous, *branchlets* terete, *phyllodes* falcate-oblong or lanceolate, rather obtuse, narrowed at the base, striate-many-nerved, *spikes* elongate, later interrupted, the loose membranous *calyx* half as long again as the *corolla*, *pod* broad-linear, rather straight, uncinate at the apex,[1] narrowed at the base, thick, smooth, glabrous, somewhat woody, obliquely septate inside. *Phyllodes* like *A. loxocarpa* or a little longer. The *rachis* of the fruit-bearing spike about 3 inches long, that of the flower-bearing $1\frac{1}{2}$ – 2 inches long *Flowers* small, 4 – 5 merous finally distinct. *Pod* 4 lines broad. North Coast, Melville Island, *Fraser*, Sims's Island, Cunningham."

Bentham (B.Fl. ii, 409) subsequently gave an amplified description of the species which has an enhanced value because he originally described the species. At the same time, he does not appear to have seen any additional material.

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[1] *A Wickhami* Benth. has a somewhat similar pod. See Mueller's "Iconography."

Through the kindness of Dr. A. B. Rendle, F.R.S., of the British Museum, I have:—

(1) a photograph of the sheet of *A. oncinocarpa* in that herbarium, bearing the label—"210. Sims' Island, A. Cunningham, First Voyage of Mermaid, 1818." This was of course Capt. P. P. King, R.N's. Voyage. Accompanying this is part of a phyllode, an opened spike and an unopened one. Sims' Island is a little island 33° 22′ (Northern Territory) say a degree distant from the Liverpool River (see below).

(2) Two phyllodes and a fruit of "No. 236 Melville Is. *Leg.* Fraser." Marked "portion of type." This is Northern Territory, north of Darwin.

Now we come to *A. oligoneura* F.v.M., Journ. Linn. Soc. iii, 139 (1859).

In this Journ. LI, 109, I go fully into the history of this species, heading my enquiry "What is *A. oligoneura* F.v.M.?" I now believe I can answer this question, having compared authentic material of both species. It is a synonym of the older *A. oncinocarpa* Benth. Mueller figured neither species in his "Iconography of Acacias," and I submit drawings which will make the combined species quite clear.

The two localities quoted in B. Fl. ii, 405, for *A. oligoneura* are Victoria River and Macadam Range, Arnhem Land. See also the localities of the type, quoted by me, this Journ. LI, 110. All these are Northern Territory.

The following specimens of *A. oncinocarpa* Benth. have been labelled *A. oligoneura* F.v.M. at different times.

1. "Liverpool River, W.A., B. Gulliver." (Liverpool River is, however, in the Northern Territory, running into the Arafura Sea near 134° E. Long. about intermediate between Darwin and the Gulf of Carpentaria). This was

labelled *A. oligoneura* by Mueller, and Professor Ewart informs me that there are no pods of *A. oligoneura* in the Melbourne Herbarium.

2. Following this specimen, I named "Near Red Lily Lagoon, N.T. (G. F. Hill, No. 132, of 16th April, 1912)" *A. oligoneura* in Ewart and Davies' "Flora of the Northern Territory," p. 343.

3. Granite country, Cullen River (Dr. H. I. Jensen, No. 441 of F. G. Hill).

4. Brock's Creek (E. J. Dunn, 1913).

5. Northern Territory "North of Latitude 15°" (W. S. Campbell, No. 13, September, 1911).

6. Near Darwin (G. F. Hill, No. 437, 20th April, 1916).

7. Point Emery, Darwin (G.F. Hill, 434, 18th July 1916).

8. Edkins Range, West Kimberley (W. V. Fitzgerald, No. 1444, August, 1905).

9. Calder River, West Kimberley (W. V. Fitzgerald, No. 1444).

10. Sunday Island, between King Island and Exmouth Gulf (Dr. H. Basedow, No. 116, May 1916).

Nos. 8—10 are North Western Australia, and so the species occurs in practically the northern margin of our continent and the island off the same.

Juliflorae (Dimidiatae).

A. HOLOSERICEA A. Cunn. var. GLABRATA Maiden in Proc. Roy. Soc. N.S.W., XXX, 48.

This glabrous-glaucous form, originally seen in fruit only (Gilbert River, North Queensland), was collected in flower by Prof. (now Sir) Baldwin Spencer, at Edith Creek, Northern Territory, July—August 1911. All the details of the flower are glabrous.

Bipinnatæ (Pulchellæ).

A. Mitchelli Benth.

This Victorian species is now to be added to the New South Wales flora, having been collected at Guy Fawkes, about fifty miles from Armidale, on the Grafton road, by J. L. Boorman.

* * *

I desire to offer special thanks to Miss Margaret Flockton, Artist, Botanic Gardens, not only for the drawings of the plates, but also for many other analytical drawings, and also to my Botanical Assistant, Mr. W. F. Blakely, for most valuable critical assistance during the preparation of this paper.

EXPLANATION OF PLATES.

Plate X.

Acacia nigripilosa n. sp.

1. Phyllode.
2. Base of phyllode.
3. Apex of phyllode.
4. Ovoid head of flowers.
5. Flower.
6. Ovary.
7. Seed and portion of pod.
8. Pod.

From Cowcowing, W.A. (M. Koch No. 1030).

(All variously magnified except 1 and 8).

Acacia tenuior n. sp.

9. Base of phyllode.
10. Apex of phyllode.
11. Portion of phyllode to show ribs.
12. Phyllode.
13. Head of flowers.
14. Individual bud.
15. Flower.
16. Ovary.
17. Bract.

Musgrave Ranges, S.A. (Dr. H. Basedow).

(All variously magnified except 12).

Acacia Helmsiana n. sp.

18. Phyllode and attachment.
19. Head of flowers.
20. Individual flower.
21. Ovary.
22. Bract.

Victoria Desert, W.A., Camp 42 (R. Helms).

(All variously magnified).

Acacia subflexuosa n. sp.

23. Portion of flowering branch (natural size) to show habit.
Drummond's 4th Coll. (?), No. 132.

Plate XI.

