# Notes on the Sapotaceae of Southern Africa.

*By*

A. D. J. Meeuse.

## INTRODUCTION.

In view of the proposed "Flora of Southern Africa", the Sapotaceae of the area were studied. It soon became apparent that several South African species also occur in tropical Africa or are closely related to tropical species, and this necessitated the study of material from adjoining regions such as Angola, Rhodesia and Portuguese East Africa. Several species not recorded from the Union, but found in neighbouring areas are included in this treatment, either because they may be recorded later, or because they were interesting in connection with related South African forms.

This revision is mainly based on material from herbaria in Southern Africa. Several problems that could not be solved in this country were passed on to our officer stationed at Kew, Mr. B. de Winter. My thanks are due to Mr. de Winter, not only for his valuable assistance with taxonomical problems, such as comparing of type specimens and other material at Kew and in the British Museum (Nat. Hist.), but also for his kind help in obtaining abstracts of several publications which were not available here. Without his contribution many minor difficulties and doubtful points could never have been satisfactorily cleared up.

The material of the National Herbarium Pretoria, was studied and, in addition, material was kindly sent on loan by the following herbaria (abbreviations are, where possible, those of the latest Index Herbariorum by Lanjouw and Stafleu): BOL, COI, GRA, J, L, LM, NBG (including SAM), NH, NU, PRE (including TRV), SRGH; and Forestry Department Herbarium, Pretoria (SAFD).

### History of the Study of Sapotaceae in Southern Africa.

The first comprehensive work, De Candolle's Prodromus Vol. 8 (1844) only mentions two species from Southern Africa, viz., *Sideroxylon inerme* L. and *Mimusops caffra* E. Mey. ex A. DC. Until the publication of Engler's monograph of all the African Sapotaceae in his series "Monographien Afrikanischer Pflanzenfamilien und Gattungen", Vol. 8 (1904)—cited in the following pages as "Mon. Sapot. Afr."—the study of Sapotaceae in Southern Africa was restricted to occasional descriptions of new species such as by Sonder in Linnaea 23 (1850) and by N. E. Brown in Kew Bull. 1895.

The Sapotaceae of tropical Africa were treated by Baker in Flora of Tropical Africa 3 (1877), but only very few of the species mentioned extend into South Africa.

In 1906 the family was treated in Flora Capensis, Vol. 4 (1), by C. H. Wright, whose account was partly based on unpublished notes left by Harvey. This treatment added very little to Engler's monograph and is not critical, in fact, most descriptions are practically literal translations of those given by Engler. Phillips, in Genera S. Afr. Flow. Pl. ed. 1 (1926), recognised three genera, viz. *Sideroxylon* (with 2 species in S. Africa), *Chrysophyllum* (3 spec.) and *Mimusops* (11 species). In the second edition

of the Genera (1951), Phillips maintains the same 3 genera with 2, 3, and 12 species respectively. As will be pointed out later, his conception of the Sapotaceous genera cannot be maintained and more genera have to be recognised if present trends are accepted. The late Father J. Gerstner, finally, treated the family in two papers which are rather superficial as far as systematics and nomenclature are concerned, but most valuable on account of important field-notes; cf. J. S. Afr. Bot. 12: 47–55 (1946), and 14: 171–174 (1948). Gerstner's work has clarified the status of *Chrysophyllum wilmsii* Engl. and of *Mahea natalensis* Pierre (= *Mimusops natalensis* Engl. non Schinz). He recognised 5 genera. The following Table gives a comparative analysis of the species mentioned in the more comprehensive publications and the present author's interpretation (Cf. Table I).

### Delimination of the genera,

The genera of Sapotaceae are not very sharply defined and the modern monographers are inclined to " moderate splitting ", which trend is followed here. For a more detailed account of the history of the generic taxonomy and of the various systems of classification, see Baehni, Candollea 7: 394–508 (1938).

The most recent systems of classification are those published by Baehni (l.c.) and by Lam (Occ. Papers. Bern. P. Bishop Mus. Honolulu 14, no. 9: 137–141 (1938), and Rec. Trav. Bot. Néerl. 36: 524 (1939). Although these two systems are basically entirely different, these authors agree in several essential points and in the delimitation of most genera. The most important feature of the most recent classifications, as far as the S. African representatives are concerned, is the segregation of the several genera from the large and heterogeneous genus *Mimusops sensu* Engler (1904), such as *Manilkara*, *Muriea*, *Lecomtedoxa*, *Baillonella* and others.

In this revision many more genera are accepted than was done by Phillips in his " Genera ", but it is considered preferable to follow modern monographers of the family rather than one general, and consequently unspecialized, reference work.

## FAMILY CHARACTERS.

Trees often attaining a large size or sometimes shrubs, occasionally climbing, containing latex ducts in all parts (even the fruits). *Leaves* alternate, almost invariably petiolate, undivided and usually with entire margin, often more or less leathery; stipules often present but usually early deciduous, setaceous or linear-subulate. *Flowers* axillary but often on older branches or stems, generally solitary or fascicled, sessile or pedicelled, regular, almost invariably bisexual, usually small but often fragrant. *Calyx* consisting of one or two whorls of free or nearly free sepals, usually with a rusty-brown pubescence on the outside; sepals 2–5, occasionally more, in each whorl, usually entire, often firm to coriaceous. *Corolla* gamopetalous, usually cream or white and almost invariably glabrous, consisting of a tube and one or two whorls of 2–5 or occasionally more lobes; the tube usually cylindric to campanulate, usually short; the lobes imbricate, entire or occasionally fringed, in several genera each lobe bearing two lateral petaloid appendages of various sizes, sometimes nearly as large as the lobe itself, sometimes much smaller. *Alternipetalous staminodes* as many as there are petals in one whorl, or fewer, or absent, varying from rather large and petaloid to small and scale-like, entire, or variously fringed, lobed or dissected, glabrous or hairy. *Epipetalous staminodes* sometimes present, but if so they are transformed, sterile or abortive stamens and often resemble the latter in shape. *Stamens* in one or two whorls (occasionally in more whorls, not in Southern Africa), as many per whorl as the number of corolla-lobes or twice as many or fewer, inserted in the mouth of the corolla-tube or sometimes lower down; filaments usually present but generally short; anthers 2-thecous; thecae usually extrorse, dehiscing with longitudinal slits. *Ovary* usually

TABLE I.—THE SAPOTACEAE OF SOUTHERN AFRICA (COMPARATIVE ANALYSIS)

| Author. Genus. | A.DC., Prodr. VIII (1844). | Baker in Fl. Trop. Afr. III (1877). | Engler, Mon. Afr. Pfl. fam. u. Gattungen, VIII., Sapot. (1904). | C. H. Wright in Fl. Cap. IV, 1 (1906). | J. Gerstner in J. S. Afr. Bot. 12 (1946) and 14 (194 ) | Present revision. |
|---|---|---|---|---|---|---|
| Sideroxylon..... | Sideroxylon inerme L. | — | Sideroxylon inerme L. | Sideroxylon inerme L. | Sideroxylon inerme L. | Sideroxylon inerme L. |
| | | Sideroxylon diospyroides Baker. | Sideroxylon diospyroides Baker | — | — | Sideroxylon inerme. |
| | | | | Sideroxylon Randii Sp. Moore | (Not mentioned) | Pouteria magalismontana. |
| Chrysophyllum..... | | Chrysophyllum magalismontanum Sond. | Chrysophyllum magalismontanum Sond. | Chrysophyllum magalismontanum Sond. | Chrysophyllum magalismontanum Sond. | — Pouteria magalismontana (Sond.) A. Meeuse |
| | | | Chrysophyllum natalense Sond. | Chrysophyllum natalense Sond. | Chrysophyllum natalense Sond. | Pouteria natalensis (Sond.) A. Meeuse |
| | | | Chrysophyllum Wilmsii Engl. | Chrysophyllum Wilmsii Engl. | Chrysophyllum magalismontanum | Pouteria magalismontana. |
| | | | Chrysophyllum argyrophyllum Hiern | | | Pouteria magalismontana. |
| | | | Chrysophyllum antunesii Engl. | | | Pouteria magalismontana. |
| | | | Chrysophyllum carvalhoi Engl. | | | Pouteria magalismontana. |
| | | | Chrysophyllum gorungosanum Engl. | | | Chrysophyllum gorungosanum Engl. |
| | | | — | | Chrysophyllum viridifolium Wood et Franks | Chrysophyllum viridifolium Wood et Franks |
| Pouteria..... | | (Under Chrysophyllum) | (Chrysophyllum) | (Chrysophyllum) | (Chrysophyllum magalismontanum) | Pouteria magalismontana (Sond.) A. Meeuse |
| | | | (Chrysophyllum) | (Chrysophyllum) | (Chrysophyllum natalense) | Pouteria natalensis (Sond.) A. Meeuse |
| | | (Sideroxylon brevipes Baker) | Pachystela brevipes (Baker) Engl. | | | Pouteria brevipes (Baker) Baehni |
| | | | Pachystela cinerea (Engl.) Pierre | | | Pouteria brevipes. |
| Vincentella..... | | | | | | Vincentella sapinii (De Wild). Brenan |
| Mimusops..... | Mimusops caffra E. Mey. ex A.DC. | — | Mimusops caffra E. Mey. ex A.DC. | Mimusops caffra E. Mey ex A.DC. | Mimusops caffra E. Mey. | Mimusops caffra E. Mey. ex A.DC. |
| | | Mimusops kirkii Baker | Mimusops kirkii Baker | — | Mimusops kirkii Baker | Mimusops zeyheri. |
| | | Mimusops mochisia Baker | Mimusops mochisia Baker | — | Mimusops mochisia (1946) Manilkara mochisia (1948) | Manilkara mochisia. |
| | | | Mimusops obovata Sond. | Mimusops obovata Sond. | Mimusops obovata Sond. | Mimusops obovata Sond. |
| | | | Mimusops woodii Engl. | Mimusops woodii Engl. | Mimusops obovata | Mimusops obovata. |
| | | | Mimusops oleifolia N.E.Br. | Mimusops oleifolia N.E.Br. | Mimusops obovata | Mimusops obovata. |
| | | | Mimusops zeyheri Sond. | Mimusops zeyheri Sond. | Mimusops zeyheri Sond. | Mimusops zeyheri Sond. |
| | | | Mimusops densiflora Engl. | — | — | Manilkara mochisia. |
| | | | Mimusops menyhartii Engl. | — | — | Manilkara mochisia. |
| | | | Mimusops fischeri Engl. | — | — | Manilkara spec. (M. mochisia?). |
| | | | Mimusops zanzibarensis Engl. | — | — | Manilkara zanzibarensis. |
| | | | Mimusops marginata N.E.Br. | Mimusops marginata N.E.Br. | Mimusops marginata N.E.Br. | Austromimusops marginata. |
| | | | Mimusops schinzii Engl. | Mimusops schinzii Engl. | Mimusops schinzii Engl. | Austromimusops marginata. |
| | | | Mimusops dispar N.E.Br. | Mimusops dispar N.E.Br. | (Not mentioned) | Austromimusops dispar. |
| | | | Mimusops discolor (Sond.) Hartog | Mimusops discolor (Sond.) Hartog | Labourdonnaisia discolor | Muriea discolor. |
| | | | Mimusops natalensis (Pierre) Engl. | Mimusops natalensis (Pierre) Engl. | Labourdonnaisia discolor | Muriea discolor. |
| | | | Mimusops henriquesii Engl. et Warb. | — | " Mimusops Henriquesiana Sim " | Lecomtedoxa henriquesii. |
| | | | — | Mimusops concolor Harv. ex Wright | Mimusops concolor (1946) Manilkara concolor (1948) | Manilkara concolor. |
| Austromimusops..... | | | (Mimusops marginata) | (Mimusops marginata) | (Mimusops marginata) | Austromimusops marginata (N.E.Br.) A. Meeuse. |
| | | | (Mimusops dispar) | (Mimusops dispar) | — | Austromimusops dispar (N.E.Br.) A. Meeuse. |
| | | | | | | Austromimusops sylvestris (Sp. Moore) A. Meeuse. |
| Manilkara..... | | (Mimusops mochisia Baker) | (Mimusops mochisia) | — | " Manilkara mochisia (Baker) Gerstn." | Manilkara mochisia (Baker) Dubard |
| | | | (Mimusops zanzibarensis) | — | — | Manilkara zanzibarensis (Engl.) Dubard |
| | | | | (Mimusops concolor) | " Manilkara concolor (E. Mey.) Gerstn." | Manilkara concolor (Harv.) Gerstn. |
| | | | | | | Manilkara macaulayae (Hutch. et Corb.) H. J. Lam |
| Muriea..... | | | (Mimusops discolor) | (Mimusops discolor, Mimusops natalensis) | Labourdonnaisia discolor Sond. | Muriea discolor (Sond.) Hartog |
| | | | (Mimusops natalensis) | | | |
| Lecomtodoxa..... | | | (Mimusops henriquesii) | | (Mimusops henriquesiana Sim) | Lecomtedoxa henriquesii (Engl. et Warb.) A. Meeuse |

5- to many-locular with a single ovule in each locule; style cylindric or more or less conical or subulate, ending in an acute or capitellate stigma; ovary superior, often rusty-pubescent. *Fruit* a berry with a usually thin outer layer and a juicy or mealy, rarely tough and leathery pulp in which the seeds are embedded. *Seeds* as many as there are ovules or fewer, compressed or tumid; testa either hard (" bony ") and in this case usually smooth and shiny, or leathery to crustaceous and in this case often dull, with an attachment area (cicatrix or " scar ") containing the hilum; cicatrix basal or lateral, small and circular or large, sometimes covering about half the surface area of the seed, of a different texture (duller and rougher than the testa and usually thinner and softer); endosperm either copious and found on either side of the flat foliaceous cotyledons, or scanty to absent and in this case the cotyledons thick and fleshy.

An almost completely tropical family comprising over 600 described species in a number of genera which are very difficult to define, because there is hardly any other family of the Phanerogams where the characters integrate and overlap to such an extent. For this reason the number of " genera " varies from author to author, some recognising about a dozen, others up to 120, but following present trends about 40 genera can be recognised. Another difficulty is that genera which appear to be rather sharply defined in one area may show intermediates in another region of the world and only a world-wide study can reveal the relationships. Several genera are already known to occur in more than one continent (*Pouteria* and *Manilkara* are circumtropical, *Mimusops* occurs in Africa and tropical Asia, *Chrysophyllum* is found in America and Africa and possibly occurs in Asia as well) and more similar links may be found.

**Key to the genera.**

As the genera of Sapotaceae are not very sharply defined, and both characters of the flower and the seed are used in their classification, the following key will not always lead direct to the proper genus if only flowers or only fruits are available, but the alternatives are indicated. Two characters used in the key need some explanation. In several genera the corolla-lobes occur in groups of three. The generally adopted conception is that each corolla-lobe, which is the central one of each group of three, bears two " lateral (or dorsal) appendages " which are often interpreted as stipules. Only Gilly [in Trop. Woods 73 (1934), p. 1-22] developed a different theory, viz., that in genera such as *Mimusops* and *Manilkara* the biseriate calyx of most authors represents the calyx and the corolla, the inner whorl being the true corolla, whereas the corolla of other authors is interpreted as an outer whorl of staminodes. It is not very likely that Gilly's views will be generally adopted, because there are genera having a *monoseriate* calyx and corolla-lobes with lateral appendages (*Bumelia*). The African genus *Lecomtedoxa* often shows sub-biseriate calyces and corolla-lobes with small lateral appendages and forms a link between the groups with biseriate calyces and (mostly) lateral appendages to the corolla-lobes (included by Lam in his subfamily Mimusopoideae) and the groups with mostly monoseriate calyces and usually without lateral appendages (Lam's Sideroxyloidea-Pouteriinae).

The other character used is the " scar " or cicatrix of the seed (*area derasa* of Baehni). The part of the testa by which the seed is or was attached to the inside of original loculum of the ovary is usually very distinct from the rest of the testa by a paler colour, a less smooth surface, a surrounding rim, location in a depression of the seed, etc. The shape and size of this area form a very good distinguishing character.

Flowers generally 5-merous; sepals in one whorl or at least never manifestly biseriate; lateral appendages to the corolla-lobes absent (only in *Lecomtedoxa* present):

Corolla-lobes without lateral appendages; flowers rather strictly 5-merous throughout:

Berry globose, 1-seeded; seed depressed-globose, bluntly 4- or 5-angled or somewhat ribbed, with a small circular cicatrix; alternipetalous staminodes always as many as the corolla-lobes and about as long, petaloid, usually triangular to lanceolate from a broad base; corolla-lobes not strongly reflexed.... 1. *Sideroxylon.*

Berry usually ovoid to oblong; seed ellipsoid, ovoid or oblong, not angular or somewhat ribbed, with a lateral, usually long and sometimes very large scar:

Fruits usually 3–5-seeded; seeds laterally compressed with a hard, shiny bony testa and narrow linear scar; endosperm copious, cotyledons thin and foliaceous; alternipetalous staminodes O (if fruit lacking and staminodes O, see also 3. *Pouteria*)..... 2. *Chrysophyllum*.

Fruits usually 1-seeded, sometimes 2-seeded; seeds usually not much compressed, with a thin, more crustaceous testa; scar linear or very large and occupying the ventral half of the seed; endosperm O, cotyledons thick and fleshy; alternipetalous staminodes 1–5, or absent:

Corolla-tube short but distinct; petals not strongly reflexed; filaments rather short and stoutish, stamens therefore not or but slightly exerted; ovary in flower not conspicuous..... 3. *Pouteria*.

Corolla-tube very short to almost O; petals completely reflexed; filaments long and slender, erect and hence stamens almost completely exerted; ovary exposed, comparatively large and conspicuous. 4. *Vincentella*.

Corolla-lobes with lateral appendages; whorls of flower 3–6-merous; alternipetalous staminodes present, as many as the corolla-lobes; fruit large (± 4 cm. by 2–2·5 cm.), 1-seeded, with an oblong large lateral scar; seed without endosperm..... 5. *Lecomtedoxa*.

Flowers generally 3–4-merous, sepals always distinctly biseriate, corolla-lobes usually each with 2 petaloid lateral appendages, very rarely appendages small or O:

Flowers generally 4-merous; alternipetalous staminodes more or less lanceolate, entire (except sometimes their tips), hairy outside; lateral appendages of the corolla-lobes always well-developed:

Seed ellipsoid, not or but slightly laterally compressed, with a pergamaceous or crustaceous, not very shiny or quite dull testa and a large scar occupying most of the ventral half of the seed; endosperm O, cotyledons thick and fleshy; leaves distinctly crowded at the ends of the branches, usually not coriaceous nor shiny, with a fine usually conspicuous reticulate nervation; flowers in lower leaf-axils, often pendulous; ovules not basally attached 6. *Austromimusops*.

Seeds laterally flattened with a hard and shiny testa and a basal or sub-basal circular scar; endosperm present; cotyledons flat; leaves not distinctly crowded at the ends of the branches, usually more or less coriaceous, shiny on upper surface, the nervation usually not finely reticulate; flowers in the leaf-axils or sometimes also on naked branches; ovules basally attached..... 7. *Mimusops*.

Flowers generally 3-merous; alternipetalous staminodes various, entire or more or less divided, lobed, lacerated or fimbriate, glabrous, or absent and stamens twice as many as there are corolla-lobes (i.e., usually 12); rarely some or all stamens sterile and resembling staminodes; seed with endosperm and flat, foliaceous cotyledons:

Stamens as many as there are corolla-lobes (i.e., usually 6), alternating with as many or nearly as many alternipetalous staminodes; in the South African species corolla-lobes always with well-developed, lateral appendages and testa hard..... 8. *Manilkara*.

Stamens twice as many as there are corolla-lobes (i.e. usually 12); alternipetalous staminodes O, but occasionally some or all the stamens abortive and reduced to sterile staminode-like organs (in the latter case the normally present, lateral appendages to the corolla-lobes small or occasionally O); testa rather thin, crustaceous and brittle when dry..... 9. *Muriea*

## 1. SIDEROXYLON

*L.*, Gen. Pl. ed. 5, 89 (1754); Roem. et Schult., Syst. 4: 45 (1819); Endl., Gen. 739 (1837); Harvey, Gen. S. Afr. Plants 224 (1838); A.DC., Prodr. 8: 177 (1844), pro parte; Benth. et Hook. f., Gen. Pl. 2, 2: 655 (1876), pro parte; Baker in Oliv., Fl. Trop. Afr. 3: 503 (1877), pro parte; Engler in Engler-Prantl, Natürl. Pflanzenfam. 4, 1: 143 (1890), pro parte, and Mon. Sapot. Afr. 25 (1904), pro parte; Harvey ex Wright in Dyer, Fl. Cap. 4, 1: 142 (1906); Baehni in Candollea 7: 49 (1938), pro parte; H. J. Lam in Rec. Trav. Bot. Néerl. 36: 521 (1939); Phillips, Gen. S. Afr. Fl. Plants, ed. 2, 567 (1951).

