

There are enough Joe stories to fill a book – about Joe the botanist, Joe the character, the mathematician, the astronomer, the entomologist, the mycologist, the soldier and the would-be sailor. New Zealand lost one of its most colourful characters and the former Botany Division lost one of its very good friends.”

Postscript by Ewen Cameron

Although most of Joe Rawlings’ plant collections are in the Landcare Research herbarium at Lincoln (CHR), 75 sheets are held in the Auckland Museum herbarium (AK), of which two-thirds came from the gifted herbarium of Alan Esler. They are mainly collected from Northland in the early 1970s, they are all vascular plants (two-thirds native, one-third naturalised), often jointly collected, and include many ferns and fern allies. Interesting records from Northland include:

Natives: *Blechnum vulcanicum*, *Cyclosorus interruptus*, *Hebe acutiflora*, *Korthalsala salicornioides*, *Microlaena carsei*, *Peperomia tetraphylla*, *Pseudopanax ferox*, *Spiranthes novae-zelandiae*, *Thelypteris confluens* and *Utricularia australis*.

Naturalised species: *Callistemon rigidus*, *Carex divisa*, *Iberis umbellata*, *Illecebrum verticillatum*, *Panicum huachucae*, *Polygala virgata* and *Sacciolepis indica*.



Illustrations by Lloyd Esler.

Book Review: “Legumes of the World” edited by G. Lewis, B. Schrire, B. Mackinder & M. Lock.

Review by Rhys Gardner

About half a century ago Kew giant John Hutchinson single-handedly began to revise Bentham and Hooker's "Genera Plantarum". The Leguminosae take up most of first of the two volumes he completed – 483 genera, in 269 pages of description, keys and bibliography (Hutchinson 1964). The treatment is a classical one (Fig. 1A), consisting of text only (though H. was a capable artist, his vast experience giving him an eye for unusual features of habit, leaf arrangement, etc.; Fig 1B).

The present book too is based on Kew resources (¾ million legume specimens!), but is a world apart in character: it is an illustrated overview of the world's

legume genera. Floras and journals have been searched for line or sometimes colour illustrations, and colour photographs have been obtained from many botanist-photographers. Where older drawings could not be found, several artists, notably Kew's Pat Halliday, have supplied originals (e.g., Fig. 1C). Although only of A6 size the drawings are first-class in clarity and together showcase three centuries of devotion to the craft. The photographs, generally of flowers or inflorescences, are excellent too, colourful of course but also thoroughly testing the temperate botanist's concept of "typical" in this huge group.

The first chapter, the Introduction (for some reason chapters are not numbered) is largely a review of modern legume systematics. Molecular-phylogenetic data indicate that a single family, to be called Leguminosae (rather than Fabaceae, which could just refer to one of the 3 main subgroups) is preferable to the 3-family concept.

The Leguminosae then become the second-largest dicot family, with 727 genera (more than 19 000 spp.). The family's diagnostic feature, the fruit type known as the legume, is mentioned. But now my first complaint: there is virtually no further discussion of its structural and anatomical diversity, nor of the diversity in the seeds themselves. There is not even reference to published comprehensive accounts of the subject (e.g., Gunn 1991). In fact, the Introduction pretty well ignores morphology. There is no glossary, so explanation of terms one might stumble over – cladodinous, pleurogram, lomentoid, etc., will have to be searched for somewhere else.

In the Introduction a "supertree" of family phylogeny is presented to tribal level: 36 named tribes and 18 informal ones. Tribal jostling and splitting, and potential mergers, are accommodated in a subsequent discussion. Then comes a couple of pages (brief, but more data is given in the generic treatment) on the economic value of legumes. The listing over the next seven pages of the genera tribe by tribe brings the next qualm: this arrangement is systematic (not alphabetical = practical) and so is seven pages wasted, since it merely reiterates the trees at the start of the tribal accounts. Because of the large number of genera it is not feasible to put an index to them on the endpapers, but surely just tribes and subtribes could have been accommodated there. Oddly, tribes, subtribes and genera are elaborately numbered in these seven pages, but not in the treatments later.

"Chapter 2" is an impenetrable 34-page account of legume biogeography as deduced from putative phylogenies and ecological tendencies. I refrain from quoting, but just say that, at a simpler level, I would have liked to have seen some listing and discussion of endemism in the various regions of the world.

"Chapter 3" is the bulk of the book: the illustrations of the 727 genera with their several-line captions. For each tribe there is a tree which acts to show the order in which the genera appear in the subsequent pages, and which near-relatives must be looked for outside the tribe.

The name of the genus is followed by its author and date, but not where it was published. Nor is the type

species indicated. On each page the illustrations and captions have been kept together. This is convenient but does make for quite a lot of wasted space, and leads me to ask, why wasn't this space used to provide some practically-useful material? All too rarely are diagnostic characters mentioned (but good on Jim Ross & Mike Crisp in this respect for the genera they cover). Not even the tribal trees get marked with the most useful diagnostic characters. Much of the text is quibbling about whether such-and-such is really a such or not (as in the notes on *Montigena*, which leave us none the wiser). Judging by the number of unpublished molecular analyses referred to, one might have to change one's mind more than once per genus in the short- to medium-term. Those who enjoy this sort of thing will already have enjoyed most of it elsewhere.