Acacia subflexuosa n. sp.

1. Base of phyllode to show attachment.
2. Portion of phyllode showing ribs.
3. Head of buds.
4. Individual flower.
5. Ovary.
6. Bracts.

Drummond's 5th Coll. W.A., No. 5.
(All magnified).

Acacia Sowdeni n. sp.

7. Phyllode.
8. Base of phyllode.
9. Apex of phyllode.
10. Pod and seed.

Port Augusta, S.A. (J.H.M.)
(Nos. 7 and 10 natural size).

Acacia ferocior n. sp.

11. Flowering branch.
12. Phyllode.
13. Individual flower.
14. Ovary.
15. Seed.

Stirling Range, W.A. (E. Pritzel, No. 706).
(All magnified except 11).

Plate XII.

Acacia oxyclada F.v.M.

1. Flowering branch.
2. Tip of phyllode showing terminal gland.
3. Head of buds.
4. Ovary.
5. Bract.
6. Opening bud.
7. Expanded flower.
8. Pod.
9. Seeds.

Murchison River, W.A. (Oldfield, No. 984).
(All magnified except 1 and 8).

Acacia ulicina Meissn.

10. Apex of phyllode.
11. Head of buds showing bracts.
12. Expanded flower.
13. Ovary.
14. Bract.
15. Pod.
16. Seed.

Cunderdin, W.A., (W. V. Fitzgerald).

(All magnified except 15).

Acacia spinosissima Benth.

17. Phyllode.
18. Apex of phyllode.
19. Head of buds showing bracts.
20. Expanded flower.
21. Ovary.
22. Pod.

Perth, W.A. (J.H.M.), but locality requires confirmation.

(All variously magnified except 22).

Plate XIII.

Acacia Basedowi n. sp.

1. Flowering twig.
2. Apex of phyllode showing terminal gland.
3. Bud.
4. Ovary.
5. Expanded flower.
6. Bract.

Musgrave Ranges, S.A. (Dr. H. Basedow).

(All variously magnified except 1).

Acacia deltoidea A. Cunn.

7. Phyllode showing gland and stipules, being portion of type.
8. Phyllode.
9. Phyllode.
10. Head of flowers showing bracts.
11. Bud.
12. Expanded flower.
13. Ovary.
14. Bract.
15. Pods showing seeds horizontally and obliquely arranged.
16. Seed.
17. Seed.

No. 7, from the type received from Herb. Kew. Nos. 8 – 12, 14 – 16, from King's Sound, N.W.A. (All. Hughan). Nos. 13 and 17 from Edkins' Range, W.A. (W. V. Fitzgerald, No. 1421). (All variously magnified).

Plate XIV.

Acacia Luehmanni F.v.M.

1. Phyllode showing stipules.
2. Phyllode showing stipules.
3. Head of buds.
4. Individual bud.
5. Expanded flower.
6. Ovary.
7. Bract.

Liverpool River, N.T. (B. Gulliver). Locality of the type. (All variously magnified).

Acacia Froggattii n. sp.

8. Flowering twig.
9. Phyllode with stipules.
10. Head of buds.
11. Individual bud.
12. Expanded flower.
13. Ovary.
14. Bract.
15. Pod.
16. Seed.

Woollybutt Creek near Phillips Range, N. S. Wales, (W. V. Fitzgerald, No. 981). (All variously magnified except 8 and 15).

Plate XV.

Acacia Coolgardiensis n. sp.

1. Apex of phyllode.
2. Head of buds.
3. Expanded flower.
4. Ovary.
5. Bract.
6. Pod and seeds.
7. Seed.

Coolgardie, W.A. (L. C. Webster) except No. 6, which is from Kunonoppin, W.A. (Dr. F. Stoward). (All variously magnified except 6).

Acacia Shirleyi n. sp.

8. Phyllode.
9. Spike of flowers with bract.
10. Expanded flower.
11. Ovary.
12. Bract.
13. Pod.
14. Seed.

Wirra Wirra and Croydon, N.Q. (R. H. Cambage, No. 4106). (All variously magnified except 8, 9 and 13).

Acacia sparsiflora n. sp.

15. Base of phyllode.
16. Spike of flowers.
17. Individual flower.
18. Expanded flower, another view.
19. Ovary.
20. Calyx.

Eidsvold, Q. (Dr. T. L. Bancroft, No. 5). (All variously magnified except No. 16).

Plate XVI.

Acacia sparsiflora n. sp.

1. Phyllode.
2. Phyllode.
3. Pod and seeds.
4. Seed.

Eidsvold, Q. (Dr. T. L. Bancroft, No. 5). (All natural size except 4).

Acacia rhodoxylon n. sp.