*Calvaria* Comm. sensu Dubard in Ann. Mus. Col. Marseille 20: 84 (1912); H. J. Lam in Occ. Papers Bern. P. Bishop Mus. Honolulu 14, no. 9: 138–139 (1938); Adamson in Adamson and Salter, Fl. Cape Penins. 667 (1950).

Type Species: *Sideroxylon inerme* L. (see discussion below).

Trees or shrubs. *Flowers* normally 5-merous throughout, all whorls single. *Corolla-lobes* without lateral appendages *Alternipetalous staminodes* petaloid, with a broad base. *Ovules* basally attached. *Berry* 1-seeded. *Seed* depressed-globose, usually more or less 4- or 5-angled and somewhat ribbed; scar small, circular, situated in a basal depression of the seed; testa thick and bony; endosperm copious; cotyledons thin, foliaceous; embryo in the type species horizontal.

There has been a considerable amount of disagreement as regards the delimitation of the genus. Basing the genera of Sapotaceae almost exclusively on the structure of the flowers Bentham and Hooker and Engler included many forms with the flower pattern: sepals 5, petals 5 without lateral appendages, alternipetalous staminodes 5, stamens 5, ovarium 5-loculated, in one lage genus *Sideroxylon* which is certainly not homogeneous. Pierre, and later Dubard [see Ann. Mus. Col. Marseille 20 (1912)], using other characters apart from the floral structure, (e.g. the seeds) came to the conclusion that only a few species had to be retained in *Sideroxylon*, excluding, for instance, all forms which do not possess a basal scar. Unfortunately, Dubard placed the type species *S. inerme* L. in the genus *Calvaria* Comm. emend. Dub., as distinct from *Sideroxylon* L. sensu Dub. (in which he includes forms with a basal scar but not with a horizontal embryo as in *Calvaria* sensu Dub.).

The generic description agrees in principle with the delimination of the genus as understood by Baehni (op. cit.). Baehni mentions *Sideroxylon inerme* as the type species, but his description of the genus contains an error; the berry is said to be 4-seeded. This is obviously a misprint or an oversight, because he clearly agrees with Dubard's ideas although he points out that Dubard erred when he took up the name *Calvaria*. Baehni is also inclined to include Dubard's genus " *Sideroxylon* " (Dub., op. cit., p. 81): " Nous adoptons l'idée de Dubard qui consiste à resteindre le genre aux seules espèces à cicatrice basilaire, mais nous y réintégrons cependant les *Calvaria* sensu Dubard " (Baehni, op. cit., p. 492). This seems to be reasonable, because Dubard's genus *Calvaria* (=*Sideroxylon* sensu str.) and his genus *Sideroxylon* (=*Mastichodendron* Jacq.) differ only in the position of the embryo. Under this delimitation the genus includes a few species in America, probably only two in Africa and a few in Asia.

As regards the fixation of *S. inerme* as the type species, Linné mentioned two species in Sp. Pl. ed. 1, viz. *S. inerme* and *S. spinosum*. Both are properly defined and have never been confused with any other species. *S. spinosum* was placed in the monotypic genus *Argania* by Roemer and Schultes (Syst. Veg. 4: 46) as *Argania Sideroxylon* R. et S. [=*Argania spinosa* (L.) Skeels], leaving *S. inerme* L. as the only species in *Sideroxylon* and thus typifying it.

**Sideroxylon inerme** *L.*, Sp. Pl. ed. 1: 192 (1753); Burm. f., Prodr. Fl. Cap. 6 (1768); Drege, Zw. Pflanzeng. Doc. 144, 153 (1843); A. DC. in DC., Prodr. 8: 182 (1844); Wood, Natal Pl. 4, 1: pl. 314 (1903) Engl., Mon. Sap. Afr. 27, t.8 fig. B (1904), incl. var. *schlechteri* Engl.; Wright in Dyer, Fl. Cap. 4, 1: 438 (1906); Sim, For. Fl. Cape Col. 252, pl. 295 (1907); Marloth, Fl. S. Afr. 3: 36 pl. 10 (1932);Gerstner in J. S. Afr. Bot. 12: 47, fig. 1 (1946). *S. cinereum* Lamk., Encycl. 1:244, (1789), partim; Drege, op. cit., 222. *S. diospyroides* Baker in Oliv., Fl. Trop. Afr. 3: 502 (1877); Engler, op. cit. 27, t. 27, fig. A.

*Myrsine querimbensis* Klotzsch in Peters, Reise Mossamb., Bot. 185 (1862).

*Calvaria inermis* (L.) Dubard in Ann. Mus. Col. Marseille 20: 86 (1912), incl. var. *zanzibarensis* Pierre ex Dub.; Adamson in Adams, and Salter, Fl. Cape Penins, 667 (1950). *C. diospyroides* (Baker) Dub., op cit. 87.

A shrub or small tree, up to 8 m. occasionally 10–20 m. high, but usually branched from the base and not forming a clean bole. *Innovations* reddish-brown tomentose. *Leaves* in vivo dark green and shiny above, paler below, often drying a peculiar dull greyish-green colour above, pale greyish brown beneath, occasionally (and especially the younger ones) drying dark olive-green above and reddish beneath, usually quite glabrous (except when very young), but occasionally with irregular chocolate-coloured, often powdery, patches of adpressed hairs; blade usually elliptic to obovate-oblong, more rarely (ob-)ovate, ovate-lanceolate, obovate-spathulate or (ob)lanceolate, 4–9 (–12) cm. long and 2–4 (–5) cm. wide, with subreflexed edges, obtuse (sometimes emarginate or retuse), its base acute or subacute, sometimes distinctly cuneate, always more or less decurrent on the petiole; midrib prominent beneath, secundary nerves 7–10 on either side, thin, more or less immersed and not very conspicuous; tertiary nerves not to hardly distinguishable from the fine reticulate nervations, the latter in older (dried) leaves often inconspicuous, but quite distinct in younger ones; petiole rather stout, often thickened towards the base, at first rusty-tomentose but soon quite glabrous, at least near the top distinctly winged by decurrent leaf, 6-10 (–15) mm. long. *Flowers* disagreeably scented, in few to many-flowered and sometimes very dense fascicles, occasionally (a few) flowers solitary, in the axils of the lower leaves on the branches, sometimes also on the naked branches just below the leaves, often raised on short warts. *Bracts* minute, deciduous, rufo-tomentose. *Pedicels* rather thick, slightly and gradually broadening towards the top, not very abruptly passing into the calyx, 2–12 mm. long, sparingly whitish-pubescent, in fruit hardly lengthening but becoming much stouter, 1–1¼ mm. thick and often glabrescent. *Calyx* 2–2½ mm. long, the lobes about as long as the calyx-tube, broadly ovate, subacute, erect, entire, ciliate, with a paler edge when dry, finely and sparingly whitish-pubescent, in fruit adpressed, scarcely accrescent. *Corolla* greenish-white, about twice as long as the calyx-lobes, rotate, up to about 5 mm. across; tube short, lobes usually longer than the tube, ovate, entire, obtuse, glabrous. *Stamens* inserted in the throat of the corolla tube, longer than the corolla lobes. *Alternipetalous staminodes* ovate-lanceolate to oblong or oblong-lanceolate, as long as or slightly shorter than the corolla lobes, but always less wide than the latter, usually more or less distinctly incised, serrate, lacerate, dentate, crenulate or with a wavy edge, acute, acuminate or obtuse, sometimes tri- or multi-dentate at the apex. Ovary conical-semi-ovoid, covered with rather long adpressed white hairs (except in a zone near the base), usually 5-celled but occasionally 3, 4- or 6-celled; style about the same length as the ovary, glabrous. *Berry* black, globose, smooth, up to 12 mm. in diam. when fresh, when dry up to 10 mm. in diam. and wrinkled, usually crowned with the short persistent style; pulp purple or purplish-green, with white viscid juice; the latex long remaining sticky in dried specimens. *Seed* black when fresh but drying a shiny yellowish brown, usually depressed semi-globose or ellipsoid, rarely higher than broad, usually more or less distinctly 4- or 5-angled and 5-ribbed, sometimes indistinctly lobed, 6–8 mm. long, 5–7 mm. wide and 5–8½ mm. high rarely up to 9½×8×7½ mm., with several (4 or sometimes more) more or less distinct grooves which are most conspicuous near the scar, and with 2–4 small impressions between the grooves close to the scar.

Cape Province.—Cape Peninsula: *Marloth* 584; Chapmans' Bay, *Wolley Dod* 3444 (BOL); Gordon's Bay, *Gerstner* 6144; Witsand, *Smuts* 1190. Caledon: Onrust Riv., *Schlechter* 10396. Bredasdorp: Bredasdorp, *Smith* 2587. Riversdale: Riversdale, *Muir* 148; *Marloth* 3536. Mossel Bay: leg. *Town Clerk*, *Mossel Bay* (specimen of the "Post Office Tree", declared a national monument, PRE herb. no. 28382). Knysna: *Kapp* 100; *Fourcade* 623 (BOL). Humansdorp: *Phillips* 3328; Klipdrift,

*Thode* 2490 (PRE). Uitenhage: *Alexander; Ecklon* or *Ecklon & Zeyher* (L); *Ecklon & Zeyher* (GRA). *Zeyher* 17 (BOL); Zwartkopsrivier, Drege (L). Port Elizabeth: Redhouse, *Mogg* 4672 (PRE). Alexandria: Kariega, *White* 101 (GRA). Bathurst: Karouga Mouth, *Britten* 2350; Kowie and Pt. Alfred, *Tyson* s.n.; *Britten* 1885; *Barker* 2106. Albany: near Riebeeck East, *Dyer* 3321. Alice: *Acocks* 8987. Fort Beaufort: *Story* 1698. Stutterheim: Fort Cunynghame, *Galpin* 2468. King Williams Town: near King Williams Town, *Comins* 1031. East London: *Smith* 3816, *Galpin* 9843. Queenstown: near Queenstown, *Galpin* 8137. Komgha: Komgha, *Flanagan* 777; Kei Mouth, *Flanagan* 770. Kentani: *Pegler* 882. Port St. Johns: *Galpin* 11465. Cape without precise locality: specimen in Linnaean herbarium (photo in PRE), lectotype!

NATAL.—Port Shepstone: Paddock, Oribi Gorge, *McClean* 267. Umzinto: Umkomaas, *Pennington* s.n. (NH no. 27756). Pinetown: Isipingo, *Ward* 570; Amanzimtoti: *Kotze* 452 = FD Herb. 6875. Durban: near Durban, *Wood* 8707, 9578. Inanda: Tongaat Beach, *Hillary* 375 (NU). Lower Tugela: Darnall, *Schmidt* 41 (NH). Estcourt: Mooi River, *Wood* 6306. Weenen: between Weenen and Estcourt, *Edwards* 702. Msinga: near Tugela Ferry, *Edwards* 935. Mtunzini: *Lawn* 623 (NH). Eshowe: Eshowe, *Gerstner* 1945 (NH). Hlabisa: False Bay, *Gerstner* 4818; Hluhluwe Game Reserve, *Ward* 1895. Ngotshe: near Magut, *Acocks* 13023; *Codd* 1961; *West* 2117.

SWAZILAND: on road to Komatipoort, *Pole Evans* 3463, 3467; near Stegi, *Compton* 26017; *Rodin* 4548, Usutu River, *Miller* S249.

TRANSVAAL.—Nelspruit: Kruger National Park, near Pretorius Kop, *Codd* 6029; near Skukuza, *Codd* 5735. Barberton: Komatipoort, *Rogers* 20800; *Codd* 7776.

PORTUGUESE E. AFRICA.—Sul do Save, Maputo, *Hornby* 2668; *Myre & Balsinhas* 607; between Umeluzi and Porto Henrique, *Myre & Carvalho* 92; Lourenço Marques, *Schlechter* 11710 (L, GRA, PRE, BOL; type no. of *S. inerme* L. var. *Schlechteri* Engl.); *Borle* 418; *Bremekamp* LM60a; *Rodin* 4173; Porto do Oura Beach, *Gomes e Sousa* 3926; Inhaka Island, *Mogg* sm., Mrs. *Moss* s.n.; Goba Mts, *Tôrre* 6490; Nuanetsi-Limpopo Valley nr. Transvaal Border, *Smuts* P. 322, Guifa, *Pedro & Pedrogão* 2135; between Muianga and Macia: *Pedrogão* 1443; near Chibuto, *Pedro & Pedrogão* 1534; between Su Larrime and Ganda, *Pedro & Pedrogão* 1890. Sabi River, near Meringua, *Chase* 2535. Niassa: near Cabo Delgado, *Barbosa* 2167 (LM).

TANGANYIKA Terr.—Morogoro Distr.: Kwaba, *Wigg* 974. Kisarawe distr.: Kisiju, *Semsei* 1377, *Paulo* 153.

KENYA COL.—Greater Kiboko River: *Jarrett* 518.

Mr. B. de Winter kindly examined the Linnaean Herbarium in London and informed me that there is only one specimen which is undoubtedly *Sideroxylon inerme* and must be considered to be the lectotype (Mr. de Winter matched it with a specimen *Hutton* s.n. from Fish River Heights, Albany, C.P.). *S. inerme* was one of the first Sapotaceae known in Europe and one of the oldest plates is found in Burman, Dec. Rar. Afr. (1738), p. 238, t. 94, fig. 2. The seed is unmistakable and Burman also mentions: " . . in Cod. Wits. . . . latescens . . . vocatur ".

This plant was described from South Africa by Linné and, in its typical form with comparatively narrow leaves and long pedicels, is found from the Cape Peninsula eastwards along the coast to Natal and extends into Portuguese East Africa. Baker

described a species *S. diospyroides*, from Zanguebar in tropical East Africa, which has smaller flowers, short pedicels and obovate-cuneate leaves. Engler remarked on the similarity between the two, but mentioned the following differences:—

(1) pedicels of *S. diopyroides* shorter than in *S. inerme*,

(2) staminodes broader and acuminate in *S. diospyroides*, narrower and not acuminate in *S. inerme*.

(3) seed of *diospyroides* smaller than that of *S. inerme*.

Acuminate and broad staminodes and small seeds are, however, also found in specimens of *S. inerme* from the Cape and Mr. de Winter, who studied the material at Kew, informed me that the only difference he could find was in the length of the pedicels.

The material from Portuguese East Africa is very often intermediate and includes forms with narrow leaves, short pedicels and small fruits and forms with broad leaves (as in typical *S. diospyroides*) with large seeds, etc. These intermediate specimens link up the two forms so that in my opinion, *S. diospyroides* only represents a minor geographical variant of *S. inerme* and is not even worthy of varietal rank.
Doubtful localities are: " Near Pretoria ", *McLea* in herb. Bolus no. 5698 (BOL, PRE), because this species has never since been found near Pretoria, and " Johannesburg: Melville ": *Moss* 15906 (J). Dr. J. B. Gilliland, formerly of the Dept. of Botany, Witwatersrand University, has kindly informed me that there is no trace of the species anywhere in the Witwatersrand area.

*Excluded species*:

*Sideroxylon argenteum* Thunb., Prodr. Fl. Cap. 36 (1794) = *Rhus thunbergii* Hook. = *Heeria argentea* (Thbg.) Meissn.

*Sideroxylon randii* S. Moore = *Pouteria magalismontana* (Sond.) A Meeuse (see p. 335).

*Sideroxylon dentatum* Burm. f., Prodr. Fl. Cap. 6 (1768) = *Curtisia dentata* (Burm. f.) C. A. Smith in J. S. Afr. Forestry Assoc. *20*: 34, 50 (1951). This species was legitimately published, as Burman based it on the plate and description of his father's *Sideroxylon foliis acuminatis dentatis, fructu monospermo flavo* [Burm., Dec. Rar. Afr. Plant. (1738), p. 235, t. 82]. The plant in question is undoubtedly the same as published by Aiton [Hort. Kew ed. 1 (1789), p. 162] under the name *Curtisia faginea*. Not only are the elder Burman's plate and description quite adequate to recognise the species, but he also mentioned the name " Assagay-Boom " used by the Dutch at the Cape, under which name it is still known. Moreover, Aiton, l.c. quotes " Burm. Afr. p. 235 t. 82 " and the phrase name " *Sideroxylon foliis acuminatis* etc.", and Harvey in Harv. and Sond., Fl. Cap. 2: 570, sub *Curtisea faginea* Ait., also mentioned " Burm. Dec. Afr. p. 235, t. 82 ". This identity had already been recognised by the late C. A. Smith, who did not give any reasons, however, when he proposed the above-mentioned change of name.

## 2. CHRYSOPHYLLUM

*L.*, Gen. Pl. ed. 5, 89 (1754); A. DC. in DC., Prodr. 8: 56 (1844); Benth. et Hook. f., Gen. Pl. 2: 653 (1876); Baker in Oliv., Fl. Trop. Afr. 3: 498 (1877), ex parte: Engler in Engler & Prantl., Nat. Pflanzenfam. ed. 1, 4, 1: 147 (1890), pro majore parte, in Nachträge 278 (1897), and Mon. Sap. afr. 38 (1904) ex parte et exclus. Section *Zeyherella;* Wright in Dyer, Fl. Cap. 4: 436 (1906), pro parte; Pilger in Engler & Prantl, Pflanzenf., Nachträge 1897–1907: 288 (1908); Hutch. & Dalz., Fl. W. Trop. Afr. 2, 1: 8 (1931); Eyma in Rec. Trav. Bot. Néerl. 33: 201 (1936), (with discussion on p. 157–158); Baehni in Candollea 7: 429 (1938); Phillips, Gen. S. Afr. Flow. Pl. ed. 2, 568 (1951) pro parte.

*Donella* Pierre ex Baill., Hist. d. Pl. 11: 294 (1892).

*Gambeya* Pierre, Not. bot. Sapot. 61 (1891); Baillon, Hist. d. Pl. 11: 296 (1892).

Type species: *C. cainito* L., Sp. Pl. ed. 1, 192 (1753).

Trees or shrubs, rarely climbing; ultimate branches and lower surface of leaves often densely adpressed-tomentose; lateral nerves of leaves parallel, close or distant, usually spreading and curved near the margin; tertiary nerves usually inconspicuous. *Stipules* wanting or at least very early deciduous. *Flowers* axillary, or on the naked branches below the leaves, solitary or in fascicles, rarely sessile, usually isomerous. *Sepals* 5 (rarely 4, 6 or 7); lobes entire, imbricate. *Corolla* 5 (4-, 6- or 7-) lobed: lobes entire, imbricate; tube cylindric, urceolate or campanulate, usually short. *Alternipetalous staminodes* O. *Stamens* usually short, not or but little exerted; filaments inserted in the throat of the corolla tube at the base of the lobes and short, or inserted lower down and longer; anthers versatile, more or less dorsifix, ovate to triangular, often apiculate, sometimes somewhat sagittate at the base. *Ovary* hairy, 5- or more rarely 4-, or 6-7-loculated; style columnar, short, thick, glabrous; ovules with lateral or basilateral attachment. *Berry* 1- to few-seeded, but usually 3-5-seeded. *Seeds* with long and narrow ventral scar; testa hard, smooth and shiny; endosperm copious, cotyledons thin and foliaceous.

Between 100 and 200 species described, but undoubtedly some of them have been or have to be referred to other genera, because the absence of presence of alternipetalous staminodes is *not* a reliable character in Sapotaceae if not used in conjunction with other characters and many species without or apparently without staminodes but with seeds altogether different from the type species of *Chrysophyllum* were at one time or another placed in the genus *Chrysophyllum*. Krause, Engler and later Eyma (cf. Eyma, op cit., p. 157–158) and Baehni (op. cit., p. 405–406) criticised the systems of classification of Sapotaceae in which the character of the alternipetalous staminodes is over-emphasized, so that, e.g., a separate tribe "Chrysophyllinées" based on the absence of staminodes was recognised by Dubard. Eyma (l.c.) and Lam [in Rec. Trav. Bot. Néerl. 36 (1939), p. 509–525] pointed out the relationships with the Sideroxyleae and indeed *Chrysophyllum* is, in my opinion, to be included in this group. The genus *Chrysophyllum - sensu lato* - was split up (at least in Ms.) into a large number of smaller genera by Pierre (*Pachystela*, *Donella*, *Gambeya*, *Zeyherella*, *Malacantha*, etc.). Some of these genera were adopted by Engler (1904, l.c.) such as *Pachystela* and *Malacantha*. The remainder, at least as far as the African representatives are concerned, and if Engler's section *Zeyherella* is excluded, is a fairly homogenous group which is distinct from *Sideroxylon* s.l. and *Pouteria* s.l. in that the staminodes are completely lacking and the seed characters are different.