Even more annoying than the lack of numbering for chapters is the omission of full stops in the captions, each sentence instead getting a new line. As a device for extending scanty material the latter trick might have just been acceptable, but nothing is gained by shedding the modest and useful stop.

There are no scale bars to the line drawings, so they appear nicely uncluttered. But if one did want to know the size of a structure, or had one's curiosity aroused by something in an illustration, there is nothing to go on to – the older drawings are not referenced and no vouchers are cited for the new ones. Most of the flower photos show no scale or other indication of size, not even a collector's hand.

On the positive side, there is a considerable amount of ethnobotanical information here. The etymological information too seems exceedingly well done (but why Gk. for Greek instead of the traditional Gr.?).

The present book then is both more and less of a triumph than Hutchinson's. It is as comprehensive as the latter, more accurate in some regards, and (except for those missing stops) upholds the same very high Kew standards of production and design. It displays some remarkable talents in art and science. But in my opinion, considered simply as a book for the herbarium coffee-table, it offers far too much, while even as a long-desired illustrated guide it should have contained some of the practically-orientated information mentioned above.

"Legumes of the World", edited by G. Lewis, B. Schrire, B. Mackinder & M. Lock. [Numerous contributors]. Royal Botanic Gardens, Kew. 2005. 577 pp.

the sutures; seeds *without a strophiole*; radicle twice folded. New Zealand, Lord Howe's and Norfolk Islands. Type genus *Carmichaelia* R.Br.

Style glabrous or hairy only at the base; fruits 2-valved:

Leaves with 3-5 small leaflets or reduced to scales; not climbers:

Flowers in racemes; ovules numerous; style glabrous at the base; fruit ovate or elliptic-oblong; seeds few 174. *Carmichaelia*

Flowers in dense fascicles; ovules 4-2; style silky at the base; fruit deltoid; seeds 2-1; calyx woolly 175. *Corallospartium*

Leaves with few rather large leaflets; tall climbing shrub; style glabrous; ovules numerous; fruit compressed, broadly oblong 176. *Strebliorrhiza*

Style with long hairs on the upper (adaxial) side; leaves reduced to scales; fruits indehiscent:

Seeds more than 1 in each fruit, the latter narrowly linear

177. *Notospartium*

Seed solitary in each fruit, the latter rhomboid-ovoid 178. *Chordospartium*

174. *Carmichaelia* R.Br., Bot. Reg. 11: t. 912 (1825). *Carmichaelia* Reichb. (1841). *Huttonella* T. Kirk (1897). About 4 spp., New Zealand, Lord Howe's Island; type *C. australis* R.Br., New Zealand. B.H. 1: 502; E.P. 3, 3: 278; G. Simpson, Revision, Trans. Roy. Soc. New Zeal. 75: 231 (1945); Allan, Fl. New Zeal. 1: 373 (1961).

Small trees or shrubs, often leafless during flowering; branches *Juncus*-like or flattened, with minute scales at the nodes; leaves when present imparipinnate; leaflets 3 to numerous, small, obovate; stipules absent; stipules small, membranous; flowers rose or white, shortly pedicellate, in racemes at the lateral nodes; bracts small, membranous; bracteoles small, inserted on the pedicel or adnate to the calyx; calyx 4-tooth subequal or the upper smaller; vexillum orbicular, contracted into a claw; wings oblong, often shorter than the vexillum, free; keel incurved or falcate, obtuse, shorter or longer than the vexillum; vexillary stamen free, remainder connate into a sheath; anthers uniform; ovary shortly stipitate; style incurved, glabrous, stigma terminal; ovules numerous; fruit compressed, ovate or elliptic-oblong, apiculate by the style; sutures thickened, valves during dehiscence separating from the margin; seeds few, compressed, without a strophiole; radical elongated, twice folded.

175. *Corallospartium* J. B. Armstrong, Trans. New Zeal. Inst. 13: 333 (1881). 1 sp., *C. crassicaule* (Hook. f.) J. B. Armstrong, New Zealand. Cheeseman, Illustr. New Zeal. Fl. Pl. 31; Allan, Fl. New Zeal. 1: 371.

Shrub, leafless when mature; stems and branches thick, cylindrical, ribbed and deeply sulcate; leaves very fugacious, small, linear-oblong or ovate-oblong; flowers densely fasciculate; calyx woolly, campanulate, 5-toothed, teeth subequal; vexillum large, broad, reflexed, shortly clawed; wings falcate, oblong, obtuse, auriculate towards the base, shorter than the keel; keel subequal in length to the vexillum, oblong, incurved, obtuse; vexillary stamen free, remainder connate; ovary densely villous; style silky at the base and near the apex; ovules 4-2; fruit 2-valved, deltoid, rounded and winged on the back, shortly beaked, villous; valves thin, slightly reticulate; seed 1 or rarely 2, reniform.