5. Phyllode.
6. Phyllode.
7. Flowering spike.
8. Expanded flower.
9. Ovary.
10. Bract.
11. Pod.
12. Seed.

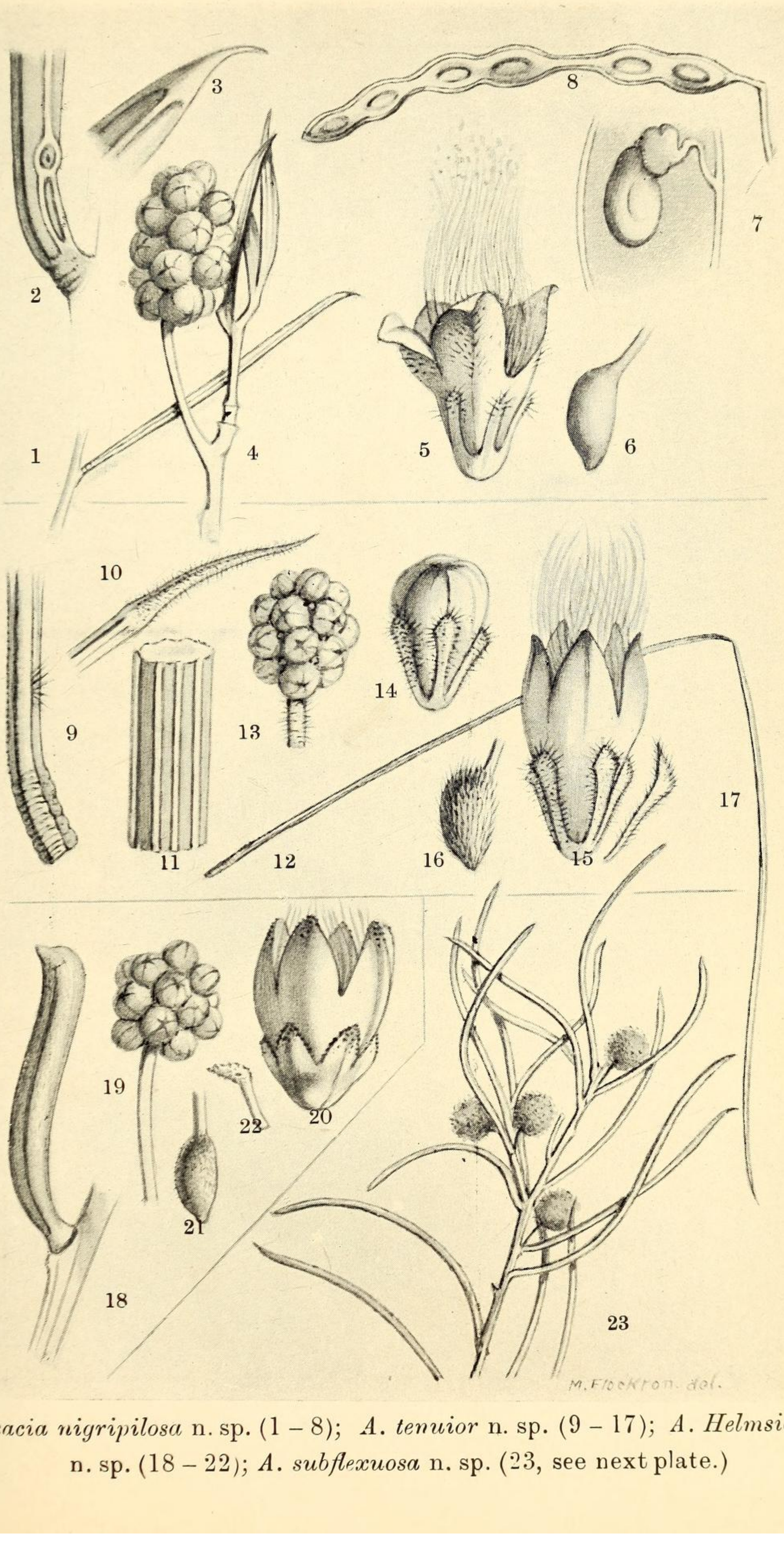
Eidsvold, Q. (Dr. T. L. Bancroft, No. 19). (All natural size except 8, 9, 10, 12).

Plate XVII.

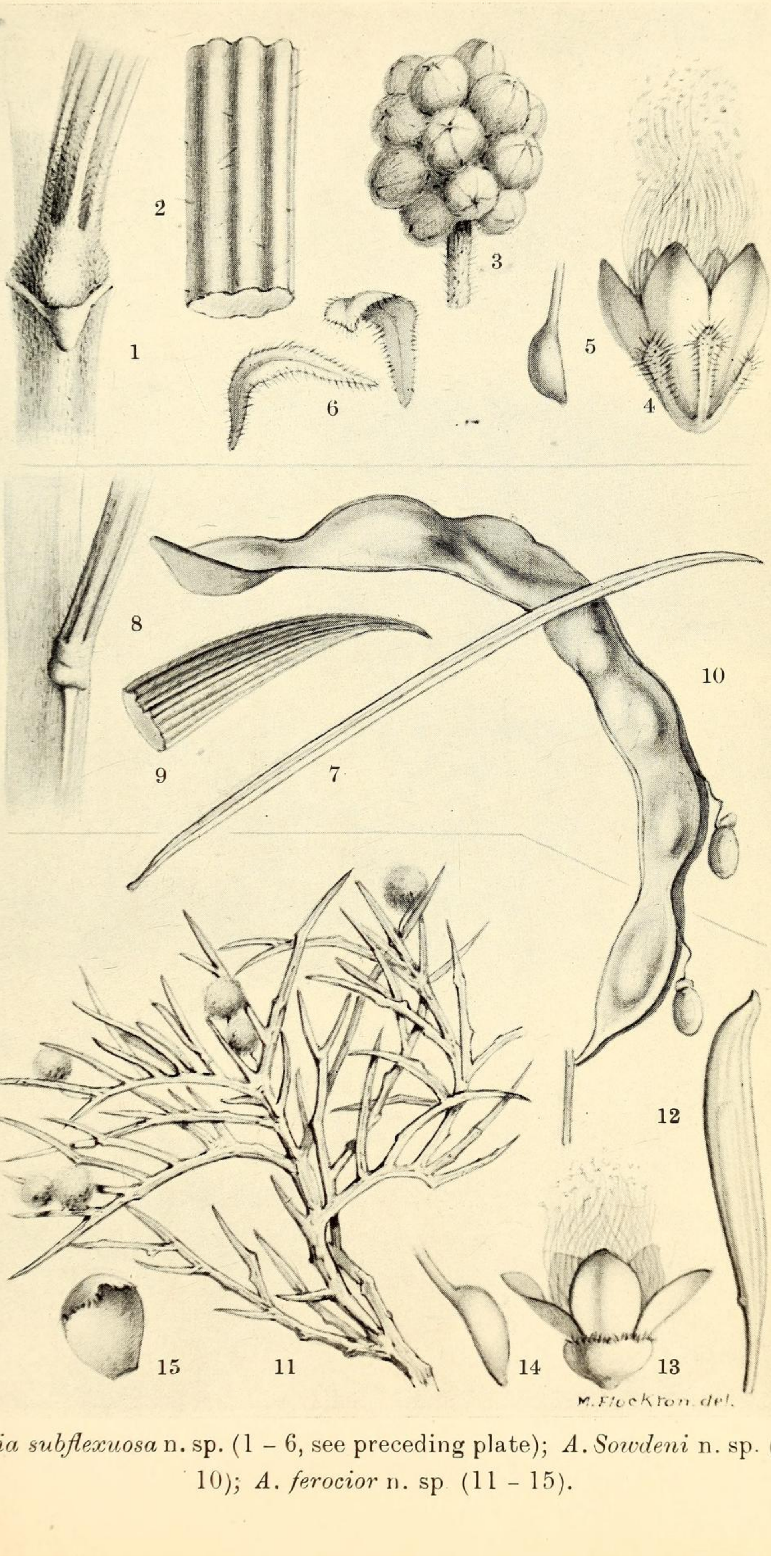
Acacia oncinocarpa Benth.