*General Distribution*: Mainly tropical America, less than 30 species in Africa, one in Madagascar; the few species recorded from tropical Asia, Australia and the Pacific have mostly been referred to other genera (e.g. *Nesoluma*).

The African representatives belong to two sharply defined subgenera:

(1) **Chrysophylum** *L.* subgenus **Donella** (*Pierre ex Baill.*) *A. Meeuse*, stat. nov. *Donella* Pierre ex Baill., Hist. d. Pl. 11: 294 (1891), pro gen. *Chrysophyllum* L. sect. *Donella* (Pierre ex Baill.) Engl., Mon. Sapot. Afr. 41 (1904).

*Leaves* with numerous close, parallel lateral veins, usually dark green above and as a rule quite glabrous; *corolla* with a short broad unceolate to subglobose tube.

Type species: *Chrysophyllum roxburghii* Don = *C. lanceolatum* (Bl.) DC. (India to New Guinea).

(2) **Chrysophyllum** *L.* subgenus **Gambeya** (*Pierre*) *A. Meeuse*, stat. nov. *Gambeya* Pierre, Not. Bot. Sapot. 61 (1891) (pro gen.). *Chrysophyllum L* sect. *Afrochrysophyllum* Engl. in Engl & Prantl., Nat. Pflanzenfam., Nachträge 272 (1897). *Chrysophyllum* sect. *Gambeya* (Pierre) Engl., Mon. Sapot. Afr. (1904).

*Leaves* with rather distant and usually on lower surface more or less prominent lateral veins and as a rule more or less rufo-tomentose on lower surface; *corolla* with a subcylindric to campanulate tube.

Type species: *Chrysophyllum subnudum* Baker (West Tropical Africa).

A few species of *Chrysophyllum* occur in Southern Africa, of which only two are treated here (one South African, the other occuring in Southern Rhodesia and Portuguese East Africa fairly close to the Union border):

Leaves almost completely glabrous and green when old, with fine parallel nervation, up to 11 cm., but usually under 8 cm. long..... 1. *C. viridifolium.*

Leaves rusty-tomentose or sometimes greyish tomentose beneath, often 10–20 cm. long; lateral nerves distant, very prominent beneath..... 2. *C. gorungosanum.*

1. **C. viridifolium** *Wood* et *Franks* in Wood, Natal Pl. 6: 569 (1912); Gerstner in J. S. Afr. Bot. 12: 48, Fig. 3 (1946) Type: *Franks* in herb. Wood No. 11636 from Stella Bush, Berea, near Durban, in NH, holo! photo in PRE!, in BOL and PRE, isos!).

A large tree, 10–30 m. high, with a girth at 2 m. from the ground of 150 cm. and over. *Trunk* usually unbranched for 5 m. or more, and strongly many-ribbed to the origin of the branches. *Bark* grey. *Innovations*, *petioles*, *pedicels*, and *calyx-lobes* finely rusty velvety-tomentose, the older twigs and fruiting pedicel glabrous. *Leaves* scattered on the branches, thinly coriaceous, exstipulate, 4–8 (–11) cm. long and 2–3·5 (–4·5) cm. wide (those of coppice shoots are the longest), oblong or (ob-) ovate-oblong, more rarely ovate or elliptic, obtuse or bluntly acuminate with oblong, obtuse about 8 mm. long and about 3 mm. wide acumen, more or less rounded but always decurrent at the base, dark glossy green above, lighter and dull beneath, glabrous when mature, except near the midrib and at the very base near the petiole beneath, with reflexed edge; midrib channelled above, prominent beneath and, at least when dry, discolourous, reddish or brownish; lateral nerves numerous (about 11 per cm.), patent but not quite horizontal, often forked, almost straight, parallel (hence the leaf appearing striate), joining the fine intramarginal vein close to the margin. *Petioles* 5–10 (–12) mm. long more or less dorso-laterally flattened, channelled above. *Flowers* 2–2·5 mm. long, nearly globose, in clusters in the axils of the lower leaves and on raised warts on the older twigs; clusters few- to many-flowered (sometimes with over 20 flowers); bracts very minute or wanting; pedicels thin, almost capillary, 4–5 mm. long. *Calyx-lobes* free nearly to the base, erect, concave, ciliate. *Corolla* scarcely longer than the calyx; tube urceolate; lobes erect, ovate-oblong-rotundate, very obtuse or rounded, ciliate (at least at the lateral margins). *Stamens* inserted half way down the corolla-tube or even lower; filaments terete, longer than the apiculate anthers. *Ovary* depressed-globose, 5-celled, densely rusty-villous, often somewhat lobed; style conical-cylindric from a broad base, thick, obtuse or truncate, longer than the ovary. *Berry* depressed-globose with a depression near the top (shaped like a small apple), often ribbed (at least when dried), 20–30 mm. long and 20–35 mm. in diam., smooth, glabrous, yellow when ripe with yellowish-white pulp saturated with white latex, 3–5-seeded; *pedicel* under fruit much incrassate, 5–8 mm. long and 1·5–3 mm. thick, rugose; calyx usually not persistent in fruit. *Seeds* semi-circular-elliptic, compressed, 15–18 mm. long, 9–12 mm. wide and 5–6 mm. thick in centre, keeled and curved at the back, almost straight at the ventral side with a long narrow, linear scar occupying nearly the whole length of the seed; testa hard, shiny as if polished, bright yellowish-brown when dry.

NATAL.—Durban: Berea, *Franks* in herb. Wood No. 11636 (NH, holo.! PRE, BOL, isos!): Durban; *Bayer* 14485. Eshowe: *Gerstner* 2071 (NH), 2546 (NH, PRE, BOL), *Lawn* 202 (NH); *Kotze* 34 = F.D. herb. No. 3178 (SAFD). Ingwavuma: *Bayer* s.n. (NH. No. 31432). Ngoya Forest: *Mehliss* FD No. 2686 (SAFD).

SWAZILAND: *N.N.* in Forestry Herb. No. 5328 (PRE); Hlatikulu, *Boocock* 31 = FD herb. No. 2686 (SAFD).

PORTUGUESE E. AFRICA.—Sul do Save: *Gomes e Sousa* 1648 (COI, PRE).

*C. viridifolium* belongs to the subgenus *Donella* and is closely related to a number of African species of this section. From *C. pruniforme* Engl. (Mon. Sapot. Afr. p. 42, Fig. A) it differs in the shape of the fruit and the shorter seeds. *C. welwitschii* Engl. (op. cit., 41, t. 13, Fig. A) is a climbing shrub (Angola, West Tropical Africa) and differs also in the shape of the fruit and the nervation of the leaves (in COI represented by: *Welwitsch* 4830, 4831, *Gossweiler* s.n. from Lunda, Saurimo and *Gossweiler* 1644, 4439, 4852, 5011, 6908, 8048).

*C. bangweolense* R. E. Fries in Schwed. Rhodesia—Kongo exp. 1: 254 (1914) (not seen) is, judging by the description, very closely related to *C. viridifolium* if not conspecific and occurs in Rhodesia. *C. pentagonocarpum* Engl. et Krause in Engl. Bot. Jahrb. 49: 387, Fig. 2 (1913) differs in the size of the fruits and seeds (E. Africa).

**2. Chrysophyllum gorungosanum** *Engl.*, Mon. Sapot. Afr. 8: 44; (1904) Brenan in Mem. New York Bot. Gard. 8 (5): 498 (1954). Type: *R. de Carvalho* s.n. from Gorungosa in COI, lecto!, B, destroyed. *C. fulvum* S. Moore in J. Linn. Soc. Bot. 40: 13 (1911–1912); Type: *Swynnerton* 19 from Chirinda forest, Southern Rhodesia, in BM, not seen, duplicate in SRGH!

A large tree, up to at least 50 m. high, with characteristic fluted bole. *Buds* and *young branches* rufo-tomentose, young leaves silvery-strigose above and silvery-tomentose beneath. *Branchlets* terete, glabrescent, densely leafy. *Leaves* on flowering branches 6–15 cm. more rarely up to 20 cm. long and 2·5–3·5, rarely up to 6 cm. wide, on a 7–16 mm. long petiole; those on sterile branches larger, up to 30 cm. long and 9 cm. wide on a 12–28 mm. long petiole; blade lanceolate-oblong to oblong-oblanceolate or (ob) lanceolate, cuspidate-acuminate (the acumen itself obtuse or subacute), narrowed and acute or sometimes cuneate at base, coriaceous, very soon glabrous and green above, densely rusty-tomentose beneath (or more greyish-tomentose when old); midrib impressed above, very prominent below; secondary nerves 12-17 on either side, impressed above, very prominent below, 5–7 mm., more rarely up to 14 mm., apart, parallel, patent, ascending and becoming inconspicuous well within the margin; tertiary nerves hidden by the tomentum beneath but usually distinct above, ± perpendicular to the main nerve and usually ± parallel, connecting the secondary nerves at an angle between 60° and 90°; ultimate nervation fine, areolate. *Petioles* terete, narrowly sulcate above, finely ferrugineo-pubescent or tomentose, 7–20 (–28) mm. long. *Stipules O.* *Flowers* in the leaf axils or on the naked branches below the leaves in, sometimes very dense, clusters, or a few of them solitary. *Bracts O.* *Pedicels* 1–3 mm. long, rather thick, shiny rusty-tomentose; some flowers almost sessile. *Sepals* almost completely free, broadly ovate, obtuse or very obtuse sometimes one of the outer ones subacute, very concave, more or less unequal, ±3·5 mm. long; the inner ones pale yellowish-brown strigose outside and thinner in texture than the coriaceous rusty-tomentose outer ones; all sepals densely pale fulvo-strigose inside, the inner ones ciliate on one side or all round. *Corolla* white, ±4 mm. long, the tube cylindric-inflated, slightly longer or about as long as the lobes and ± 3 mm. in diam., the lobes more or less erect and concave, obovate, ovate or subrotundate, obtuse or very obtuse, sometimes with nearly straight truncate apical edge, about 1·5 × 1·5 mm., densely ciliate-barbellate. *Stamens* inserted in the lower half of the corolla tube; filaments about 1·5 mm. long; anthers subsagittate, shortly apiculate, about 1 mm. long. *Ovary* globose, densely hirsute, about 2 mm. in diam., slightly longer than the glabrous, cylindric, truncate style; ovules with baso-lateral attachment. *Berry* globose, sometimes somewhat apiculate, finely pubescent, up to about 3·5 cm. in diam., 4–5 seeded. *Seeds*

19–21 mm. long, 11–12 mm. wide and 5–6 mm. thick in the middle, brown, ovate-oblong, slightly attenuate and subacute at the base; the scar 12–14 mm. long and 1–2 mm. wide at the widest place.

PORTUGUESE E. AFRICA.—Gorungosa: *Rodrigues de Carvalho* s.n. (COI, lecto)!.

SOUTHERN RHODESIA.—Chipinga: Silinda, Chirida forest, *Swynnerton* 19 (SRGH: duplicate of type of *C. fulvum* S. Moore); *Obermeyer* 2161 (PRE, BOL); *Hack* 151/50, *Whellan* 163, *McGregor* 17/48, *Wild* 2096, 2245, *Chase* 620 (all in SRGH); *Vári* 1826, 1865 (PRE), *Jack* s.n. (SRGH, herb. No. 6355); *Chase* 427 and s.n. (SRGH, herb., No. 19262 and 19263); *Fisher* 1223 (PRE); photo of fluted bole of specimen by *N. C. Chase* in SRGH. " Eastern Border ": *Chorley* s.n. (SRGH No. 6686). Melsetter: *Eyles* 5721 (SRGH), *Jack* s.n. (SRGH No. 5962). Umtali: *Eyles* 5533 (SRGH).

NYASALAND.—Kota-kota Distr.: Nchisi Mountain, *Brass* 17067 (SRGH).

KENYA.—S. of Mt. Kenya; *Hockliffe* 1370 (PRE).

The type gathering of *Chrysophyllum gorungosanum* Engl. is sterile. As the material in Berlin was destroyed and Engler (l.c.) cited both " Herb. Coimbra " and " Herb Berlin ", the material in COI is taken as the lectotype. The type material consists of coppice shoots which are a perfect match of coppice shoots of specimens from the type locality of *Chrysophyllum fulvum* S. Moore from Rhodesia (such as *Obermeyer* 2161). In addition, the only true *Chrysophyllum* of the section *Gambeya* found in the area near the type locality is *C. fulvum* S. Moore (Gorungosa is the region bordering Chipinga and Melsetter in S. Rhodesia), so that there is very little doubt that these two names are synonyms.

*Excluded species:*

*Chrysophyllum magalismontanum* Sond. = *Pouteria magalismontana* (Sond.) A. Meeuse, see p. 335.

*Chrysophyllum natalense* Sond. = *Pouteria natalensis* (Sond.) A. Meeuse, see p. 339.

*Chrysophyllum wilmsii* Engl. = *Pouteria magalismontana*.

## EXPLANATION OF FIGURES.

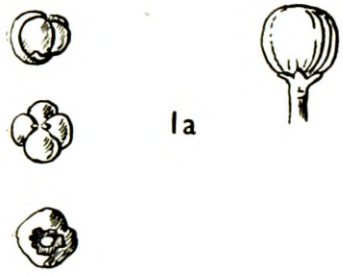
FIG. 1.—*Sideroxylon inerme*, seed and fruit (the seed seen from the side, the top and the base): (*a*) From a specimen *Kotze* 452 (from Amanzimtoti, Natal), (*b*) From a specimen *Galpin* 2468 (from Stutterheim, E. Cape). (All figures if not otherwise stated, natural size).

FIG. 2.—*Chrysophyllum viridifolium*, seed and fruit (from *Gerstner* 2546 Eshowe, Zululand). In this figure, and in all subsequent figures of seeds, the seed is shown from the lateral side and from the ventral side.

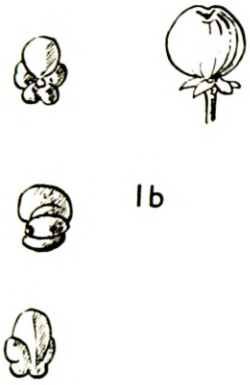
FIG. 3.—*Chrysophyllum gorungosanum*, seed and fruit (from *Obermeyer* 2161, Chipinga, S. Rh., in PRE).

FIG. 4.—*Pouteria magalismontana*, seed and fruit (from *Gerstner* 5728, Louis Trichardt, N. Transvaal). (In the lateral view a part of the testa has been removed).

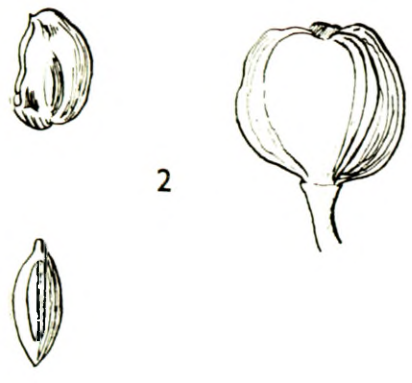
FIG. 6.—*Pouteria natalensis*, seed and fruit (from *Lawn* 57, Eshowe, Zululand).



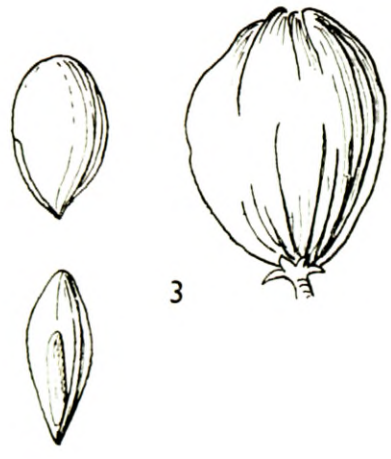
1a



1b



2



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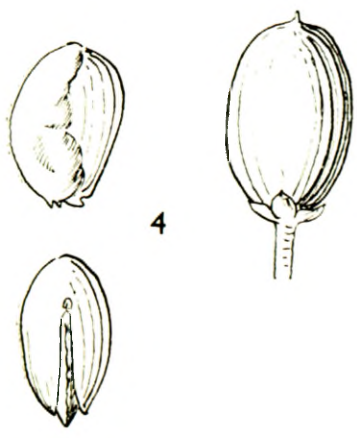
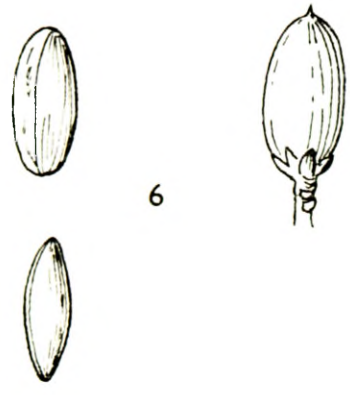


4



6

## 3. POUTERIA

*Aubl.*, Hist. Pl. Guiane Fr. 1: 85 (1775); Eyma in Rec. Trav. Bot. Néerl. 33: 159 (1936); Baehni in Candollea 9: 149, pro parte; Herrmann-Erlee & Royen in Blumea 8: 453 (1957).

*Lucuma* Molina, Saggia Chil. 186 (1782).
*Sersalisia* R. Br. Prodr. 529 (1810), p.p., as to type species.
*Zeyherella* Pierre ex Baill., Hist. d. Pl. 11: nota 3 (1892), nomen nudum.
*Pachystela* Pierre ex Engl., Mon. Sapot. Afr. 35 (1904).
*Chrysophyllum* L. sect. *Zeyherella* (Pierre ex) Engl. op. cit., 47.
*Breviea* Aubr. et Pellegr. in Bull. Soc. Bot. France 81: 792 (1934).
*Aningeria* Aubr. et Pellegr., op. cit., 795.
*Chrysophyllum* Auct. et *Sideroxylon* Auct., ex parte.

Type species: *P. guyanensis* Aubl. (South America).

Trees or shrubs. *Branches* terete, the young ones often tomentose. *Leaves* varying from papyraceous to coriaceous, exstipulate or occasionally stipulate, often crowded towards the tips of the branches; often hairy on both sides or the lower side, usually more or less glabrescent but rarely ultimately or initially quite glabrous; secondary nerves as a rule distinctly stronger than tertiary ones; tertiary nervation mutually parallel or reticulate, parallel with or more or less perpendicular to secondary nerves; petioles usually distinct; stipules, if present, subulate or setaceous. *Flowers* fasciculate in axils of leaves or leaf-scars, sometimes inserted on brachyblasts (raised warts, etc.), rarely solitary, pedicelled or sometimes sessile; 2–4 bracteoles sometimes present. *Sepals* generally 5, occasionally 4 or 6 in a single whorl, connate at the base only, subequal or more or less unequal (innermost narrower), deciduous or persistent in fruit. *Corolla* exserted, sometimes only a little so, tubular to campanulate; lobes 5 (occasionally 4 or 6–8), more or less erect to somewhat spreading but never reflexed; the tube short but distinct to occassionally rather long. *Alternipetalous staminodes* generally 5, but sometimes fewer, or absent, occassionally 6-8, generally lanceolate or subulate, but sometimes squamiform or larger and petaloid. *Stamens* 5 (occasionally 4 or 6–8), inserted in or near the throat of the corolla. *Ovary* generally 5-loculated, sometimes with a subcupular disc, more or less conical, gradually contracted into the, usually short, cylindric or subulate style. *Fruits* 1-5-seeded but often only 1 or 2 seeds develop in many species; pericarp various but rarely hard. *Seeds* with a thin or sometimes rather thick, often brittle, crustaceous testa and a large to very large cicatrix covering the ventral half of the seed or more, sometimes cicatrix smaller, linear or oblong; cotyledons thick and fleshy; endosperm absent or present as a thin membranous layer.

The delimitation of this genus, as given here, agrees with the circumscription of Herrmann-Erlee and Van Royen (l.c.), except in one character: I include some species with more or less persistent stipules, whereas the Leiden authors state: " Leaves . . . exstipulate ". As the leaves of Sapotaceae are in principle all stipulate, but apparently often exstipulate because the stipules are so early deciduous, I cannot accept the presence or absence of stipules in this family as a very important generic character.

This delimitation agrees also very well with Eyma's conception of the genus based on a study of South American species. As circumscribed here there are about 150 species, in tropical and subtropical America, Africa, Asia, Australasia and the South-West Pacific region.