176. *Strebliorrhiza* Endl., Prodr. Fl. Norf. 92 (1833). *Strebliorrhiza* Benth. & Hook. f. (1865). 1 sp., *S. speciosa* Endl., Norfolk Island. B.H. 1: 503; E.P. 3, 3: 279.

Tall climbing shrub; leaves imparipinnate, leaflets few, rather large, entire, without stipules; stipules small; flowers flesh-coloured, rather large, in axillary racemes; bracts small;

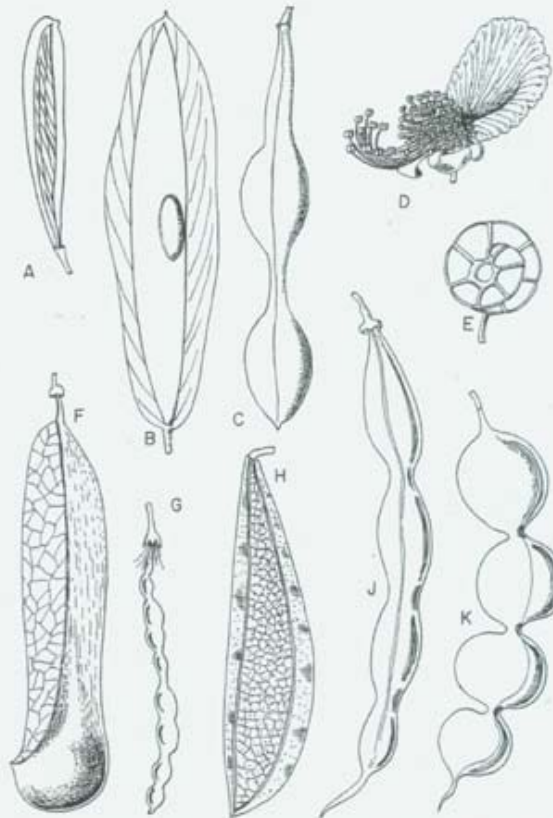


FIG. 97. Fruits of the Order LEGUMINALES: A, *Myricaepus fruticosus* Allem., Brazil. B, *Amphimas pterocarpoides* Harms, tropical Africa. C, *Swartzia pinnata* Wild., tropical South America. D, flower of *Swartzia tomentosa* DC., tropical South America. E, *Cyclocarpa stellaris* Afz., tropical Africa. F, *Myricaepus teleferum* Kunth, tropical America. G, *Saphora japonica* Linn., E. Asia. H, *Ostryaerris choulieri* Dunn, tropical Africa. J, *Angiocarpus vermiculatus* De Wild., tropical Africa. K, *Mollera frutescens* (Aubl.) Standl., tropical America.—All Fabaceae.

A

B



Montigena novae-zelandiae Drawing by P. Hultsdlay

C



Strebliorrhiza speciosa Illustration by Drake

D

Fig. 1.

A. Page from Hutchinson (1964) text, showing style of treatment. The layout is strong and clear: note for example the italicized diagnostic characters (top line), the journal abbreviations one can actually understand, and the lack of superfluous notation in the indented key.

B. Some legume fruits and one flower. From Hutchinson (1969, fig. 97).

C. *Montigena novae-zelandiae*. One of the original drawings made for "Legumes of the World".

D. *Strebliorrhiza speciosa*. Coloured illustration by "Drake" [no other details], in "Legumes of the World".

References

- Gunn, C. R. 1991. Fruit and Seeds of Genera in the Subfamily Caesalpinioideae. U.S.D.A. Dept of Agriculture Technical Bulletin 1755.
Hutchinson, J. 1964. The Genera of Flowering Plants. Vol. 1. Oxford University Press.
Hutchinson, J. 1969. Evolution and Phylogeny of Flowering Plants. Academic Press.

Correction

Esler, A.E. 2006: What is Conservation? *Auckland Botanical Society Journal* 61(1): 72-75.

Insert:

Oddity No. 2 (misconception) is the notion that a forest planted in open ground can significantly emulate a native forest community that has developed from a complexity of interacting species. This is bogus element of conservation (botanical kitsch!).

Erratum

Cameron, E.K.; Jones, S.; Wilcox, M.D.; Young, M.E. 2001: Flora and Vegetation of Pouto Peninsula, North Head of Kaipara Harbour, Northland, New Zealand, 26-29 January 2001. *Auckland Botanical Society Journal* 56(1): 38-51.

Two references were omitted:

Cameron, E.K. 1987: Pukitu – Woodhill. *Auckland Botanical Society Newsletter* 42(2): 54-56.

Reid, J. 1977: Survey of Tapu Bush, a remnant of pre-European vegetation. *Auckland Student Geographer* 8: 35-46.

Acknowledgements

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