1. Phyllode.
2. Phyllode.
3. Individual flower.
4. Bract.
5. Pod attached to rachis.
6. Phyllode.
7. Flowering spike.
8. Phyllode.
9. Pod.

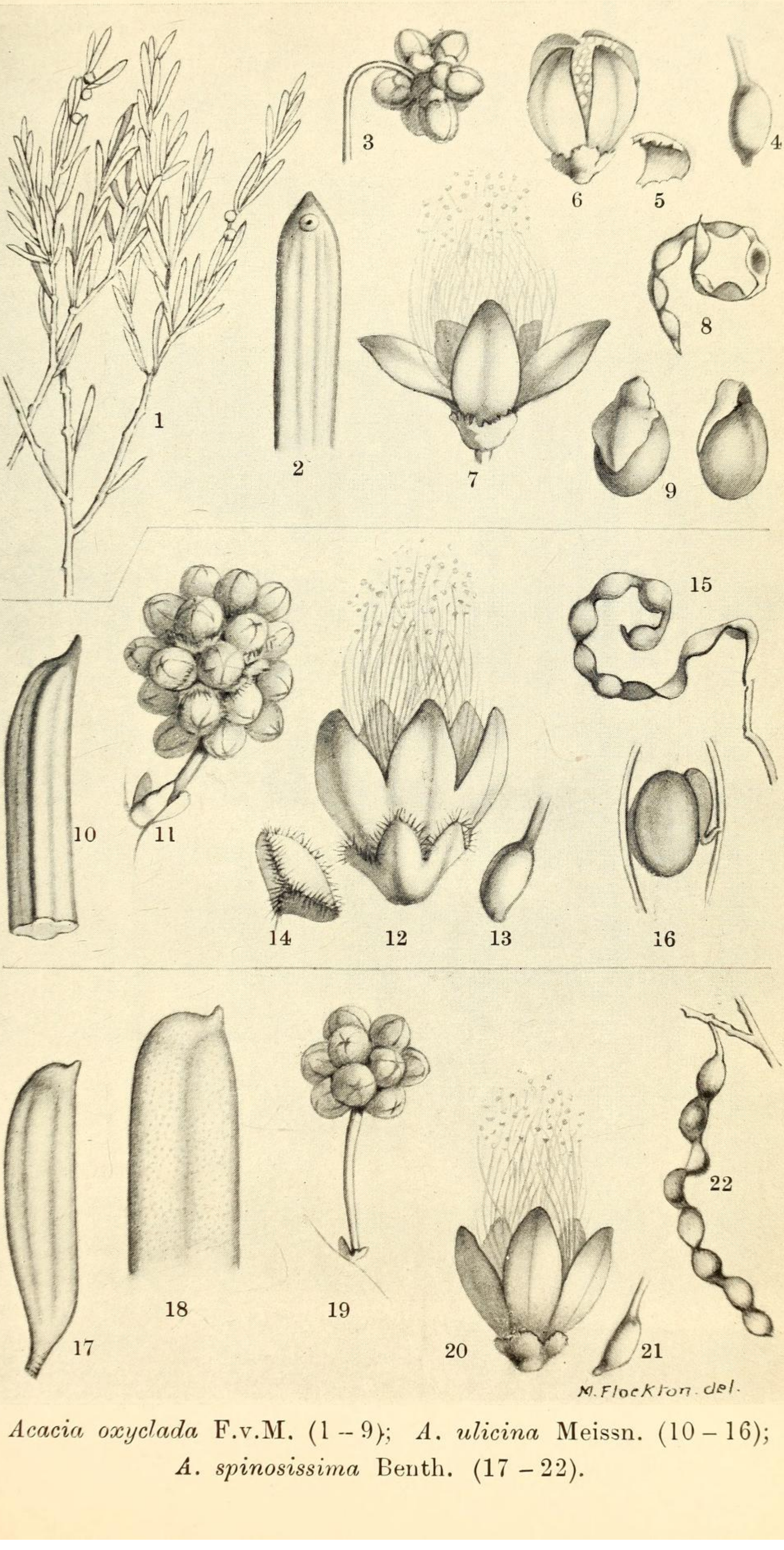
Nos. 1 and 2, portion of co-type from Melville Island, N.T. (Fraser). Nos. 3 – 5 from co-type, Sims' Island, N.T. (A. Cunn.) Nos. 6, 8, 9, N.T. north of 15° (W. S. Campbell). No. 7, Darwin, N.T. (G. F. Hill, No. 437). (All natural size except 3, 4 and 9).