The genus, as defined here, is considerably smaller than Baehni's enormous genus *Pouteria* of 300–500 species, which includes forms with and without endosperm and with an enormous variation in the characters of the corolla, the stamens, etc. Mr. J. P. H. Brenan of Kew criticized Baehni's very broad generic limits of *Pouteria* in

Mem. New York Bot. Gardens 8 (5): 499 (1954) as follows: " In rejecting Baehni's wholesale amalgamation of African sapotaceous genera under *Pouteria* Aubl., I recognise that the delimitation of genera in this family is often fiendishly difficult and very much a matter of opinion. But at the same time I remain unconvinced that the proposed fusion is going to clear the air and make identification easier ". This statement expresses aptly the opinion of other modern authors. Van Royen has especially critisized the " amalgamation " of species without endosperm (which he retains in *Pouteria* if not referred to different genera for other reasons) and those with copious endosperm (referred to *Xantholis* Rafin. and *Planchonella* Pierre), see Blumea 8: 238–239. Dr. Van Royen kindly pointed out to me that at least some of the African species included by Baehni in his large genus *Pouteria* are indeed *Pouteria* sensu Van Royen, but apparently *Planchonella* does not occur in Africa. My studies, limited as they are, confirm this conclusion. ([1])

As far as the African sapotaceous genera are concerned, the species to be included in *Pouteria* sensu mihi are sharply distinghuished from the genus *Chrysophyllum* sensu mihi in that they have usually alternipetalous staminodes and seeds with a thin testa, a broad ventral scar and no endosperm, whereas the other genus lacks alternipetalous staminodes and has seeds with a hard thick testa, a narrow ventral scar and copious endosperm. This implies that several species at one time under *Chrysophyllum* have to be transferred to *Pouteria*.

On the other hand, there are some African genera included in *Pouteria* by Baehni which, although they have the same type of fruit and seed, (i.e. thin testa, large scar, no endosperm) to my mind, do not belong here because they differ in other respects. *Vincentella* Pierre with its totally reflected corolla-lobes, very short corolla-tube, long and capillary stamens, is clearly distinct and is retained. Mr. Brenan independently came to the same conclusion. The genus *Synsepalum* A. DC. of tropical West Africa may also have to be retained on account of the strongly gamosepalous calyx.

It is difficult to say how many species of *Pouteria* sensu mihi there are in Africa, because I have studied only a few representatives and there are probably more. A count of Baehni's species (African) under *Pouteria*, omitting those belonging to *Vincentella* and *Synsepalum*, and including some which Baehni refers to *Chrysophyllum* but are better placed in *Pouteria*, shows a total of about 20 African species probably to be retained in *Pouteria*.

Leaves with secondary veins 1–3 cm. apart and very prominent on lower surface.... 1. *P. brevipes*.

Leaves with secondary veins much closer (several per cm.) and not very prominent:

Leaves usually rounded or emarginate at the apex, usually rusty-tomentose rarely more silvery, on lower surface; flowers fasciculate or solitary, often on raised warts on the naked branches below the leaves; pedicels and calyx rusty-pubescent ..... 2. *P. magalismontana*.

Leaves usually bluntly acuminate at the apex, usually silvery-white on lower surface; flowers solitary or 2–3 together sessile in the leaf-axils, calyx with a dark tobacco-brown pubescence..... 3. *P. natalensis*.

1. **P. brevipes** (*Baker*) *Baehni* in Candollea 9: 290 (1942); (for full synonymy see Baehni). *Sideroxylon brevipes* Baker in Oliv., Fl. Trop. Afr. 3: 502 (1877), type: *Kirk* s.n. in K, from Zanguebar.

([1]) Note added in proof: Aubréville and Pellegrin in Bull. Soc. Bot. France 105: 37 (1958) raised Engler's section *Zeyherella* to generic rank (including only *Chrysophyllum magalismontanum* Sond.) and described a genus *Boivinella* with 5 species including *Chrysophyllum argyrophyllum* Hiern, *C. wilmsii* Engl. and *C. natalense* Sond. The first two I consider to be taxonomical synonyms of *C. magalismontanum* (= *Pouteria magalismontana*, see p. 335), which these authors place in a different genus (*Zeyherella*)! This is an example of the other extreme, viz., excessive splitting of genera, resulting in the creation of a number of (to my mind, unnecessary) synonyms and adding to the confusion instead of clearing up the generic delimitations in the African Sapotaceae.

*Pachystela brevipes* (Baker) Baill. in Bull. Soc Linn. Paris 11: 947 (1891), *nomen nudum*. *P. brevipes* (Baker) Engl., Mon. Sapot. Afr. 37 (1904). *P. cinerea* (Engl.) Pierre ex Engl., op cit., 36, t. 12, incl. vars.; type: *Welwitsch* 4824 in B†, isotype BM, type number COI!

*Bakeriella brevipes* (Baker) Dubard and *B. cinerea* (Engl.) Dub. in Ann. Mus. Col. Marseille 20: 27 (1912).

A tree reaching a height of at least 10–15 m. *Branches* rather thick, at first thinly pubescent or thinly brownish-tomentose, glabrescent, later longitudinally fissured and often turning ashy-gray or almost white. *Stipules* coriaceous, linear-subulate, 5–15 mm. long, brown rusty-pubescent or glabrous, very acute. *Petioles* stoutish, 5–10 (–15) mm. long, 2–4 mm. thick, flat above, when dry longitudinally sulcate. *Leaves* lanceolate-oblong or oblong-oblanceolate to obovate-oblong, 5–20 cm. long and 2–8 cm. wide, coriaceous, shiny and glabrous above, much paler and dull, shortly whitish-tomentose or glabrous below, with obtuse or shortly and bluntly acuminate apex and narrow, cuneate or decurrent-attenuate base, and revolute edge; midrib impressed and distinctly keeled above, prominent and when dry longitudinally fissured below; lateral veins 8–10 on either side, distant (1–3 cm. apart), arcuate-ascending, impressed above, very prominent below, all reaching the edge of the leaf or nearly so; ultimate nervation coarsely reticulate mainly more or less perpendicular to the midrib; veinlets very delicate and inconspicuous. *Pedicels* short and thick, ± 3 mm. long and 1–2 mm. in diam., covered with a pale fawn tomentum. *Flowers* clustered in the axils of the lowermost leaves or on the naked wood below the leaves on raised warts, sweet-scented. *Sepals* ovate-oblong, oblong or oblong-lanceolate (the inner ones narrower), 3·5–4·5 mm. long and 1·5–3 mm. wide, subacute or obtuse, more or less concave, pale fawny-tomentose outside and inside. *Corolla* glabrous; the tube ± 2 mm. long and 1–1·5 mm. in diam.; the lobes oblong or ovate-oblong, subacute or obtuse ± 4 mm. long and 1·5-2·25 mm. wide. *Alternipetalous staminodes* glabrous, lanceolate-linear, linear-subulate, or filiform, acute, acuminate and often lacerate or incised-dentate (the filiform ones not infrequently with a terminal thickening or even a small sterile anther), usually shorter than the filaments, but occasionally equalling the stamens, sometimes small, squamiform or O. *Filaments* linear-filiform, 3–4 mm. long; anthers pink (Mrs. Faulkner), 2–2·5 mm. long. *Ovary* ovoid, ± 2 mm. long and 1·5 mm. in diam., distinctly 5-lobed-sulcate below, densely fulvo-villous, situated on a flat disc; style thick, columnar, angular, widened, subcapitate-truncate and indistinctly 5-lobed at the apex, 4–5 mm. long, covered with long hairs at the base or sometimes half way up. *Fruiting pedicels* hardly changing but more or less glabrescent; the calyx persistent, ± spreading but not reflexed. *Fruit* edible, yellow when ripe, ellipsoid, 15–22 mm. long and 9–12 mm. in diam. *Seed* the same shape as the fruit but smaller, 12–16 mm. long and 6–9 mm. in diam., scar occupying more than half the surface of the seed; testa smooth and shiny light brown, the scar duller and paler, somewhat rough.

FIG. 5.—*Pouteria brevipes*, seed and fruit (from *Zenker* 4324, Cameroons, in PRE).

Widespread in tropical Africa, but not recorded from Northern Rhodesia. I have seen numerous specimens from tropical East and West Africa in several herbaria and only cite those occuring in Southern Africa:

PORTUGUESE EAST AFRICA.—Manica e Sofala: Chipinga, Busi Drift (East of Melsetter, S. Rhodesia), *Whellan* 133 (SRGH). Maribane, *Gomes Pedro* 4193 (LMJ, PRE); " Na floresta de Maronga ", *Simão* 375 (LM); Matarara do Lucite, *Gomes Pedro* 4278 (LMJ, PRE). Zambezia: Quelimane Distr., Metola, *Barbosa & Carvalho* 4002 (LM, PRE), between Mualama and Gilé, *Barbosa & Carvalho* 4342 (PRE); Mocuba, *Faulkner* " Kew 18 " (PRE, SRGH, COI). Niassa: Nampula, Nova Chaves, *Barbosa & Lemos* 1780 (LM); Pto. Amelia, Mueda, *Barbosa* 2238A (LM, PRE); between Mueda and Chomba *Barbosa* 2248 (LM).

SOUTHERN RHODESIA.—Vumba: Wychwood, *Ball* 14 (SRGH, PRE). Melsetter: between Hayfield and Lusitu river/Haroni, *Drummond* 5001 (SRGH, PRE).

ANGOLA.—Cuanza: Golungo Alto, between Cambondo and Luinha River, *Welwitsch* 4818 (COI); Pungo Andongo: *Welwitsch* 4824 (COI; type number of *Pachystela cinerea*); Calemba Island in Cuanza Riv., *Welwitsch* 4826 (COI); Ponta Filomene de Camera, nr. Cuanza Riv., *Gossweiler* 10649 (COI).

As regards the author of the combination " *Pachystela brevipes* ", the genus *Pachystela* was only validly described in 1904, so that Baillon's name " *Pachystela brevipes* (Baker) Baillon ", published in 1891, is a nomen nudum and " *Pachystela brevipes* (Baker) Engl." is the correct citation under the Rules.

2. **P. magalismontana** (*Sond.*) *A. Meeuse*, comb. nov.

*Chrysophyllum magalismontanum* Sond. in Linnaea 23: 72 (1850) (sphalm. " *magalismontana* "); Engl., Mon. Sapot. Afr. 47 t. 16, f. C (1904); Wright in Dyer, Fl. Cap. 4, 1: 437 (1906); Phillips in Flow. Pl. S. Afr. 3, t. 98 (1923); Marloth, Fl. S. Afr. 3: 36, t. 10 (1932); Gerstner in J. S. Afr. Bot. 12: 40, Fig. 4 (1946), and 14: 171, Figs. A–F (1948); Brenan in Mem. New York Bot. Card. 8 (5): 498 (1954); type: *Zeyher* 1849 from Magaliesberg, Transvaal in herb. Sonder nunc S, holo, BOL and SAM, isos!). *C. argyrophyllum* Hiern, Catal. Afr. Pl. Welw. 3: 641 (1898); Engl. op. cit., 46, t. 16, Fig. A; Brenan & Greenway, T.T. Check List 2: (1949); type: *Welwitsch* 4827, 4828, 4829, syns. in BM, 4828 in COI!) *C. antunesii* Engl. in Engl. Bot. Jb. 32: 137 (1903); type: *Antunes* 98 (B †, COI, lecto.!). *C. carvalhoi* Eng., op. cit. (1904), 47; type: *Rodrigues de Carvalho* s.n. in COI, lecto!, B †. *C. wilmsii* Engl., op. cit. (1904), 46, t. 16, Fig. B; Wright, op. cit., 437; type: *Wilms* 1812 in B †, holo, K, iso. *C. gossweileri* De Wild., Pl. Bequart. 4: 130 (1926); type: *Gossweiler* 2808 in BR, dupl. in COI!

*Sideroxylon randii* Sp. Moore in J. Bot. 41: 402 (1903); Wright, op. cit. 439; type: *Rand* 1017 from Johannesburg, BM, holo.: photo in J!.

*Pachystela magalismontana* (Sond.) H. Lec. in Bull. Mus. Hist. Nat. Paris 25: 192 (1919). *P. argyrophylla* (Hiern) H. Lec., l.c.

A large tree when growing in forests (up to at least 15 m. high), but in its more characteristic form, growing on stony koppies and rocky ledges in the Transvaal, a shrub, already flowering and fruiting freely when only about 1 m. high. *Leaf-bearing branches*, especially in the shrubby form, often stout, 5–10 mm. thick, with short internodes. *Innovations* and *twigs* rufo-tomentose. *Leaves* often near apex of otherwise leafless branches, stipulate and sometimes thinly papyraceous when young, coriaceous when mature, first with a white bloom but soon glabrous and green above, rufo- or aureo-tomentose (older ones often more greyish- or silvery-tomentose, sometimes with a pale pink or mauve tinge) below, 4–15 cm., sometimes up to 30 cm. long, 2–5 cm., sometimes up to 7 cm., wide, those of the characteristic shrubby form usually deflexed, rather small (up to 12 cm. long and 5 cm. wide), oblong-obovate, obovate-elliptic or oblong, usually

rounded or slightly narrowed at the base, rarely obovate with cuneate base; emarginate, retuse or at least obtuse at the apex, sometimes mucronate with short, often blackish, mucro, sometimes more strongly tapering at the base and oblanceolate-oblong; petiole 6–12 mm. long; those of the forest form usually distinctly cuneate at the base, lanceolate, oblong or oblanceolate-oblong to oblanceolate-cuneate, occasionally (on coppice shoots) up to nearly 30 cm. long and 7 cm. wide on a longer (up to 24 mm. long) petiole, but usually smaller, with obtuse, rounded, emarginate or retuse, sometimes shortly and bluntly acuminate, occasionally mucronate apex; midrib immersed and narrow canaliculate above, very prominent below; secondary nerves numerous (6–7 per cm.), slender, usually inconspicuous above, partly hidden under the tomentum, but on the older leaves often loosing their pubescence and becoming slightly prominent beneath, patent, straight, but distinctly ascending and curved towards the margin, sometimes joining and forming an irregularly sinuous, often very inconspicuous intramarginal vein, more rarely bifurcate and archingly joining; tertiary nerves parallel to and thinner than secondary ones, somewhat sinuous, mostly not reaching the margin without branching or joining other veins, often inconspicuous; ultimate reticulate nervation usually sparse, inconspicuous, mainly present towards the margin and ± parallel to secondary and tertiary nerves. *Petioles* thick, subterete but often longitudinally ribbed or angled, at least when dry, rusty- or aureo-pubescent, later sometimes ashy-grey-pubescent on a brown background. *Stipules* long-subulate, often curved, pubescent, soon deciduous. *Flowers* in few- to many-flowered, sometimes very dense, fascicles, the majority usually on the lower leaflets parts of the branches or on older wood on sometimes rather large, raised warts, and fewer, or none, in the leaf axils. *Bracts* O or very minute. *Pedicels* densely rufo-tomentose, varying in length from ± 2 mm. to ± 5 mm., more rarely up to ± 10 mm. long, rather stout and gradually or more abruptly widening at the top into the calyx; rarely flowers sessile. *Calyx* 2·5–4 (–5) mm. long, rufo-tomentose outside; sepals free nearly to the base, often unequal, ovate, obtuse or subacute, often greyish-pubescent inside, 2–4·5 mm. long and 2–3·5 mm. wide. *Corolla* white or whitish, turning brown (according to the labels also " pink " or " red " in Rhodesia and East Africa, but this may refer to already wilted flowers), glabrous, varying in length from scarcely longer than to about 2 mm. longer than the calyx; tube cylindric-urceolate, usually 1–1·5 mm. sometimes up to 2 mm., rarely only about 0.5 mm. long; the lobes somewhat to distinctly spreading, broadly ovate, obtuse or subacute, 2–4·5 mm. long and about 2 mm. wide. *Alternipetalous staminodes* O or sometimes 1–5, inserted just below the sinuses between the corolla-lobes, much smaller than the latter, scale-like and minute or sometimes petaloid, ovate or suborbicular, more or less irregularly serrate, dentate or incised in the supper half, up to 1·5 mm. long and 0·5-1 mm. wide. *Stamens* subincluded, inserted at the base of the corolla-, lobes; filaments 1·5–2 mm. long; anthers 1–2 mm. long, somewhat cordate-sagittate at the base before dehiscence, acute, apiculate; sometimes stamens sterile, staminodial, either resembling a stamen with a filament-like basal portion and a sagittate-cordate, broader top which often shows two longitudinal marks (cf. Gerstner, 1948, Figs. A–F), or more irregularly shaped, very rarely (fide Engler, op. cit., 47, t. 16, Fig C, and c) lanceolate, petaloid. *Ovary* globose-ovoid, about 2 mm. in diam., densely villous, 5-, sometimes 3- or 4-celled, gradually passing into the ± 1·5 mm. long, glabrous style. *Fruit* ellipsoid, ± 25 mm. long ± 18 mm. wide, dark red when ripe, edible, crowned with the persistent style, 1- or sometimes 2-seeded. *Seeds* of 1-seeded fruits compressed -ovoid, 16–20 mm. long, 14–16 mm. broad and 8–11 mm. thick; those of 2-seeded fruits with one flattened lateral side; testa light brown, shiny, thin and brittle when dry; scar linear-triangular, ventral, occupying about ¾ of the length of the seed; 2 mm. wide or more in widest place.

*General Distribution.*—Tropical Africa, from the Congo to Tanganyika and southwards to Angola, Bechuanaland, the Transvaal, Swaziland and Natal. At least in the Transvaal this species is apparently confined to quartzite and granite rocks, so that the

plant is as much an indication of the formations as the formations are an indication of the occurence of *P. magalismontana*. In N. Zululand, for instance, where quartzite rocks occur locally, *P. magalismontana* is only found in the area where the rocks come to the surface.

*Selected citations*;

BECHUANALAND.—Kanye: *Hillary & Robertson* 613; Lobatsi Govt. Farm: *Miller* B/246.

TRANSVAAL.—Zoutpansberg: Louis Trichardt, Hanglip, *Gerstner* 5728. Sebasa: near Sebasa, *Codd & Dyer* 4515. Pietersburg: Woodbush, *Hoffmann* 22. Warmbaths: Warmbaths, *Leendertz* s.n., *Burtt Davy* 2616. *Hutchinson* 1883. Brits: Silkaatsnek, *Smuts & Gillett* 1061. Magaliesberg Range: *Zeyher* 1849 (BOL, SAM, type gathering); *Burke* 377 ("twin type", BOL). Pretoria: Pretoria, *Leendertz* 322, 510; *Burtt Davy* 2675, *Pole Evans* 30, 161; Hutchinson 2314. Nelspruit: Kruger National Park, *v. d. Schijff* 59, *Codd* 5745. Barberton: *Burtt Davy*, 258. Marico: Zeerust, *Gerstner* 4413 (NH). Rustenburg: *Leendertz* s.n., *Pegler* 1033. Witwatersrand: Johannesburg, *Rand* 1017 (PRE, fragment of type of *Sideroxylon randii*); *Gerstner* 6418, 6424; *English* in Herb. Galpin 1486. Heidelberg: *Leendertz* s.n. (TRV. No. 8077); Delmas: *Naude* s.n. Brits: Silkatsnek, *Smuts & Gillett* 1061; Hartebeespoort, *Prosser* 1297 (NBG). Magaliesberg Range: *Zeyher* 1849 (BOL, SAM, type gathering); *Burke* 377 (BOL). Pretoria: Pretoria, *Leendertz* 322, 510; *Burtt Davy* 2675; *Pole Evans* 30, 161; *Hutchinson* 2314.

SWAZILAND.—*Codd* 1585; *Acocks* 12850; *Miller S*/108; *Bolus* H. No. 12110 (BOL).

NATAL AND ZULULAND.—Ngotshe: Magut, Pongola, *Gerstner* 2461; Ngome Forest Stat., *Tustin* = FD herb. No. 6552.

PORTUGUESE E. AFRICA.—Manica e Sofala: "Floresta do Garuso", *Simão* 552 (PRE: with lanceolate, petaloid epipetalous staminodes instead of stamens); Chimanimani Mts., *Plowes* 1250 (SRGH); Gorungosa, Rodrigues de Carvalho s.n. (COI, sterile branch, type of *Chrysophyllum carvalhoi* Engl.).

There has been some misunderstanding as regards the occurrence of the reduced sterile flowers and their proper significance. Sonder described *Chrysophyllum magalismontanum* as having normal stamens, citing *Zeyher* 1849 as the type number. Engler (1904) described *C. magalismonatum* as having female flowers with lanceolate epipetalous staminodes and oblong leaves (he cites *Zeyher* 1849 and *Burke*) and distinguished *C. wilmsii*, which is described as having leaves that are much narrowed at the base, and fertile anthers. Wright (in Fl. Cap. 4, 1: 437) distinguished these two as follows:

Leaves oblong, obtuse, obtuse at the base; flowers pedicellate..... *magalismontanum*
Leaves oblong, obtuse, mucronulate, acute at the base, flowers shortly pedicellate..... *Wilmsii*

Wright made no mention of staminodes, but also cited *Zeyher* 1849 and *Burke* 377 under *C. magalismonatum*.