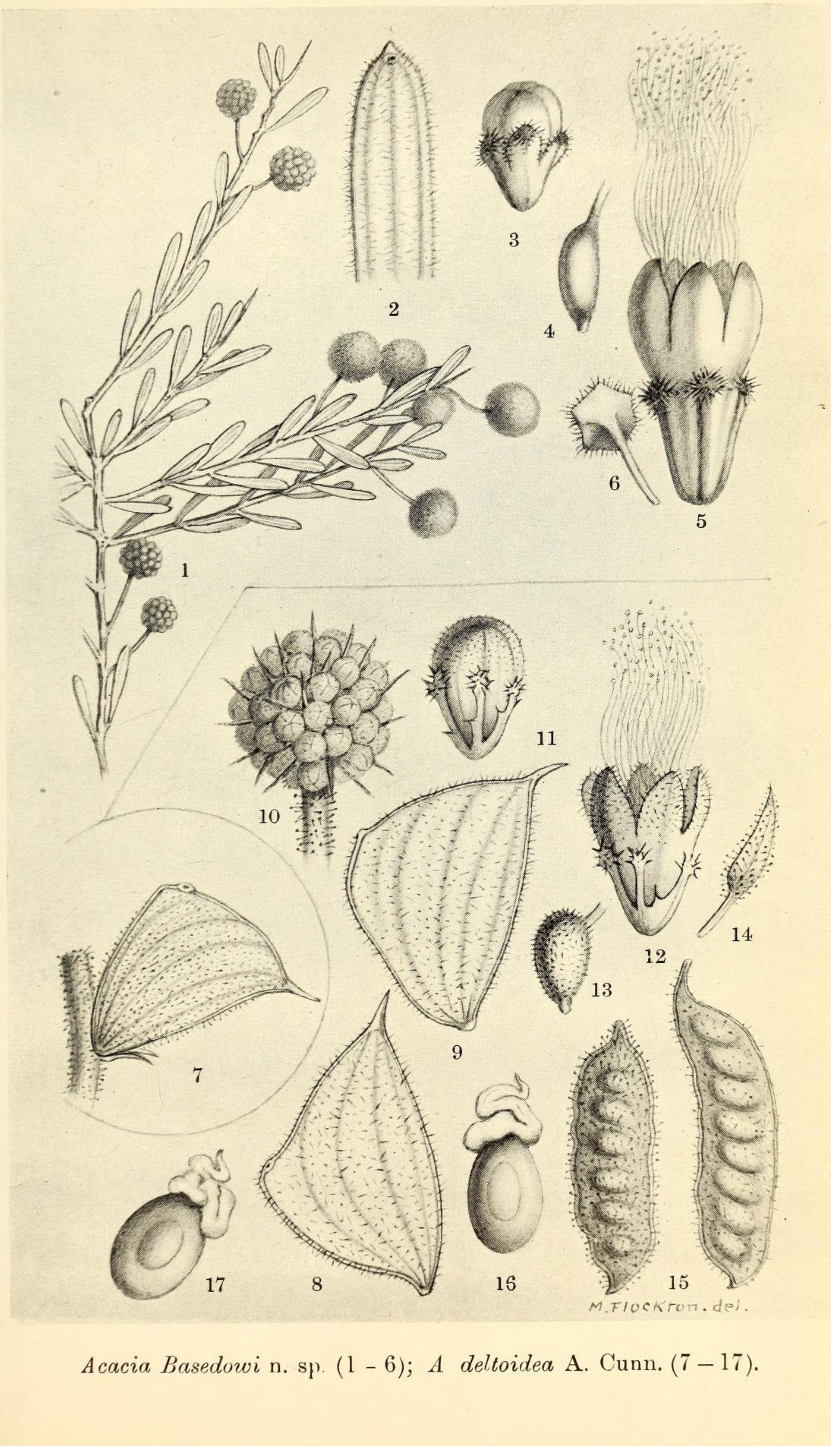
Acacia nigripilosa n. sp. (1 – 8); *A. tenuior* n. sp. (9 – 17); *A. Helmsiana* n. sp. (18 – 22); *A. subflexuosa* n. sp. (23, see next plate.)



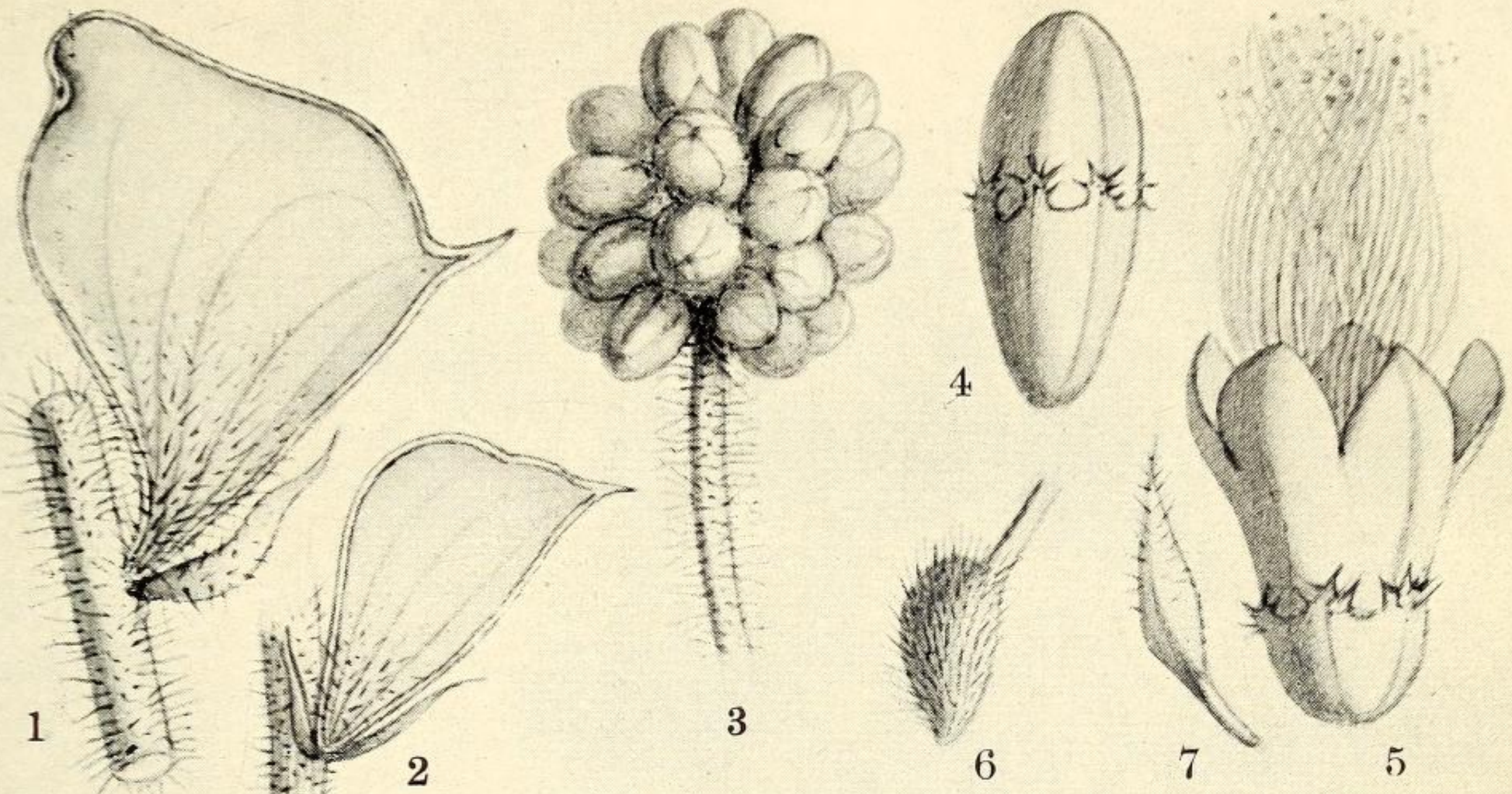
Acacia subflexuosa n. sp. (1 – 6, see preceding plate); *A. Sowdeni* n. sp. (7 – 10); *A. ferocior* n. sp (11 - 15).

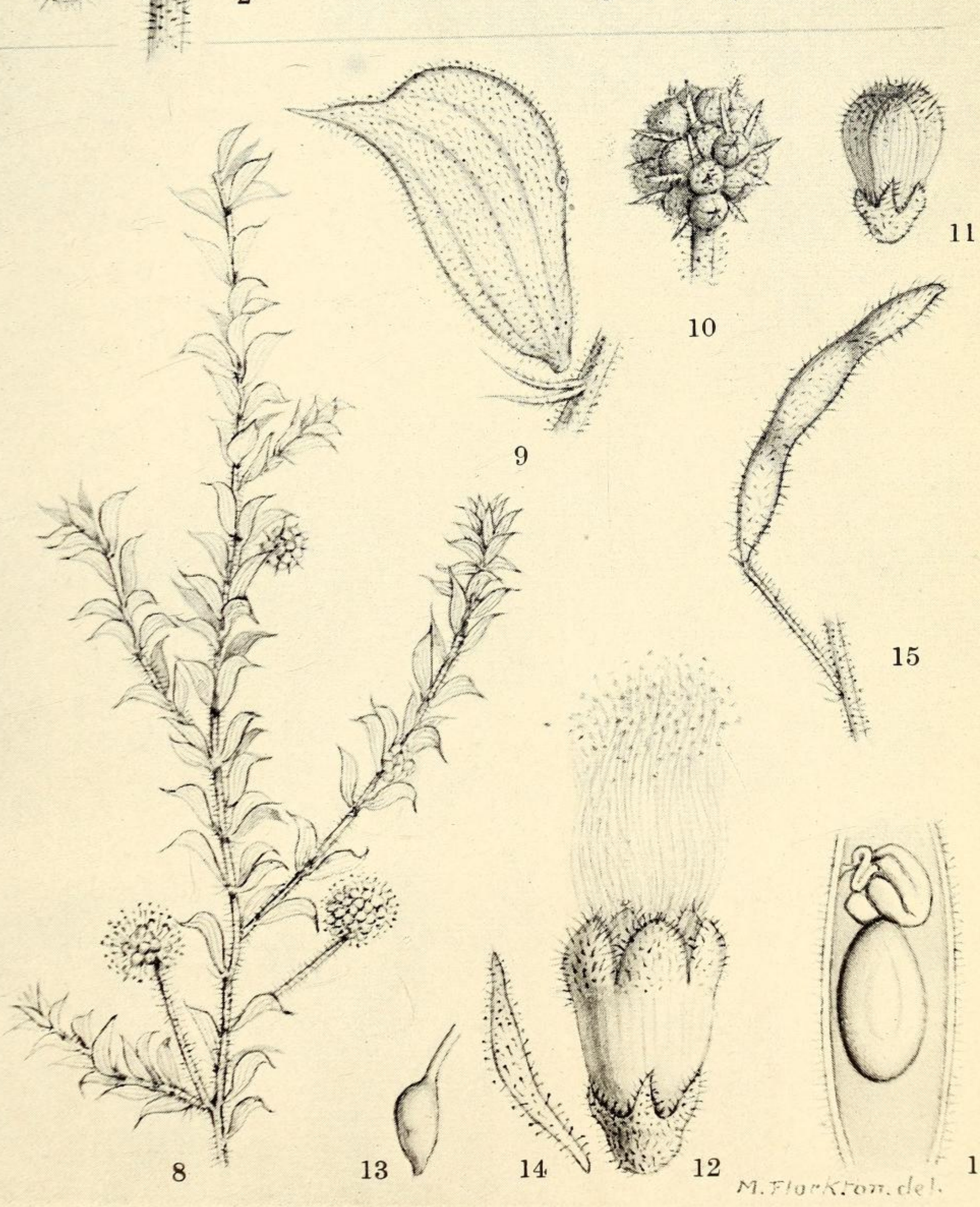


Acacia oxyclada F.v.M. (1 – 9); *A. ulicina* Meissn. (10 – 16); *A. spinosissima* Benth. (17 – 22).