Gerstner identified the form with sterile anthers with *C. wilmsii* Engl., which is not correct, but he discovered that *C. magalismonatum* under unfavourable conditions produces depauperate flowers (*Gerstner*, op. cit. 1948, p. 171), especially after a severe drought of several months. As soon as sufficient rain has fallen the same plants develop complete flowers. The sterile stamens are sometimes transformed into lanceolate epipetalous staminodes (e.g., in *Simão* 552 and in a specimen leg. N.N. from Bulawayo = SRGH No. 5579), and the specimen *Zeyher* 1849 in the Berlin Herbarium studied by Engler is probably a branch with such abnormal flowers, whereas other specimens of the gathering *Zeyher* 1849 such as those in BOL! and SAM! (taken from other branches or other trees ?) bear normal flowers and this explains the apparent controversy. I have also found that fertile and sterile stamens can occur in one flower, and

these sterile anthers, sometimes appearing as subpetaloid epipetalous staminodes are clearly abnormal, at any rate they have no taxonomic value. The difference in leaf shape as indicated in Fl. Cap. breaks down altogether as a character and *C. magalismontanum* and *C. wilmsii* are clearly synonomous.

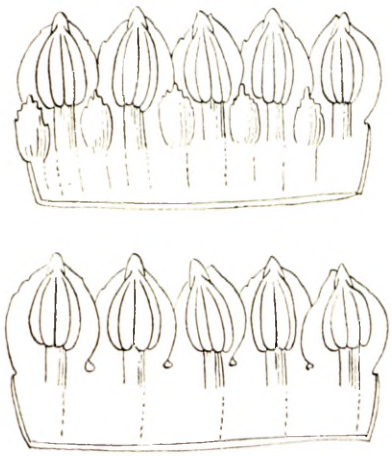


FIG. 7.—*Pouteria magalismontana*, opened corolla-tubes of two flowers of *Gerstner* 6418 (from Johannesburg, Transvaal), x 5, seen from the inside. Above: flower with 5 developed alternipetalous staminodes, below: flower without staminodes.

The presence or absence of alternipetalous staminodes is independent of the degree of development of the stamens and they also occur in flowers of Gerstner's forma *depauperata* (such as those of the specimen *Gerstner* 6424 cited by him). These alternipetalous staminodes are by no means rare: if sufficient flowers of a single specimen are dissected, some flowers with 1–5 staminodes (at least one in 10) are found. However, some specimens (or perhaps some individual plants) show a much higher frequency of flowers with developed staminodes of this type, such as *Gerstner* 6418 in which the majority (over 60%) of the flowers possess petaloid staminodes (see Fig. 7). Moore's type specimen of *Sideroxylon randii* (*Rand* 1017 in BM) is obviously such a special case. In every other respect, the description of *S. randii* and a photo of the type specimen (in J) agree perfectly with *C. magalismontanum*. Mr. de Winter, who examined the type specimen, confirmed my opinion and sent one flower of *Rand* 1017 which proved to be identical with *P. magalismontana*, so that *S. randii* falls into synonymy. This is a good example of the unreliability of the absence or presence of alternipetalous staminodes as a main distinguishing character in this family. Moore, after observing distinct staminodes, made it a *Sideroxylon*, whereas Sonder and Engler, who did not see distinct staminodes, referred the same species, apparently without any doubt, to *Chrysophyllum*.

As regards the identity of *P. magalismontana* and *Chrysophyllum argyrophyllum* Hiern, the differences indicated by Engler in his monograph are very slight. The differences reported are: (1) colour of the lower leaf surface (rusty-tomentose in *magalismontanum*, grey or silvery in *argyrophyllum*); (2) leaf shape (oblong to obovate-oblong in the first, oblanceolate (ioblong) in the second); (3) petioles, pedicels and calyx rusty-tomentose in the first, greyish-pilose in the second. These differences are not important, because the pubescence may be rusty- or greyish-tomentose on various parts of the same specimen, older parts tending to change from rusty-brown into grey and the leaf-shape varies even in one of the original gatherings cited by Hiern: *Welwitsch* 4828

(in COI!). I have seen many specimens from Angola, Rhodesia and East Africa and there is no sharp distinction between those referred to *C. argyrophyllum* in various herbaria and those referred to *C. magalismontanum*.

The species under discussion was redescribed several times again: *Chrysophyllum antunesii* Engl. and *C. gossweileri* De Wild. are small-leaved forms from Angola (I have seen types or isotypes of these in COI); *C. carvalhoi* Engl. is a form with narrow, lanceolate and acuminate leaves, collected in Moçambique (type in COI!).

3. **P. natalensis** (*Sond.*) *A. Meeuse*, comb. nov.

*Chrysophyllum natalense* Sond. in Linnaea 23: 72 (1850); Engl., Mon. Sapot. Afr. 43, t. 34, Fig. C (1904); Wood, Natal Pl. 4, t. 378 (1906); Wright in Dyer, Fl. Cap. 4, 1: 437 (1906); Sim, For. Fl. Cape Col. 252, t. 94, (1909); Gerstner in J. S. Afr. Bot. 12: 48, Fig. 2 (1946); type: *Gueinzius* 181 from Berea near Durban in herb. Sonder nunc S.

A medium-sized tree, 8–15 m. high, but often fruiting freely without much height, "growing mostly in the open or gregariously" (Sim). *Stem* up to 50 cm. in diam., with smooth bark, according to Sim and Gerstner yielding a valuable timber. *Twigs* slender, terete, grey, glabrescent; internodes decreasing in length towards the apex, so that the leaves are crowded at the tops of the twigs. *Innovations* and calyx densely dark tobacco-brown-tomentose. *Leaves* 6–12 (–15) cm. long and 2–4 (–5) cm. wide, obovate-lanceolate (ob) lanceolate-elliptic or (ob) lanceolate-oblong, shortly acuminate, acute or obtuse, at the very apex canaliculate-subdeflexed, sub-emarginate and mucronulate (occasionally in a few leaves retuse or emarginate), gradually tapering into the acute or somewhat acuminate base, when mature green (drying a characteristic greyish-green), glabrous and very shiny above, very minutely greyish- or silvery-tomentose, later sometimes glabrescent, beneath, with entire, subdeflexed and ± undulate margins; midrib immersed and channelled above, prominent and conspicuous below; secondary nerves thin, raised, about 20 on either side, patent, almost straight, bifurcate usually well within the margin and archingly joining, no distinct intramarginal vein present; teritiary nerves inconspicuous, mostly parallel to secondary ones. *Petioles* 6–12 (–14) mm. long, canaliculate above, often brown or blackish, rugose, with two short dorsal ridges where the slightly decurrent leaf-base ends and there seemingly distinctly narrowing into the leaf-base when seen from above (at least when dry), but in fact continuous with the midrib. *Stipules* wanting or at least very early deciduous. *Flowers* sessile, in clusters of 1–3 (sometimes more) together in the leaf axils; bracts small, inconspicuous, broadly triangular, rusty-pubescent, or wanting. *Calyx* ± 4 mm. long, divided more than half way down, the segments erect, ovate, subacute. *Corolla* "white" or "yellowish", glabrous; tube somewhat longer than the calyx, more or less constricted above the middle; the lobes suberect, ovate, obtuse, about 1 mm. long. *Anthers* subsessile, inserted at the very base of and about as long as the corolla-lobes, ovate, apiculate, not or scarcely exerted. *Ovary* depressed-globose, more or less 5-lobed, shortly pilose, contracted into the glabrous, obtuse, cylindrical style which is up to about twice as long as the ovary. *Berry* subsessile, cylindrical-ovoid or cylindric-oblong, pointed (more or less shaped like an acorn), crowned with the persistent style, 2–2·5 cm. long and 1–1·5 cm. in diam., deep red when ripe (? also sometimes transparent white, Sim) minutely pubescent, one-seeded, edible. *Seed* ellipsoid-oblong, ± 20 mm. long, ± 8 mm. wide, and ± 5 mm. thick in the centre, with a long ± 2·4 mm. wide scar occupying the whole ventral side of the seed; testa thin, brittle.

*Distribution.*—In frostless forests in the Eastern Cape Province and Natal, from East London and Komgha northwards, also recorded from the central Transvaal, Portuguese East Africa and the eastern part of Rhodesia, and extending into tropical East Africa as far as Tanganyika or perhaps Uganda.

The type (not seen) is *Gueinzius* 181 from Berea nr. Durban, Natal(in herb. Sonder). This same number is cited by Harvey ex Wright in Fl. Cap. 4, 1: 437, together with *Sanderson* 657, *Wood* 732 and a few other gatherings. Engler (1904) cites *Gueinzius* 181 and *Medley Wood* 8950. The specimen *Wood* 732 and Engler's figure leave no doubt about its identity.

CAPE PROVINCE.—East London: near East London, *Galpin* 9284 (PRE), 9677 (PRE). Komgha: Flanagan 1138 (GRA, PRE, BOL, SAM). Pondoland: Egossa, *Sim* 2374 (NU, GRA, PRE, BOL, SAM). Kentani: *Pegler* 859 (GRA, PRE, BOL, SAM, NBG); Manubi Forest, *Story* 4475 (PRE). Willowvale: *Acocks* 12284, 12286 (PRE). Ngqeleni: Notinsella, FD herb. No. 1728 (SAFD); Gokama Forest: *Marais* 758. Port St. Johns: *O. B. Miller* D/88 = FD herb. No. 3864 (SAFD); Noxolweni Forest, *Mogg* 13089 (PRE).

NATAL.—Umzinto: Dumisa, *Rudatis* 964 (L). Pietermaritzburg: *Killick* 308 (PRE). Durban: *Sanderson* s.n. (= 657?) (PRE), *Wood* s.n. BOL, SAM = prob. Inanda, *Wood* 732, GRA); *Marriott* PS 230 (PRE), *Thorns* s.n. (NH no. 23407), *Lavoipierre* 94 (NU). Eshowe: *Lawn* 57 (NH), *Gerstner* 1920 (NU, PRE), *Forbes* 681 (NH), *Codd* 1860 (PRE). Hlabisa: Hluhluwe Game Reserve, *Codd* 2050, *Ward* 1692 (PRE). " Zululand ": *Gerstner* 2618 (BOL).

TRANSVAAL.—Pilgrims Rest: Mariepskop, *Killick & Strey* 2496 (PRE).

SWAZILAND.—*Miller* S. 263 (PRE).

TANGANYIKA.—Devern: *Burtt* s.n. (J); Zigigler (or Zigiglen): *Burtt* s.n. (J), East Usambaras: Mlinge-Tongwe: *Greenway* 6064.

Two specimens from Uganda (*Greenway* 6064 and Greenway & Eggeling 7076 in EA and PRE) are very similar if not conspecific. Two species described from E. Africa, viz. *Chrysophyllum holtzii* Engl. et Krause in Engl. Bot. Jahrb. 49: 390 (1913), and *C. tessmannii* Engl. et Krause (op. cit., p. 389) may well be synonyms of *Pouteria natalensis*.

As regards its taxonomical position, Engler placed *P. natalensis* in the subgenus or section *Gambeya* (Pierre) Engl. (= *Afrochrysophyllum* Engl. p.p.) of *Chrysophyllum*, but this species has several features which distinguish it from *Gambeya*: according to Engler's diagnosis of *Gambeya* (Engler, op. cit., p. 43), the stamens are inserted at or below the middle of the corolla-tube (" Staminum filamenta ad basin tubi vel medio libera "), the corolla lobes are ciliate (Corollae tubus *lobis ciliatis* aequalis vel longior ") and the nervation of the leaves is different: (" . . . nervis lateralibus I pluribus numerosis *arcuatim* patentibus prope marginem sursum versis, nervis lateralibus II *inter primarios* obliquis "). The fruit is also different (1-seeded in *P. natalensis*, usually several-seeded in *Gambeya*, the seed-scar occupying the whole ventral side of the seed in *P. natalensis*, only the greater part of the ventral side in *Gambeya*) and, finally the ovules are basolaterally attached in *Gambeya* and distinctly laterally in *P. natalensis*. I cannot refer *P. natalensis* to any other African genus but *Pouteria* on account of the fruit characters (thin testa, large scar and lack of endosperm), in spite of the apparently constant absence of alternipetalous staminodes (which would not, however, exclude it from *Pouteria* sensu Van Royen).

Although most modern authors do not agree with Baehni's very broad conception of the genus *Pouteria*, several tropical species which fall into *Pouteria* sensu Van Royen were either overlooked, or expressly excluded from the genus by Baehni. I cannot see why these species were omitted or excluded, as Baehni did not give any reasons for his actions. It seems necessary to make the recombinations in *Pouteria*, because it may guide future workers on the flora of tropical Africa as regards my conception of the genus. This list is not complete, for only those species are included which could be studied from authentic herbarium specimens or from good plates.

**Pouteria adolfi-frederici** (*Engl.*) *A. Meeuse*, comb. nov. *Sideroxylon*(?) *Adolfi-frederici* Engl. in Mildbr., Wiss. Ergebn. deut. Zentral-Afr. Exp. 1907–1908, 2: 519, t. 52 (1913). *Aningeria adolfi-frederici* (Engl.) Robyns & Gilbert in Robyns, Fl. Spermatophyt. Nat. Parc Albert 2: 43 (1947).

The plate and a duplicate of a syntype (named by Engler), viz., *Mildbraed* 2528 (PRE), were available for study. There is no doubt that it is a *Pouteria*.

**Pouteria cerasifera** (*Welw.*) *A. Meeuse*, comb. nov. *Sapota cerasifera* Welw., Apontam. 585, No. 17 (1859). *Chrysophyllum cerasiferum* (Welw.) Hiern, Cat. Afr. Pl. Welw. 3: 643 (1898). *Sersalisia cerasifera* (Welw.) Engl., Mon. Sapot Afr. 30 (1904).

**Pouteria disaco** (*Hiern.*) *A. Meeuse*, comb. nov. *Chrysophyllum disaco* Hiern, Cat. Afr. Pl. Welw. 3: 642 (1898). *Sersalisia disaco* (Hiern) Engl., Mon. Sapot. Afr. 30, t. 10A (1904).

Mr. B. de Winter compared a few specimens from Portuguese East Africa with authentic material (*Welwitsch* 4812 in BM). Some of these are in fruit and can, therefore, be referred to *Pouteria* sensu Van Royen.

**Pouteria msolo** (*Engl.*) *A. Meeuse*, comb. nov. *Chrysophyllum msolo* Engl., Pflanzenw. O. Afr. C., 306, t. 37 (1895). *Pachystela msolo* (Engl.) Engl., Mon. Sapot. Afr. 38 (1904).

This plant is so closely related to "*Pachystela brevipes*" that Engler did not hesitate to refer it to *Pachystela* and it is altogether incomprehensible to me how Baehni could exclude *Pachystela msolo* (in Candollea 9: 428), while referring *P. brevipes* to *Pouteria* (op. cit., 291). The same applies to the following species which is also very similar to *P. brevipes* and yet excluded by Baehni (op. cit., 428) from *Pouteria*.

**Pouteria zenkeri** *A. Meeuse*, nom. nov. *Pachystela robusta* Engl. in Engl. Bot. Jahrb. 49: 386 (1913), non *Pouteria robusta* (Mart. et Eichl.) Eyma.

A true isotype, named by Engler, viz. *Zenker* 3697 (in PRE) was studied. The specific epithet "*robusta*" being preoccupied on account of an earlier combination for an American species, the name "*zenkeri*" was chosen to commemorate its first collector, well-known for his extensive West-African collections. It is strange that no reference is made to this Cameroons species in Hutchinson and Dalziel's Fl. W. Trop. Afr. vol. 2 under Sapotaceae.

## 4. VINCENTELLA

*Pierre*, Not. botan. Sapot. 37 (1891). *Bakerisideroxylon* Engl. (as a section of *Sideroxylon*) in Engl. u. Prantl, Natürl. Planzenfam. ed. 1, 4, 1: 144 (1890), and in Nachträge 276 (1897); (as a genus) in Mon. Sapot. Afr. 33 (1904).

*Sideroxylon* sensu Baker in Oliv., Fl. Trop. Afr. 3: 502 (1877), pro parte.

*Bakeriella* Dubard in Lecomte, Not. Syst. 11: 89 (1911) and in Ann. Mus. Col. Marseille 20: 26 (1912), pro parte.

*Pouteria* Aubl. sectio *Bakerisideroxylon* (Engl.) Baehni in Candollea 9: 382 (1942).

Type species: Baehni, in Candollea 7: 497 (1938), p. 497, mentions as the type species *Vincentella longistyla* (Baker) Pierre, Not. Bot. Sapot. (1891), p. 37. However, this is a synonym of *Pachystela brevipes* and as *Pachystela* was only validly published in 1904, *V. longistyla* at the same time being removed from *Vincentella* and transferred to *Pachystela* by Engler, the type species of *Vincentella* must be among the other two species mentioned by Pierre and retained in *Bakerisideroxylon* by Engler, viz., *V. densiflora* (Baker) Pierre and *V. revoluta* (Baker) Pierre. Priority of place would indicate *Sideroxylon densiflorum* Baker = *Vincentella densiflora* (Baker) Pierre (from San Tomé Island) as the type species, as was rightly pointed out by Exell in Cat. Vasc.

Pl. S. Tomé 235 (1944).

Shrubs or trees. *Leaves* generally oblong, with usually rather distant prominent secondary nerves and fine tertiary reticulate nervation. *Stipules* early deciduous. *Flowers* small, 5-merous, in many-flowered fascicles in the leaf axils and especially in the axils of fallen leaves on the twigs; pedicels very slender to capillary often rather long and more or less pendulous. *Sepals* small, free nearly to the base, later patent or reflexed. *Corolla-tube* very short, the lobes many times longer, elongate-oblong or linear-oblong, strongly reflexed. *Staminodes* and *stamens* inserted at the throat of the corolla-tube. *Alternipetalous staminodes* narrowly linear, inserted between and about as long as the corolla-lobes (but erect), entire or rarely dentate-serrate, acute or acuminate. *Filaments* filiform, erect, several times longer than the oblong-sagittate, minutely apiculate anthers. *Ovary* large, ovoid, villous, contracted in the usually rather long and filiform-cylindric, glabrous style, 5-loculated; ovules with lateral attachment, pendulous. *Fruit* oblong-ovoid, 1-seeded with 4 sterile loculi. *Seeds* oblong; testa crustaceous; scar long, linear, occupying the upper part of the ventral side of the seed; cotyledons thick and fleshy, endosperm membranous or absent.

An African genus of four species, on species extending into Southern Africa.

As Baehni, l.c. pointed out, *Vincentella* Pierre (1891) was legitimately published as a genus, although it corresponded with a section *Bakerisideroxylon* (1890) distinguished by Engler in the genus *Sideroxylon* which was later (1904), given the status of a genus by Enger. Pierre was not compelled to take up Engler's section name when he established a new genus and *Vincentella*, therefore, stands.

The typical slender pedicels, reflexed narrow corolla-lobes and very short corolla-tube, the fairly large ovary, erect long anthers and long staminodes make it possible to recognise a species of *Vincentella* almost at once. Baehni retains *Vincentella* as a section *Bakerisideroxylon* of his large genus *Pouteria* Aubl. sensu Baehni, but it is so distinct that, in my opinion, it deserves generic rank.

**V. sapinii** (*De Wild.*) *Brenan* in Mem. New York. Bot 8: 498 (1954).

*Bakerisideroxylon sapinii* (" *Sapini* ") De Wild. in Rev. Zool. Afr. 7, suppl. bot. B 16 (1919), and in Pl. Bequart. 4: 116 (1926), type: *Sapin* s.n. BR, holo.; K, iso.

*Pouteria tridentata* Baehni in Candollea 9: 386 (1942); type: *Stolz* 1889 from Tanganyika in G, holo; K and PRE, isos.

*Bakerisideroxylon stolzii* Mildbr. Ms.

*Vincentella stolzii* (Mildbr. Ms. ex) Hutch., Botan. South Afr. 506 (1948), nomen nudum.

*General Distribution.*—Southern Tanganyika, Nyasaland and the Niassa Province of Portuguese East Africa, Northern Rhodesia and Belgian Congo, seems to prefer streambanks (teste Gomes e Sousa, Benson, Brass).

NYASALAND.—Kota-Kota distr.: *Benson* 257, 765 (PRE); Chia area, *Brass* 17510 (PRE).

PORTUGUESE E. AFRICA.—Niassa: Nampula distr., Ribáué, *Gomes e Sousa* 2305 (PRE).

TANGANYIKA TERRITORY.—Kyimbila: *Stolz* 1889 (isotype of *Pouteria tridentata* Baehni, PRE).

" A shrub or small tree, 4–6 m. high". (Gomes e Sousa). *Young* branches terete, densely rusty-tomentose-hirsutulous, later becoming shortly and more greyish-tomentose, the older ones ultimately glabrescent. *Leaves* oblanceolate-oblong to obovate-oblong,

with obtuse, rounded or emarginate apex and attenuated-cuneate base, with reflexed margin, 4–10 cm. long, 3–5 cm. wide (according to Baehni: 10–14 cm. long and 3–5 cm. wide), chartaceous or subcoriaceous, soon glabrous, rather shiny above, paler and duller beneath; midrib impressed and keeled above, very prominent and when dry longitudinally sulcate below, glabrescent but retaining the original tomentum somewhat longer than the rest of the blade; secondary nerves impressed above, prominent below, 8–12 on either side, rather distant (4–10 mm. apart), at first rather straight, ascending at an angle of 45°–70°, arcuate-ascending near the margin and reaching it except those near the apex; tertiary nerves inconspicuous above, subimpressed and rather distinct below, slender, mainly perpendicular to the secondary ones; ultimate nervation very fine reticulate, tessellate, rather distinct at least below. *Petioles* stout, densely rusty-tomentose-hirsutulous, 3–10 mm. long, flattened and canaliculate above. *Stipules* linear-subulate 4–5 mm. long, deciduous. *Flowers* fragrant (teste Benson). *Pedicels* 5–7·5 mm. long, hirsute, terete, slightly widening under the calyx. *Sepals* ovate-triangular, hairy outside glabrous inside, about 1½ mm. long. *Corolla* white (teste Gomes e Sousa and Benson) glabrous, lobes narrowly-oblong, obtuse, ± 3 mm. long ± 1 mm. wide. *Staminodes* linear, acute, about as long as the corolla-lobes, with or a few small or minute lateral teeth. *Filaments* slender, 2·5–3 mm. long, the anthers ± 0·5 mm. long. *Ovary* ovoid-conical, hirsute, ± 1½ mm. long and ± 1 mm. in diameter, attenuated into the long-subulate-linear, sulcate (at least when dry), subacute and glabrous 1½–2 mm. long style. *Fruit* and *seed* not seen but fruit reported by Brass to be yellow, soft and edible.

## 5. LECOMTEDOXA

(*Engl.*) *Dubard* in Ann. Mus. Col. Marseille 23: 31 (1915); Baehni in Candollea 7: 456 (1938); Lam in Blumea 4: 348, 350 (1941).

*Mimusops* subgenus *Lecomtedoxa* (Pierre ex) Engl., Mon. Sapot. Afr. 82, t. 24, Fig. A. (1904).

*Mimusops* subgenus *Quaternaria* sectio *Inhambanella* Engl., op. cit., 80; Pilger in Engler & Prantl, Natürl. Pflanzenfam., ed. 1, Nachträge 1897–1904), exclus. descr. of the flowers.

*Inhambanella* (Engl.), Dub., tom., cit., 42, as to type species.

Type species.—*Mimusops kleiniana* Pierre ex Engl., Mon. Sapot. Afr. 82 (1904) = *Lecomtedoxa kleiniana* (Pierre ex Engl.) Dub. in Ann. Mus. Col. Marseille *23*: 31 (1915).

Small to very large trees. *Leaves* more or less distinctly crowded at the tips of the branchlets, coriaceous, more or less shiny above, paler and dull beneath. *Flowers* in few to many-flowered fascicles in the axils of the leaves or of leaf-scars below the leaves. *Calyx-lobes* 4–6; sometimes 3, sometimes unequal and subbiseriate, more or less erect, more or less concave. *Corolla* isomerous with the calyx; the tube short to rather long the lobes with each 2 lateral appendages (sometimes with only one appendage); the appendages entire, either very broad and larger than the lobes, or small. *Alternipetalous staminodes* lanceolate to ovate-lanceolate or long-triangular (resembling those of *Sideroxylon*), rather large and conspicuous, alternating with the corolla lobes. *Stamens* inserted in the throat of the corolla-tube or slightly higher up; filaments short or rather long; anters apiculate, included or slightly exserted. *Ovary* 5(-6)-loculate, hairy; ovules with lateral attachment; style glabrous, rather short, either capitate or tapering at the apex. *Fruit* 1-seeded, rather large. *Seed* with long scar occupying the ventral side of the seed; testa crustaceous; endosperm O or very thin; cotyledons thick and fleshy.

*General Distribution.*—2 or 3 species in tropical West Africa, one in Portuguese East Africa and Zululand.

**L. henriquesii** (*Engl. et Warb.*) *A. Meeuse*, comb. nov.

*Mimusops henriquesii* Engl. et Warb. in Engl., Mon. Sapot. Afr. 80 (1904), (sphalm. "*henriquezii*", cf. "Corrigenda", op. cit., p. 88); type: *Rolla Ferreira* s.n. from Portuguese East Africa in COI, holo! *M. henriquesiana* (Sphalm.?) Sim, For. Fl. Port. E. Afr. 80, t. 77, A (1909); Gerstner in J. S. Afr. Bot. *12*: 54 (1946).

*Inhambanella henriquesii* (Engl. et Warb.) Dub. in Ann. Mus. Col. Marseille *23*: 42 (1915).

As Engler's and Sim's descriptions are very incomplete and the flowers had hitherto not been known, a very detailed description is given.

Small to medium-sized tree, up to 20 m. high, with spreading branches and abundant heavy foliage. *Branches* rather stout, terete, longitudinally striate and sulcate, soon quite glabrous, greyish-born, later turning light grey and usually marked with scars. *Innovations* rusty-tomentose, but vegetative parts soon quite glabrous. *Stipules* subulate-falcate, pubescent, 3–7 mm. long, early deciduous. *Petioles* rather strongly canaliculate above and with a very narrow dorso-lateral wing or ridge on either side (which is a continuation of the edges of the decurrent leaf-base), when dry longitudinally sulcate, 12–35 (–52) mm. long. *Young growths* bright red to red-brown. *Leaves* varying from oblanceolate-oblong to oblong or obovate-oblong, obovate or broadly elliptic, coriaceous but rather thin, green (drying pale green or greyish green), 5–12 (–17) cm. long and $2\frac{3}{4}$–5 (–8) cm. wide, with obtuse, rounded or bluntly acuminate, often distinctly emarginate and more or less deflexed apex, acute or somewhat attenuate and slightly decurrent at the base, with reflexed margin, the edges often more or less undulate; almost invariable some leaves of each specimen with raised round flat or semiglobose galls; midrib impressed and keeled above, very prominent and when dry longitudinally sulcate below; secondary nerves 6–9 on either side, rather distant (5–10 mm., sometimes up to 25 mm. apart), not very conspicuous and often subimpressed (but sometimes slightly raised) above, usually prominent and more conspicuous below, slender, at first patent (ascending at angles between 45° and 90°), but mostly soon arcuate-ascending, the majority very strongly curved, becoming more or less sinuous and parallel with the edge of the leaf, ultimately reaching the nerve above it and thus forming a more or less distinct intra-marginal vein close to the margin, but some bifurcate or archingly joining; tertiary nerves more or less perpendicular to the midrib and joining the secondary ones, forming a coarse reticulation which is slightly prominent below; ultimate nervation very fine, reticulate, usually conspicuous at least on the lower surface. *Flowers* in few to many-flowered fascicles; bracts ovate, usually strongly concave to almost keeled and acute, 1–3 mm. long, pubescent; pedicels 5–20 mm. but usually 10–15 mm. long, terete or slightly angular, brownish-tomentose, rather abruptly widening into the calyx. *Sepals* 5 (or 4 to 6) erect, more or less concave, 4–5 mm. long, unequal to sub-biseriate; the outer 2–3 ovate-triangular from a broad base, 3–4 mm. wide, subacute, brownish-tomentose outside and inside near the margin and towards the apex; the inner ones thinner in texture, ovate-oblong, elliptic or broadly

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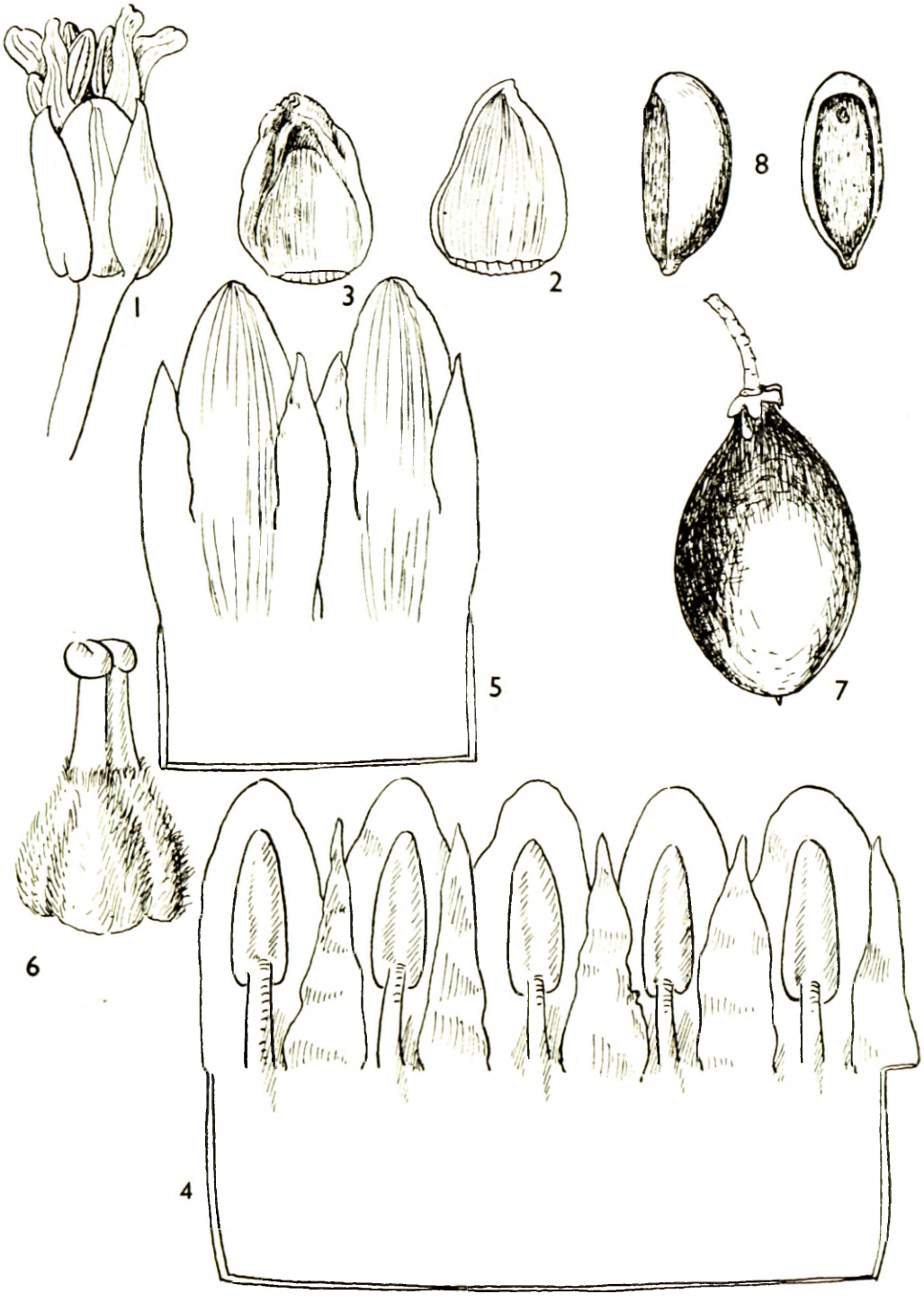
FIG. 8.—*Lecomtedoxa henriquesii*, 1: Flower, x 5; 2: outer sepal; 3: inner sepal; 4: corolla tube, opened and seen from inside, x 10; 5: part of corolla tube seen from outside, showing the lateral appendages, x 10; 6: ovary, x 10, 7: fruit and 8: seed (7 and 8 from the type specimen, *Ferreira* s.n. in COI).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oblong, with a narrower base, obtuse or rounded at the apex, pale fawnish-tomentose-sericeous outside, glabrous inside, finely ciliate along the margin, usually only 2–3 mm. wide. *Corolla* glabrous, yellowish or white; the tube cylindric-campanulate, about 3 mm. long, the inside with distinct thickened lines below the stamens and the staminodes; the lobes elliptic or elliptic-oblong, 4–4·5 mm. long, and 2–3 mm. wide; lateral appendages shorter than or as long as the corolla-lobes, attached near the middle of the corolla-lobes or near the base, usually asymmetrical, ovate-lanceolate to lanceolate-falcate, 1–4 mm. long. *Alternipetalous staminodes* ovate-lanceolate or lanceolate to elongate-triangular, often somewhat undulate, entire, acute, or obtuse, glabrous, about 3 mm. long. *Stamens* inserted on the corolla-lobes slightly above the throat of the tube; filaments linear, 1–2·5 mm. long, glabrous, more or less winged and often with broad somewhat auriculate base; anthers oblong, minutely apiculate, 1·5–2·5 mm. long. *Ovary* ovoid-conical, about 1·5 mm. long and 1·5–2 mm. in diameter, more or less distinctly lobed, densely greyish-tomentose, usually 5-loculated; style glabrous, thick, columnar, terete or somewhat angular, about 1·5 mm. long and 0·5 mm. thick; stigma capitate, indistinctly 5-lobed and sometimes also bilobed. *Fruit* ellipsoid, about 4 cm. long and 2–2·5 cm. in diameter. *Seed* oblong, somewhat compressed, about 3 cm. long, 1·5 cm. wide and 1·2 cm. thick; testa crustaceous, shiny, scar oblong, about 28 mm. long and 6 mm. wide; cotyledons about 5 mm. thick.

ZULULAND.—Hlabisa: False Bay (according to Gerstner, l.c.; no specimen seen); St. Lucia Estuary, *Ward* 441 (NU); Mdlozi Peninsula, *Ward* 3032 (PRE).

PORTUGUESE E. AFRICA.—Sul do Save: Maputoland, Santaca; *Gomes e Sousa* 3816 (COI, PRE). Manica e Sofala: Inhambane, *Rolla Ferreira* s.n. (COI, type ); *Beira*, Vila Fontes, leg. *N.N.*, Labóratorio Quimico Herbario No. 77 (SRGH); Chissadze, Cheringoma, *Simão* 1559 (PRE); Dondo Junction, *Honey* 871 (BOL, PRE). Zambezia: Quelimane, between Mopeia and Morzumbala, *Barbosa & Carvalho 3960* (PRE). Locality not known to me (near Inhambane?): Maguiya da Costa, *Sim* 20911 (PRE).

The type is a specimen leg. *A. J. Rolla Ferreira* in 1903 (s.n.), " Regiões de Gaza e Inhambane ", but most probably from Inhambane, Portuguese East Africa, because Engler named it " *Inhambanella* " and Sim (l.c.) mentions " Ferreira's farm near Inhambane " as the place of origin. Engler erroneously mentioned: " Herb. Univ. Cordoba " instead of " Herb. Univ. Coimbra " as the location of the type specimen. Sim refers to this plant as " *Mimusops henriquesiana* " but as he mentions Ferreira's farm and the specific epithet is so similar, I am of the opinion that " *henriquesiana* " is a *lapsus calami* for " *henriquesii* ".

As regards the identity of *Mimusops henriquesii* and the other specimens cited above, the only fruiting specimen that I could study was the type, but the vegetative parts and the calyx agree in every respect with those of the flowering specimens cited here so that I feel certain that the identification is correct.

The species under discussion differs from the West African representatives of *Lecomtedoxa*, in that the lateral appendages are small and the fruit is only slightly attenuate near the base (in the W. African species the lateral appendages are larger than the corolla-lobes, and the fruits are markedly attenuate at the base). In all other essential characters, the South African species agrees very well with the West African ones, such as the structure of the calyx, the staminodes, the attachment of the ovules, the one-seeded fruit, and the seeds with long ventral scar and without (or with very scanty) endosperm. I see no reason to create a separate genus nor even a subgenus or section for the South African species, because the differences are only relative ones and, in my opinion, not at all important.

*Lecomtedoxa* is a remarkable genus in that it combines the possession of lateral appendages with (usually) 5-merous flowers, a monoseriate calyx (which, however, tends to be biseriate) and seeds with long scar (ovules with lateral attachment), and it forms a veritable link between the subfamily *Mimusopoidea* H. J. Lam (with biseriate calyces and 3-merous or 4-merous flowers) and the subfamily *Sideroxyloideae* H. J. Lam (with usually 4-merous flowers, and monoseriate calyx); especially the tribe *Pouterieae* H. J. Lam (which also has long seed-scars). The only other genera in which 5-merous flowers are found, combined with the presence of lateral appendages and monoseriate calyx, are the American genera *Bumelia* and *Dipholis*, of the *Sideroxyloideae-Bumelieae*. These two genera show great affinities to the genus *Sideroxylon* and certainly deserve their place in the *Sideroxyloideae*. *Lecomtedoxa* on the other hand, shows distinct affinities with the *Mimusopoideae* (subbiseriate calyx) and should, in my opinion be retained in this subfamily as was done by Dubard and by Lam.

In a note on *Ward* 3032 the collector mentions that the young growths (young leaves) are bright-red to red-brown which makes the trees quite conspicuous in spring.

## 6. AUSTROMIMUSOPS

*A. Meeuse*, gen. nov. *Inhambanella* Dubard, in Ann. Mus. Col. Marseille 23: 42 (1915), pro parte, non *Mimusops* Subgenus *Quaternaria* sectio *Inhambanella* Engl. in Mon. Sapot. Afr. 80 (1904). *Mimusops* Auct., pro parte.

Arbores vel frutices. *Folia* chartacea vel subcoriacea, conspicue ad apices ramulorum conferta; foliorum nervi secundarii et tertiarii atque venae tenuae, dense subtiliter reticulates. *Flores* 1–4 in axilis ad apices ramulorum (3–) 4 meri. *Sepala* (3 + 3 vel) 4 + 4, rarissime 5 + 5, elongata-triangularia vel lineari-oblonga vel linearilanceolata exterioribus et interioribus subaequilongis extus tomentosis, acutis vel interioribus obtusis, interioribus pallidioribus. *Corollae tubus* brevis; segmenta (6–) 8 appendiculis binis integris instructa. *Stamina fertilia* (6–) 8, staminus filamenta antheris breviora; antherae oblongo-lanceolatae vel lanceolatae connectivo apiculato. *Staminodia* elongata-triangularia vel lanceolata, integra vel interdum ad apicem plus minusve dentata, extus pilosa. *Ovarium* ovoideum vel subglobosum, hirsutum (6–) 8 loculare; ovula ad medium loculorum vel basi-laterale affixa; stylus exsertus, cylindratus vel subulatus vel filiformis, glabrus. *Bacca* ovoidea vel ellipsoidea, apiculata, monosperma raro 2-sperma. *Semen* ellipsoideum; area derasa (= cicatrix) magna, lata, semen longitudine subaequalis; testa crustacea vel plus minusve pergamacea; albumen nullum; cotyledones plano-convexae, crassae.

Type species: *Mimusops marginata* N. E. Br. (= *M. natalensis* Schinz non Engl.) = *Austromimusops marginata* (N.E. Br.) A. Meeuse.

Large shrubs or small to medium-sized trees with the leaves crowded at the very tips of the, often thick, branches. *Leaves* exstipulate, firm, but usually not coriaceous, not very shiny above, with a very fine tessellated reticular nervation which is always conspicuous at least on one side. *Petioles* distinctly, and usually widely, canaliculate above. *Flowers* in the axils of the leaves or of scaly bracts, 1–4 together, but as the leaves are crowded at the tips of the branches, apparently forming dense umbels of up to 20 flowers and over. *Pedicels* usually more or less pendulous. *Calyx* biseriate, the lobes free nearly to the base, (3 + 3 or) 4 + 4, very rarely 5 + 5, 3– and 4–, or 4– and 5– merous calyces occuring in one specimen; outer calyx lobes thicker and usually broader than the inner ones, which also differ in pubescence and are more or less distinctly midribbed. *Corolla* 3-merous and 4-merous (also occasionally 5-merous?) in one specimen, or 4- merous; the tube very short; the lobes and lateral appendages subequal. *Stamens* (6 or) 8, resembling those of *Mimusops*, i.e., the anthers longer

than the filaments, apiculate. *Staminodes* as in *Mimusops*, i.e., not deeply incised, lobed or fimbriate, usually quite entire, concave, hairy outside. Ovary 6– or 8– loculated, usually subglobose; ovules with lateral or sometimes basi-lateral attachment; style terete, subacute or subtruncate at the apex. *Fruit* one-seeded, rarely 2-seeded. *Seed* with rather thin, crustaceous or tough almost pergamaceous testa and a large broad scar occupying nearly the whole ventral side of the seed; endosperm absent; cotyledons thick and fleshy.

The genus contains at least four species, three found in Southern Africa, and one in tropical East Africa.

Engler, l.c., based his section *Inhambanella* of Mimusops on a specimen without flowers, mainly on the characters of the seed. Dubard, l.c., noticed that the ovules of the species *Mimusops natalensis* Schinz non Engl. (= *Mimusops marginata* N.E. Br.) are laterally attached and concluded that these ovules would give rise to seeds with a long lateral scar, so that this species could not be a true *Mimusops*. Although Dubard did not study the type specimen of *Mimusops henriquesii* (the type of Engler's section *Inhambanella*), he referred *Mimusops natalensis* Schinz to *Inhambanella*, which he raised to generic rank. This was a conjecture, because the flowers of *M. henriquesii* were unknown and Dubard had not seen the seed of *M. natalensis* Schinz.