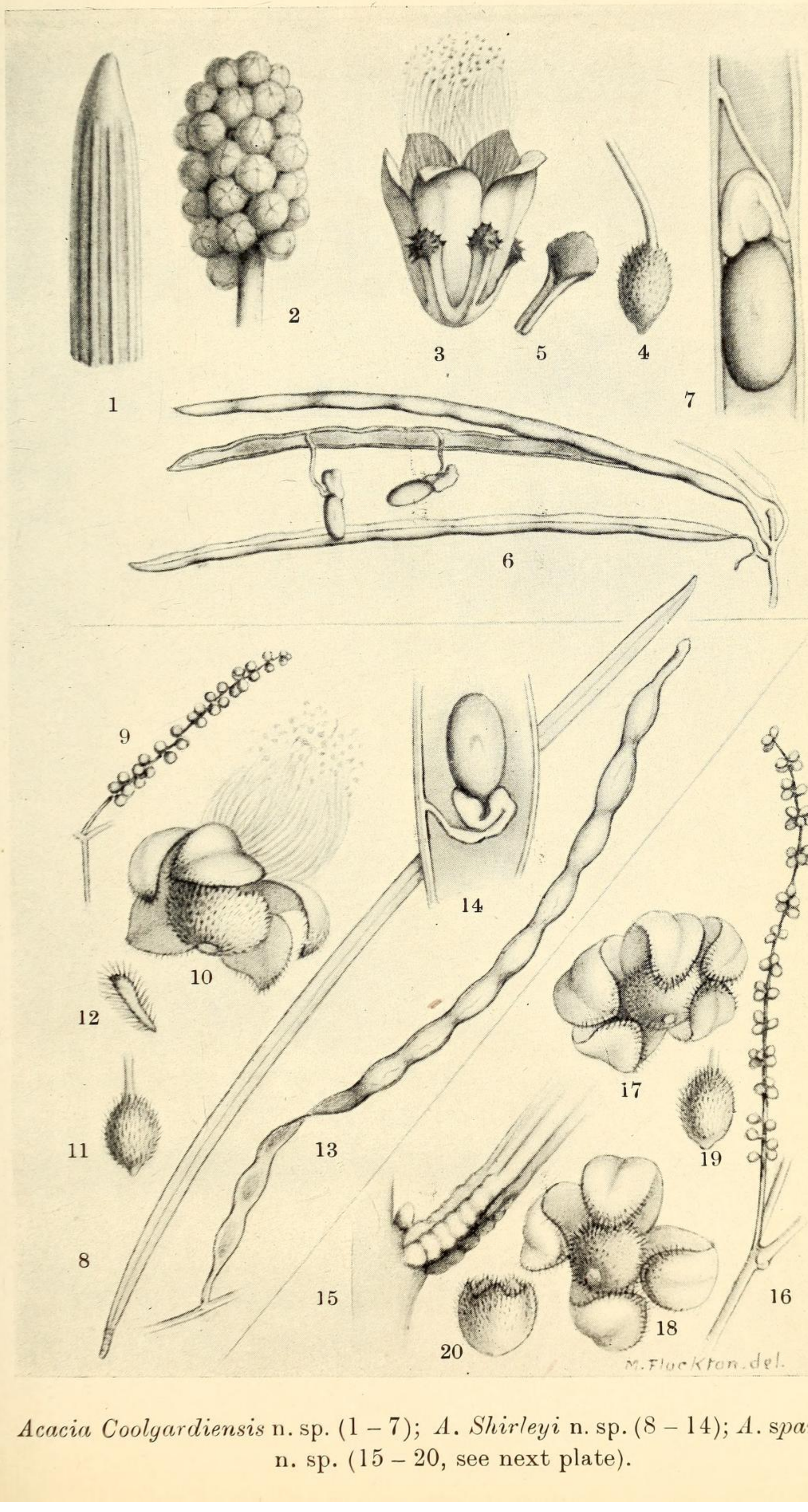


Acacia Basedowi n. sp. (1 - 6); *A deltoidea* A. Cunn. (7 – 17).