However, *Mimusops henriquesii* is, in my opinion, a species of *Lecomtedoxa* (see p. 344) and therefore, the name *Inhambanella* either as a subgenus or as a genus being typified by *Mimusops henriquesii* Engl. et Warb., becomes a synonym of the genus *Lecomtedoxa* (Engl.) Dub. Dubard was, to my mind, quite right in excluding *M. natalensis* Schinz from *Mimusops*, but the name *Inhambanella* Dub. cannot be used for it and the congeneric forms, included here in *Austromimusops*. The affinities of *Austromimusops* are most probably with *Baillonella* Pierre which it resembles in floral characters, which are also very similar to those of *Mimusops*, but from which it differs in the absence of endosperm (*Baillonella* has a thin layer of endosperm), and the thin crustaceous to pergamaceus testa (thick and bony in *Baillonella*), and with the more or less dubious genera *Dumoria* Chev. and *Tieghemella* Pierre (= ?*Dumoria*).

Although the floral characters are very similar to those of *Mimusops*, there are so many differences that the generic distinction is not very difficult. The vegetative characters alone are almost sufficient to typify *Austromimusops*, apart from the characters of the seed. The following table (see Table II) shows the differences between the genera *Mimusops* s.s., *Austromimusops*, *Baillonella* and *Manilkara*. *Dumoria* and *Tieghemella* are not included, because it is very likely that they are identical with *Baillonella*, at any rate the characters of fruit and seed are apparently the same as those of *Baillonella*.

Leaves usually more than 6 cm. long, petiole usually over 10 mm. long. Pedicels 2–5 cm. long..... 1. *A. marginata.*

Leaves (at least the majority) under 6 cm. long, petiole 3–8 mm.; rarely up to 10 mm. long. Pedicels 0·9–2 cm. long:

Young parts, pedicels and calyces buffy-brown pubescent. Leaves $\frac{3}{4}$–2 (–$2\frac{1}{2}$) cm. wide, soon quite glabrous. Petioles soon glabrous. Pedicels 9–16 mm. long. Calyx-lobes 5–6 mm. long. Natal..... 2. *A. dispar.*

Young parts, pedicels and calyces rusty-pubescent. Leaves $1\frac{1}{2}$–$3\frac{1}{2}$ (–$4\frac{1}{2}$) cm. wide, often showing vestiges of the rusty brown pubescence. Petiole often rusty-tomentose. Pedicels usually $1\frac{1}{2}$–2 cm. long. Calyx-lobes ± 7 mm. long. E. Southern Rhodesia..... 3. *A. sylvestris.*

**1. A. marginata** (N.E. Br.) *A. Meeuse*, comb. nov.

*Mimusops marginata* N.E. Br. in Kew Bull. 108 (1895); Engl., Mon. Sapot. Afr. 71 (1904); Wright in Dyer, Fl. Cap. 4, 1: 441 (1906); Sim, For. Fl. Cape Col. 254, pl. 97, Fig. 1 (1907); Gerstner in J. S. Afr. Bot. 12: 54, Figs. 8, 9 (1946); type: *Flanagan* 27, K, lecto., BOL, GRA, NBG, PRE. isos! *M. natalensis* Schinz in Bull.

TABLE II.

| | Mimusops. | Austromimusops. | Baillonella. | Manilkara. |
|---|---|---|---|---|
| 1. Leaves..... | Scattered on the branches, coriaceous, smooth and shiny above, exstipulate. | Terminal on the branches firm but usually not coriaceous, not smooth and rather dull above, exstipulate. | Terminal on the branches, subcoriaceous, very large, smooth and shiny above, stipulate. | Almost invariably ± terminal on the branches, coriaceous or not, smooth and shiny above or dull ± and rough, exstipulate. |
| 2. Nervation..... | Various but not distinctly parallel and rather lax without a very fine areolate tessellate nervation | Secondary nerves and tertiary nerves rather few, ultimate nervation very fine, tessellate, distinct. | Secondary nerves parallel, numerous; ultimate nervation areolate, distinct. | Secondary nerves usually numerous, parallel, fine reticulate nervation often present. |
| 3. Calyx..... | Biseriate: always 4 + 4, the lobes rather long (± lanceolate) | Biseriate: 3 + 3, 4 + 4 or 5 + 5, the same specimen showing 3- and 4-merous calyces, the lobes as in *Mimusops* | Biseriate, 4 + 4, the lobes as in *Mimusops* | Biseriate, usually 3 + 3, sometimes 4 + 4, or 3 + 3 and 4 + 4 on one specimen the lobes relatively broad and rather short. |
| 4. Corolla..... | 8 lobes + 8 × 2 lateral appendages; appendages entire or dissected. | 6 or 8 lobes with 12 or 16 appendages, respectively; 3-merous and 4-merous flowers on one specimen; appendages entire. | 8 lobes with 8 × 2 appendages; appendages entire | Usually 6 lobes + 6 × 2 appendages; more rarely 8 + 8 × 2, appendages, sometimes 6 + 6 × 2 and 8 + 8 × 2 in one specimen; appendages entire; rarely appendages O. |
| 5. Stamens..... | Stamens 8, Filaments shorter than the stamens, anthers (rather) long and narrow. | Stamens 6 or 8. Filaments and anthers as in *Mimusops* | Stamens 8. Anthers and filaments about as long, anthers rather wide and rather short. | Stamens 6, more rarely 8, sometimes 6 or 8 on one specimen. Filaments usually longer than anthers, the latter relatively short. |
| 6. Staminodes..... | 8, entire or serrate at the apex only, usually pubescent and incurved so as to cover the pistillum. | 6 or 8 (on one specimen), as in *Mimusops*, entire or slightly fimbriate at the apex, hairy outside and incurved, covering the pistillum. | 8, widened at about 1/3 from the base, hairy outside in the basal part, upper part spreading with the petals. | 6, 8 or 6 and 8 sometimes less short or long, but almost invariably glabrous and laciniate, dentate, fimbriate or ± dissected, erect with the stamens or patent with the petals. |
| 7. Carpels and ovules | Ovary 8- (rarely 16-) loculated; ovules basally affixed. | Ovaries can be 6-and 8-loculated in one specimen; ovules laterally affixed. | Ovary 8-loculated; ovules laterally attached. | Ovary 15-6-loculated (usually 6- loculated; in 4-merous flowers 8-loculated), ovule usually ventrally affixed, more rarely almost basal. |
| 8. Fruit and seed (cicatrix and testa) | Fruit 1- to several-seeded; scar almost invariably small, circular and almost basal; testa hard, bony, shiny. | Fruit 1- seeded rarely 2-seeded; scar very large, ventral, occupying ± the whole length of the seed; testa leathery or crustaceous, not hard, dull | Fruit 1-seeded, large; scar very large, occupying the ventral half of the seed; testa thick, hard and bony, shiny. | Fruit 1- to several-seeded scar basiventral, relatively long and narrow, more rarely broader and ovate or ± circular and almost basal, testa usually hard, bony and shiny, sometimes crustaceous. |
| 9. Embryo and endosperm | Endosperm copious; cotyledons thin, foliaceous. | Endosperm O; cotyledons thick and fleshy. | Endosperm thin; cotyledons thick and fleshy. | Endosperm copious; cotyledons thin, foliaceous. |

Herb. Boiss. 4: 441 (1896); type: *Schlechter* 6220 in Z. "*M. transvaalensis* Schinz" (sphalm.), Radlk. in Zahlbr., Pl. Penther. I, in Ann. K.k. Naturh. Mus. Wien 15: 63 (1900). *M. schinzii* Engl. op. cit., 70, t. 29, Fig. A; Wright, op. cit., 443, Gerstner, l.c., 54 (same type as *M. natalensis Schinz*).

*Inhambanella natalensis* (Schinz) Dubard in Ann. Mus. Col. Marseille 23: 42 (1915).

A tree found in rather moist forests. *Stem* straight, 6–20 m. high and 30–60 cm. in diam. *Branches* terete, grey, more or less rough; ultimate branches short and rather stout, usually over 3 mm. thick, often much thicker, glabrous. *Innovations* densely rusty tomentose-villous, but all vegetative parts soon quite glabrous. *Leaves* obovate or elliptic-obovate, sometimes elliptic-oblong or elliptic-(ob)lanceolate, thinly coriaceous with a dull shine (but not smooth) and drying a greyish green (rarely brown) above, paler and duller below, 3–15 (usually 6–13) cm. by 2–9 cm., as a rule more or less acuminate with obtuse apex, a narrowed or somewhat rounded base and subreflexed margin; midrib distinct but not conspicuously keeled or channelled above, prominent below; lateral nerves slender but prominent beneath; ultimate nervation very fine, reticulate, usually conspicuous on at least one surface. *Petioles* (5–) 10–20 mm. long, rather stout, semi-terete, strongly and widely canaliculate. *Flowers* 1–3 in axils of leaves and of scales inside them, more or less pendulous on 2–5 cm. long pedicels, 3-merous or 4-merous. *Calyx* biseriate, outer lobes rusty-pubescent, inner ones pale-pubescent, all acuminate, acute, 7·5–12 mm. long. *Corolla* dull white; tube 1–2 mm. long, pubescent outside, lobes and appendages subequal, 6–9·5 mm. long. *Staminodes* 6–8, densely villous outside, 4·5–5·5 mm. long. *Stamens* 6–8 mm. long. *Ovary* 6– of 8– celled; style 9–11 mm. long. *Fruit* rather large, ovoid or ellipsoid, apiculate or attenuate-apiculate, pointed, ultimately glabrous, purplish red, up to 5 cm. long and 3½ cm. diameter, on the slightly incrassate, but not lengthened pedicel; fruiting calyx spreading-reflexed. *Seed* broadly ellipsoid, 20–25 mm. long, about 20 mm. wide and about 18 mm. thick; testa crustaceous, dull, pale buff when dry; scar somewhat shorter than the seed, occyping about half its surface area, elliptic or oblong in outline, emarginate at the apex and about 20 mm. broad in the widest place.

N. E. Brown did not designate a type specimen but Mr. de Winter informed me that the only specimen at Kew with fruits is *Flanagan* 27, so that most probably the fruits were described from this specimen. Accordingly, I propose *Flanagan* 27 (in K) as the lecto-type. Type locality: Komgha, E. Cape.

*Distribution.*—From East London northwards into Natal, Zululand and Portuguese East Africa, just crossing the Transvaal border.

Cape Province.—East London: *Sim* 2182, 2183, 2190 (= ?2194 collect. No.) (NU), 2194 (BOL), 2602, s.n. (PRE); *Acocks* 10979, 12298 (PRE), *Courtney Latimer* s.n. (PRE), *Rattray* 1371 (BOL). Komgha: Gwenkala, *Flanagan* 27 (PRE, GRA, BOL, SAM, isotypes); *Schlechter* 6220 (GRA, isotype of *Mimusops natalensis* Schinz = *M. schinzii* Engl.). Kentani: *Pegler* 692 (PRE, BOL, NBG).

Natal.—Port Shepstone: near Mehlomnyama, *Marais* 7871 (PRE). Umzinto: Dumisa, *Rudatis* 450 (L). Pinetown: Dellville, *Smuts* s.n. (NH No. 17830); Warner Beach, *Ward* 977 (NU, PRE); Amanzimtoti, *Williams* 65 (NU); Marianhill, *Forbes* 1041 (NH); Umlaas, *Wood* 5440 (NH); *Kotze* 436 (PRE) = FD Herb. No. 6858 (SAFD). Durban: Inanda, *Wood* 1661 (NH). Camperdown: Hammarsdale, *Forbes* 310 (NH). Empangeni: Utimona, *Gerstner* 2748 (BOL, NH, PRE). Nongoma: Wendelane Kloof, *Gerstner* 4657 (NH, PRE, BOL, NBG). Hlabisa: *Gerstner* 3817 (NH); Hluhluwe Game Reserve, *Ward* 1599. Ngotshe: Ngome Bush, *Gerstner* 2591 (NH, BOL). Ingwavuma: Cecil Mack's Pass, about 8 m. N. of Ingwavuma, *Acocks* 13129 (PRE); *Codd* 2074 (PRE). Without precise locality: "Zululand", *Gerstner* 2820 (BOL).

TRANSVAAL.—Nelspruit: Kruger National Park, Crocodile River Poort, *van der Schijff* 3960 (PRE).

**2. A. dispar** (*N.E. Br.*) *A. Meeuse*, comb. nov.

*Mimusops dispar* N.E. Br. in Kew Bull. 1895: 107; Engl., Mon. Sapot. Afr. 71 (1904); Wright in Dyer, Fl. Cap. 4, 1: 443 (1906); type: *Thresh* in herb. Wood No. 5425 from Natal, K, lecto., GRA, NH, isos.!

A large shrub or small tree, up to about 10 m. high. *Branches* light grey, terete, usually rather rough and the younger ones marked in stretches with the scars of fallen leaves of a previous generation, but these stretches are not so sharply defined as in *A. sylvestris* (see No. 3); ultimate branches short to very short (unbranched twigs usually less than 10 cm. and often less than 5 cm. long). *Innovations* fulvo-sericeous, but leaves, petioles and twigs soon glabrescent. *Leaves* oblanceolate-cuneate, or oblanceolate-obovate to obovate-oblong, firm but not coriaceous, rather dull and drying green or yellowish-green above, paler and duller beneath, 2–6 (–7) cm. long and 0·75–2 (–2·5) cm. wide, on a 3–8 (–10) mm. long, subterete, widely canaliculate petiole; blade with a very slightly reflexed margin, obtuse, subacute or shortly and bluntly acuminate, but not usually rounded at the top, gradually narrowing into the acute or acuminate-decurrent base; midrib hardly prominent above, rather prominent below; secondary nerves 6–9 on either side, not very distinct from the tertiary ones, ascending at an angle of 45°–60°, rather straight, bifurcate or branched well within the margin and more or less irregularly archingly joining; tertiary nerves mainly parallel to the secondary ones, but branching and anastomosing to form a rather coarse reticulum which is filled up by a very fine areolate nervation, the latter conspicuous on both sides of the leaf. *Flowers* few to many (over 20) on one twig, bracts minute; pedicels rather slender, more or less angular, especially in the slightly thickened part under the calyx, 9–16 mm. long, buffy-brown tomentose. *Sepals* 3 + 3 or 4 + 4; the outer ones ovate-triangular, acute, or subacute, buffy-brown-tomentose outside, with a whitish margin, greyish-tomentose inside near the tip, 5–6 mm. long and about 3 mm. wide; the inner ones about as long and as wide as the outer ones, thinner in texture, ovate-oblong, more obtuse, greyish-pubescent outside with a slightly darker longitudinal streak in the middle and inside at least in the upper half. *Corolla* yellowish, glabrous; the tube very short, about 0·5 mm. long; the lobes and lateral appendages subequal, linear-lanceolate, acute, or subobtuse, 5–6 mm. long and 1–1·5 mm. wide. *Stamens* 6 or 8; filaments 1·5–2 mm. long, subulate from a broad flattened base, the apical part capillary; anthers ovate-lanceolate, acute, 2–3 mm. long, minutely apiculate. *Staminodes* ovate-lanceolate, long-acuminate, concave, hairy at the back, about 3 mm. long. *Ovary* subglobose, densely villous, about 2 mm. in diameter; style glabrous, rather short and comparatively thick, terete, subulate-columnar, 2–3 mm. long, the apex subacute.

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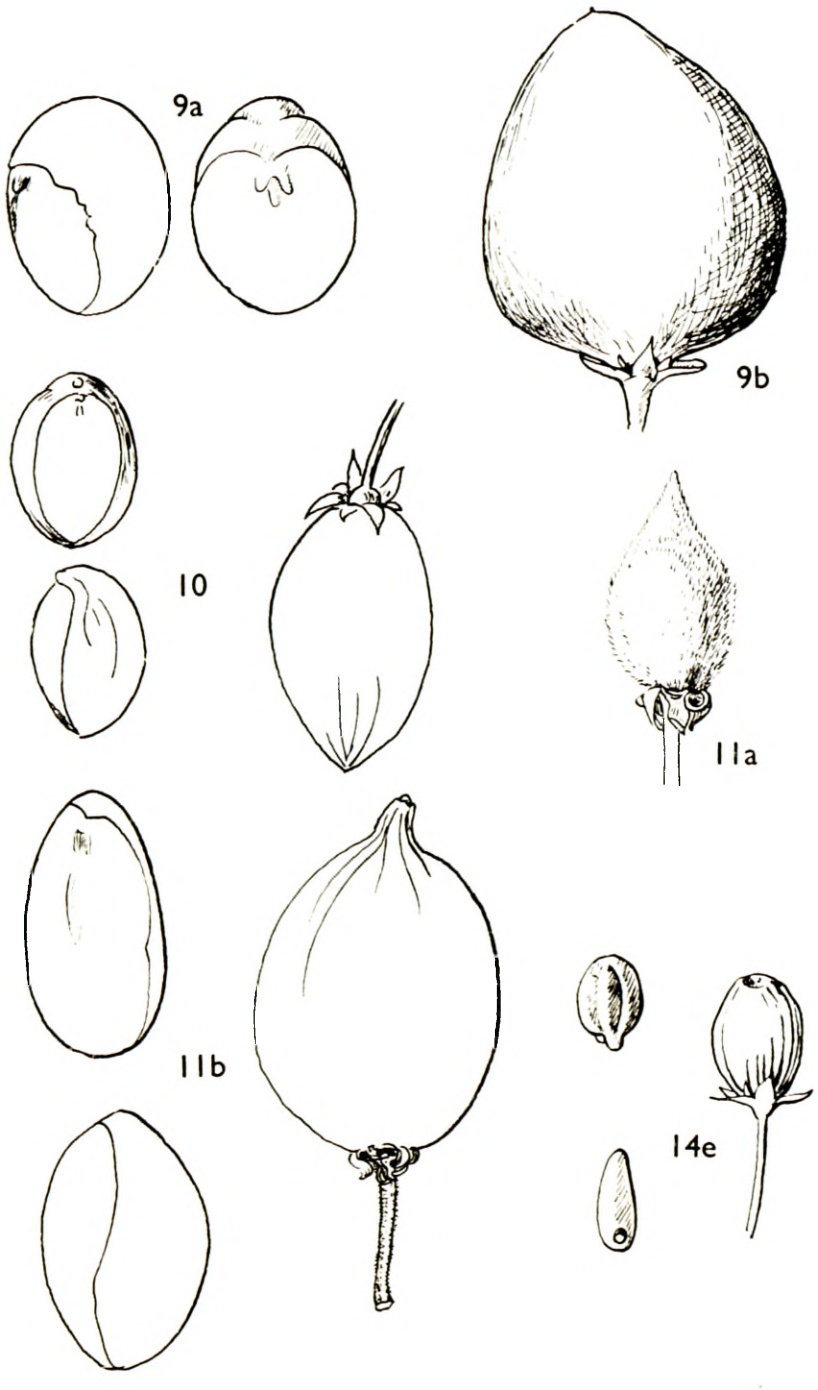
FIG. 9.—*Austromimusops marginata*, seed and fruit (from *Pegler* 692, Kentani, E. Cape, in BOL).

FIG. 10.—*Austromimusops dispar*, seed and fruit (from *Pentz et al.* "1 A", Weenen Veld Reserve, Natal).

FIG. 11.—*Austromimusops sylvestris:* (*a*) immature fruit (to show the dense pubescence; from *Chase* 4328, Umtali, S. Rh.) (*b*) mature seed and fruit (from seeds sent by Mr. N. C. Chase, coll. in Waranki Reserve, Umtali, S.R.)
*N.B.*—The seed figured was from a large 2-seeded fruit; as a rule the seeds are shorter and comparatively thicker.


9a
9b
10
11a
11b
14e

*Fruit* green or yellowish-green, ellipsoid or ovoid, apiculate, more or less densely covered with a short brown pubescence, 2–3 cm. long, 1·5–2 (–2·5) cm. in diam.; pericarp thin, almost leathery when fresh, 1- or rarely 2-seeded. *Seed* pale brown, 2–2·5 cm. long and 1·5–2 cm. in diam. with pale whitish scar.