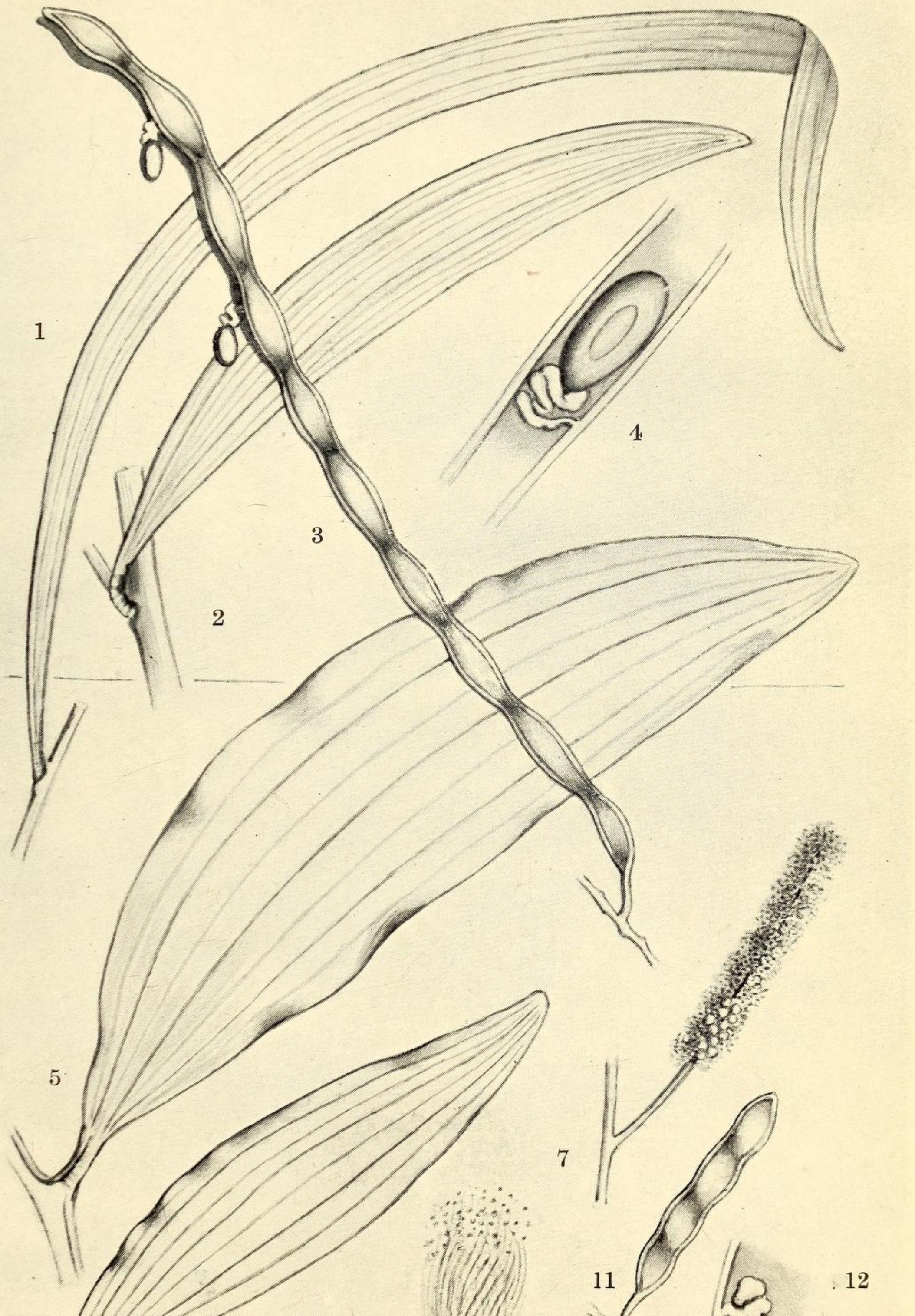




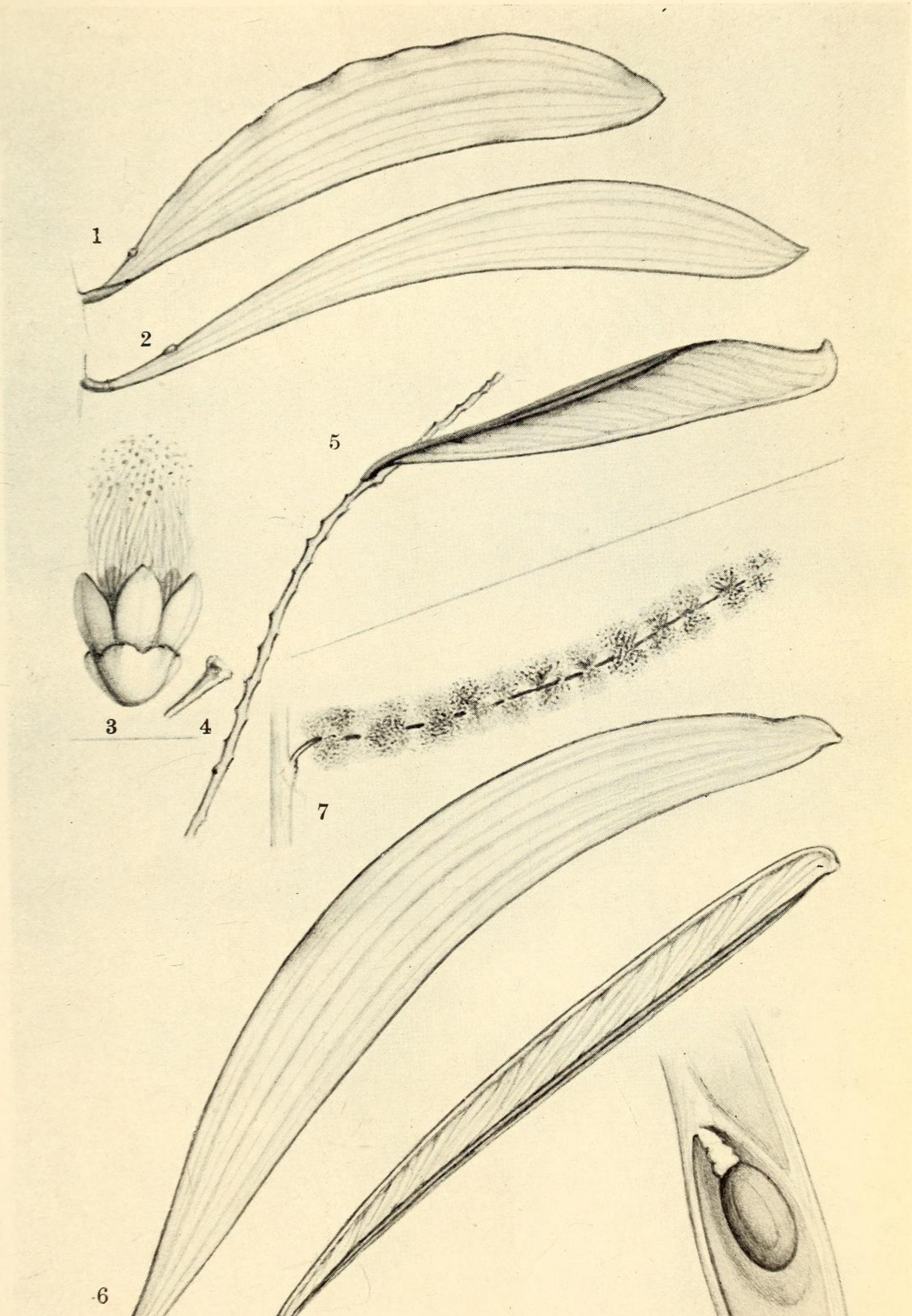
Acacia Luehmanni F.v.V. (1 – 7); *A. Froggattii* n. sp. (8 – 16).



Acacia Coolgardiensis n. sp. (1 – 7); *A. Shirleyi* n. sp. (8 – 14); *A. sparsiflora* n. sp. (15 – 20, see next plate).



Acacia sparsiflora n. sp. (1 – 4, see preceding plate);
Acacia rhodoxylon n. sp. (5 – 12).



Acacia oncinocarpa Benth.