NATAL.—" Thorns " nr. Greytown, *Thresh* in herb. Wood 5425 = NH No. 7175 (NH, GRA, isos!). Estcourt: Mooi Rivier, " Thorns ", *Wood* 4472 (NH); *Sim* 2187, 2188 (NU). " Upper Tugela River:" *Gerrard* (and *McKen*) 1482 (NH). Weenen: Weenen Veld Reserve, *Acocks* 10148 (PRE, NH), *Pentz & Acocks* = *Acocks* 10721 (PRE, NH), *Pentz* 116, 596; " 1 " (Coll. in 1952), " 2 " (coll. in 1952), " 1A " and " 1B " (coll. in 1953 from same trees as " 1 " and " 2 " respectively); all in PRE, the last three fruiting specimens); *West* 1189, 1190 (PRE); Muden, *Sim* 19078, 19138 (PRE), *Verdoorn* 1727 (PRE). Msinga: Confluence of Mooi and Tugela Rivers, Ngobevu, *Edwards* 881 (NU, PRE). Umvoti: Keats Drift, *Edwards* 916 (NU, PRE).

**3. A. sylvestris** (*S. Moore*) *A. Meeuse*, comb. nov.

*Mimusops sylvestris* S. Moore in J. Linn. Soc. (Bot.) 40: 132 (1911); type: *Swynnerton* 570 from Southern Rhodesia in BM, holo.

A shrub or small tree, up to about 7 m. high, with smooth bole. *Branches* terete, greyish, with longitudinal shallow grooves and with slightly thicker stretches marked with rough transverse leaf-scars, especially towards the tips of the twigs below the leaves; ultimate branches rather short (5–15 cm. long) and rather stout (more than 2 mm. thick, sometimes much thicker and up to 6 mm. in diam.), usually with a thicker scarred area just below the leaves. *Buds*, *young leaves* and *young twigs*, *pedicels* and *bracts* densely rusty-tomentose. *Leaves* obovate or obovate-oblong, sometimes oblong or oblong-cuneate, 2·5–6 (–7·5) cm. long and 1·5–3·5 (–4·5) cm. wide, on a rather stout, terete, rather widely canaliculate, rusty-pubescent but ultimately glabrescent, 2–6 mm. long petiole; blade with revolute margin, an obtuse, rounded, emarginate, or more or less retuse, rarely very shortly and bluntly acuminate apex and a narrowed, usually acute but sometimes rounded base, rather firm but not coriaceous in texture, ultimately glabrous and green but not smooth or shiny above, glabrescent but not soon quite glabrous, paler and duller below, midrib usually keeled, sometimes immersed above, rather prominent beneath and keeping vestiges of the original rusty pubescence for a long time; secondary nerves (5–) 7–10 (–12) on either side, as a rule very distinct below, immersed above, rather straight, making an angle of about 60° with the midrib, usually bifurcate well within the margin and more or irregularly joining, but mostly with one distinct ascending branch; tertiary nerves mainly parallel to the secondary ones, but usually sinuous, branched or more or less reticulate; ultimate reticulate nervation very fine, areolate, in dried leaves usually conspicuous on both sides. *Flowers* 1–3 together; bracts densely rusty-tomentose, ovate, 2 mm. long, deciduous; pedicels usually 1·5–2 cm. long, rather stout, terete, but gradually widening near the apex into the calyx, usually pendulous; in fruit not lengthened but slightly incrassate. *Sepals* 4 + 4 or 5 + 5; the outer ones ovate-lanceolate to oblong-lanceolate, about 7 mm. long and 3–3·5 mm. wide, acuminate or narrowed towards the subobtuse apex, densely rusty-tomentose with a distinct greyish-tomentose margin outside, greyish-tomentose inside at least in the upper half; the inner ones somewhat shorter and narrower, greyish pubescent outside with a darker longitudinal streak and inside at least in the upper half. *Corolla* glabrous; the tube about 1 mm. long; the lobes about 7 mm. long, oblong-lanceolate; the appendages slightly shorter. *Filaments* more or less flattened, rather slender, 1·5 mm. long; anthers oblong, obtuse, apiculate, 3 mm. long. *Staminodes* long-triangular-lanceolate, concave, with acuminate, dissected, 2–3 fid or somewhat fimbriate apex, villous with long sinuous hairs outside, the upper half strongly inflexed. *Ovary* sub-globose, about 2 mm. in diam, densely villous; style glabrous, 6–7 mm. long, terete, tapering towards the apex, somewhat truncate-capitate at the tip. *Fruit*

ovoid-ellipsoid, attenuate-apiculate, 3–4·5 cm. long and 2–3 cm. in diam., when young densely rusty-tomentose, glabrescent and dull brown when mature, 1-seeded or 2-seeded; pericarp not juicy, rather dry and leathery. *Seed* broadly ellipsoid to subglobose (those of 2-seeded fruits ellipsoid, more slender), 20–32 mm. long, ± 20 mm. in diam.; testa dull, very pale straw-coloured; the scar duller and somewhat lighter in colour (see Fig. 13).

S. RHODESIA.—Umtali: Dora Farm, *Chase* 964, 965, 966, 774 (SRGH, *Chase* 965 also in PRE); Glenshiel Farm, *Chase* 1670 (SRGH); Zimunya Reserve, *Chase* 4238 (SRGH, PRE); Maranki Reserve: *Chase* s.n. (ripe fruits, PRE). Bikita: *Wild* 4393 (PRE, SRGH).

Mr. B. de Winter compared the type, *Swynnerton* 570, with *Chase* 966 (Kew) and informed me that there are some minor differences such as shorter and more hairy petioles, smaller flowers, wrinkled leaves. However, the material I have seen is rather variable and the differences mentioned by Mr. de Winter are well within the range of variation, so that I have no doubt about the specific identity.

Apart from the three species dealt with, there is at least one species in tropical Africa. This species, described as *Mimusops cuneata* Engl., has several characteristics of an *Austromimusops* : leaves congested at the ends of the branchlets, with their largest width above the middle, axillary flowers on pendulous pedicels and laterally attached ovules. Judging by Engler's figure and a specimen named *Mimusops cuneata* (*Drummond & Hemsley* 4203 from Kenya, Kwale Distr., EA, K, PRE) this is very close to *Austromimusops dispar* (but it is much more glabrous than the latter) and to *A. marginata*, and although the fruits are apparently still unknown, I do not hesitate to refer it to the same genus:

**Austromimusops cuneata** (*Engl.*) *A. Meeuse*, comb. nov.

*Mimusops cuneata* Engl., Pflanzenw. O. Afr., C, 307 (1895), and Mon. Sapot. Afr. 70, t. 23, C (1904); Brenan and Greenway, Checklist Tang. Terr. 2: 565 (1949). Recorded from Tanganyika (West-Usambara) by Engler; also in Kenya.

## 7. MIMUSOPS

*L.*, Gen. Pl. ed. 5: 175 (1754), p.p.; Harvey, Gen. S. Afr. Pl. 224 (1838), A. DC. in DC., Prodr. 8: 202 (1844), p.p.; Bentham et Hook., Gen. Pl. 2: 661 (1876), p.p.; Baker in Oliv., Fl. Trop. Afr. 3: 505 (1877), p.p.; Hartog in J. Bot. 17: 358 (1879), p.p.; Engler in Engl. & Prantl., Naturl. Pflanzenfam., ed. 1, 2, 4: 150 (1899), and in Nachträge (1897) 278, pro parte; Engl., Mon Sapot. Afr. 50 (1904), p.p.; Pilger in Engl. & Prantl, Nachträge 1897–1904, 288 (1906) p.p.; Wright in Dyer, Fl. Cap. 4, 1: 439 (1906), p.p.; Dubard in Ann. Mus. Col. Marseille 23: 46 (1915), Baehni in Candollea 7: 465 (1938); Lam in Blumea 4: 345–347 (1941); Phillips, Gen. S. Afr. Fl. Pl. ed. 2, 568 (1951), p.p.; Royen in Blumea 6: 594 (1952).

Type species: *Mimusops elengi* L., Sp. Pl. ed. 1: 349 (1953). Linnaeus mentioned two species, *M. elengi* and *M. kauki*. *Mimusops kauki* L. is now generally assumed to be the type species of *Manilkara* Adans. [see discussion by Van Royen in Blumea 7: 406 (1953)], which makes *M. elengi* L. undoubtedly the type species of *Mimusops* L. apart from priority of place.

Trees or shrubs. *Leaves* extipulate, not conspicuously crowded towards the tips of the branches and without sclereids and with a rather lax, not conspicuously parallel or " striate " secondary nervation. *Flowers* axillary, pedicellate, constantly 4-merous., *Calyx* biseriate (4 + 4); the sepals free nearly to the base, often long and narrow.

*Corolla* 8-lobed, each lobe with 2 dorsal appendages; the latter entire or divided (in S. Africa always entire). *Stamens* 8, inserted in the throat of the corolla tube; the anthers usually (in S. Africa always) shorter than the long, more or less lanceolats and apiculate anthers. *Alternipetalous staminodes* 8, entire, or somewhat dentate, lacerate or fimbriate at the apex only, often pubescent at least at the back or along the edges (in S. Africa never glabrous), incurved, and more or less covering the style. *Ovary* 8-loculated; ovules with basal attachment; style rather long and slender, cylindric-subulate to filiform. *Fruit* a 1- to few-seeded berry. *Seeds* with a small, circular and almost basal scar; testa shiny hard and thick; endosperm copious, cotyledons thin, foliaceous.

The genus *Mimusops* as understood by Bentham and Hooker, Hartog, Engler and several others is most heterogeneous and comprises forms with 3-merous and others with 4-merous flowers, species with long and narrow ventral seed-scar and others with circular basal scar, plants with staminodes and others without staminodes, forms with endosperm and others without endosperm, etc. Dubard (1915) excluded many species and referred them to several other genera, the majority to *Manilkara* Adans. The latter genus is now almost universally adopted, cf. Van Royen in Blumea 7: 401 (1953), but is should be borne in mind that the large genus *Mimusops sensu* Hartog and Engler does not become more homogeneous if only *Manilkara* is taken out. If, however, *Muriea*, *Austromimusops*, *Baillonella*, *Lecomtedoxa* and perhaps several other smaller genera are also exluded, the remainder of *Mimusops* is a reasonably well defined homogeneous genus. In its limited sense, *Mimusops* L. sensu Dubard, Lam and Van Royen comprises between 30 and 40 species, all occuring in Africa, Madagascar, and the Mascarenes, with the exception of *M. elengi* L., a coastal form which occurs in tropical Asia and the W. Pacific. Three species in Southern Africa:

Leaves obovate, obovate-cuneate or almost obcordate, always distinctly narrowing towards the base, usually emarginate or retuse, with strongly revolute edges and at least when young, with white sometimes fulvous adpressed, more or less silky pubescence below (very old leaves glabrous). Coastal tree..... 1. *M. caffra*.

Leaves different, glabrous when old or with " powdery " vestiges of a rusty brown pubescence:

Petioles under 1 cm. long; leaves usually rather small (mostly under 6 cm. long) and usually drying dark brown; branches and leaves very soon glabrous; flowers about 2 cm. in diameter when fully expanded, very rarely smaller, usually solitary in the axles, sometimes 2 together, usually not numerous on a single branchlet..... 2. *M. obovata*.

Petioles over 1 cm. long; leaves often over 6 cm. long, innovations and young leaves, as well as tips of young branches densely rusty-pubescent, the tips of the branches often remaining pubescent for a considerable time, flowers up to 1·5 cm. in diam, when fully expanded, often in clusters of more than 2 flowers, often numerous on a single branchlet..... 3. *M. zeyheri*.

1. **M. caffra** *E. Mey.* ex *A. DC.*, Prodr. 8: 203 (March 1844); Wood, Natal Pl. 1: 36, t. 43 (1898); Engl., Mon. Sapot. Afr. 72, t. 27, Fig. B (1904); Wright in Dyer, Fl. Cap. 4, 1: 441 (1906), Sim, For. Fl. Cape Col. 255, fol. 97 (1907); and For. Fl. Port. E. Afr. 80, pl. 75 (1909); Gerstner in J. S. Afr. Bot. 12: 52, Fig. 7 (1946). *M. caffra* E. Mey. ex Drege, Zwei Pflanzeng. Doc. 155 (1843), nomen tantum; type: *Drege* s.n. from Pondoland in G ex herb. DC, holo, L, iso! *M. revoluta* Hochst. apud Krauss in Flora 27: 825 (Dec. 1844); type: *Krauss* 76 from Durban in ?, holo, K iso .

A small tree or large shrub, forming a large propertion of the vegetation on the sand dunes, growing down to the high-water mark and fully exposed to sea winds and spray; exposed specimens usually dwarfed and gnarled, but in sheltered places growing up to about 10 m. high and over 50 cm. stem diameter. *Branches* terete, usually rather stout (about 3 mm. thick), densely leafy towards the tips. *Innovations* densely rusty-tomentose. *Leaves* obovate, obovate-oblong or obovate-cuneate to almost obcordate,

3–6 (–7) cm. long and 1·5–3 (–4) cm. wide; blade firmly coriaceous usually with strongly reflexed margin, glaucous and glabrous above, paler and adpressed silky-pubescent beneath (almost invariably white or silvery), with usually rounded emarginate to retuse apex, tapering into the 5–10 (–15) mm. long petiole; midrib usually a little prominent above in the lower half of the leaf, or flush, rarely somewhat immersed, prominent beneath at least in the lower half; secondary nerves almost straight, slightly prominent on both sides, forming an angle of 30°–50° with the midrib, joining a conspicuous, sinuous intramarginal vein; tertiary nerves and finer nervation hardly more slender than the secondary nerves, and mainly parallel to the latter. *Petioles* terete, slightly thickened towards the base, narrowly but rather deeply channelled above, ultimately glabrous, 5–10 (–15) mm. long. *Flowers* usually numerous on one branchlet, often 2–4 together in the leaf axils. *Pedicels* usually recurved, 2–3 cm. long, mostly distinctly 4-angled, shortly rusty-tomentose (this pubescence tending to become grey later), more or less gradually widening into the calyx. *Flower-buds* about 12 mm. long just before opening. *Sepals* lanceolate, acuminate, about 1 cm. long; the outer ones rusty-tomentose outside, about 3 mm. wide, the inner ones with pale tomentum, about 2 mm. wide. *Corolla* about as long as the calyx, glabrous; the tube short, the lobes about 10 mm. long, each with two about 7 mm. long appendages, all segments lanceolate, usually in two rows consisting of an outer row of 16 appendages and an inner row of 8 corolla lobes. *Filaments* about 2·5 mm. long; anthers about 6 mm. with acute apiculum. *Staminodes* triangular-ovate, slightly longer than the filaments, densely pilose outside with long hairs. *Ovary* ovoid, densely pilose, about 2 mm. long; style long-cylindrical, tapering into an acute point, about 11 mm. long. *Fruit* ovoid, 1·5–2 cm. long, 1–1·5 cm. diam., more or less rounded at the top but often contracted into and crowned by the persistent style, red when ripe, edible, usually (always?) 1-seeded; fruiting pedicels hardly lengthened, slightly incrassate, up to 3 cm. long and about 2 mm. thick; calyx-lobes persistent under fruit, adpressed to the fruit, greyish pubescent. *Seed* oval, subcompressed, indistinctly keeled at the ventral side, not produced at the base, 13–17 mm. long, 8–9 mm. wide and 5–7 mm. thick in the middle; testa shining brown.

*Selected Citations.*

CAPE PROVINCE.—Bathurst: Kowie and Port Alfred, *Burchell* 3805; *Britten* 2107, *Marloth* 18097; *Burt-Davy* 7856; *Tyson* s.n.; *Story* 2163. East London: *Galpin* 1835, 9285; *Smith* 3817. Komgha: Kei Mouth, *West* 2024. Kentani: *Pegler* 1298. Elliotdale: *O. B. Miller* FD herb. No. 5591 (SAFD). Port St. Johns: *Schönland* 4038, *Mogg* 770 (= photo of tree, PRE); *Howlet* 44.

CAPE PROVINCE or NATAL.—Bizana or Port Shepstone: "between Umtentu and Umsamkulu", *Drege* (L, isotype ).

NATAL.—Port Shepstone: Margate, *Bayer* 1305 (NU); Port Shepstone, *Mogg* 13197. Umzinto: "South Coast, nr. Botha House", *Smuts* 2325; Sezela, *Smuts* s.n. Pine Town: Winkle Spruit, *Rudatis* 1608; Amanzimtoti, *Kotzé* 453. Durban: near Durban, *Forbes & Obermeyer* 72. Lower Tugela: Stanger, *Pentz* 386. Mtunzini: Inyoni bush, *Gerstner* 1936. Hlabisa: St. Lucia Bay, *Lansdell* 31 (NH). Ubombo: near Sordwana Bay, *Gerstner* 733; *Ward* 3013.

PORTUGUESE E. AFRICA.—Sul do Save: Lourenço Marques, *Schlechter* 11986; *Rogers* 21374; *Junod* 134; *Borle* 30; *Pedro* 59; *Gomes e Sousa* 3770; Maputo, *Hornby* 2619; Inhaka Island, *Mogg* s.n.; Chongoene, *Pedro & Pedrogão* 1645. Manica e Sofala: Inhambane, *Earthy* 172 (PRE); *Gomes e Sousa* 1701, 1739, 1908 (COI).

As regards the synonymy, *Mimusops caffra* was the only name used for this species in all recent publications, but Krauss in 1844 validly published *Mimusops revoluta* Hochst., based on *Krauss* 76 from Durban. Strangely enough, this name was not

mentioned by Engler (op. cit.) as a synonymn of *M. caffra* and is not cited in Fl. Cap., although the number *Krauss* 76 is quoted in the latter publication. Mr. de Winter kindly supplied the information that an isotype is present in the Kew herbarium and that it is identical with *M. caffra*. Fortunately, the publication of *M. caffra* E. Mey ex A. DC. antedates that of *M. revoluta* Hochst. apud Krauss by several months (mid March 1844 against December 1844) so that the well-known and generally used name *M. caffra* need not be changed.

*M. caffra* is found on coastal sand dunes from Port Alfred (Bathurst) eastwards and northwards to Portuguese E. Africa, also here and there along large rivers more inland on sandy soil.

2. **Mimusops obovata** *Sond.* in Linnaea 23: 17 (1850); Harvey, Thes. Cap. 1: 28, t. 44 (1859); Engler, Mon. Sapot. Afr. 72, t. 27, Fig. D (1904); Sim, For. Fl. Cape Col. 254, pl. 96 (1907); Wright in Dyer, Fl. Cap. 4, 1: 442 (1906); Marloth, Fl. S. Afr. 3: 36, t. 10 (1932); Gerstner in J. S. Afr. Bot. 12: 54, Fig. 10 (1946); type: *Ecklon & Zeyher* "Sideroxylon No. 16" from Alexandria, lecto! in S, isos! in GRA, PRE.

*Imbricaria obovata* N. ab. E. ms. ex Sonder, l.c. in syn., Engler, op. cit., 72, in syn.

*Mimusops oleifolia* N.E. Br. in Kew Bull. 1895: 109 Engler, op. cit., 73, t. 34, Fig. B; Wright, op. cit., 442; type: *Gerrard* 1642 in K, holo., NH, iso! from "Tugela", Natal.

*M. woodii* Engl., op. cit., p. 65, t. 26, Fig. A; Wright, op. p. 440; type: *Wood* 683 in B, holo†, BOL, NBG, isos! from Inanda, near Durban.

*M. rudatisii* Engl. et Krause in Engl. Bot. Jb. 49 (1913), p. 395; type: *Rudatis* 1136 in B, holo†, L, PRE, isos! from Dumisa, Natal.

A medium-sized tree, up to 20 m. high and 60 cm. stem diam., according to Sim (in MS.) occuring mainly in rather open mountain forests, but also in coastal areas. *Branchlets* terete, glabrous, rather slender, usually longitudinally wrinkled and light grey, as a rule uniformly leafy. *Innovations* rusty-tomentose, very soon glabrescent, older parts ultimately quite glabrous. *Leaves* variable in size and shape, but usually obovate, obovate-oblong or obovate-cuneate, sometimes more oval or elliptic or obovate-oblanceolate, 2–6 (–7) cm. long and 1–3 (–4) cm. wide, rarely narrowly lanceolate, 2·5–6 cm. long and 4–9 mm. wide, more or less thinly coriaceous, usually drying very dark brown and shiny above, pale brown and dull beneath, sometimes drying grey above; the apex obtuse or rarely subacute, sometimes rounded, but mainly in the obovate-cuneate type of leaf) not infrequently with a short, blunt acumen, tapering at the base, which is always acute or subacute, and with minutely reflexed margins; midrib almost flush above, slightly prominent beneath; secondary nerves ascending at an angle of ± 45°, rather straight, but very few reaching the leaf margin without brancing, joining other veins or slightly deflexing in the points where the tertiary nervations join them, archingly joining near the margin; tertiary veins forming a rather fine distinct reticular nervation which is usually very conspicuous in dried leaves and slightly prominent, at least on the lower surface. *Petioles* comparatively slender, terete, channelled above near the leaf-base, 3–9 mm. long. *Flowers* white, fragrant, solitary or in twos in the leaf axils on 1–3 (usually 1·5–2) cm. long, brownish-tomentose, slender and suberect or patent, usually not distinctly drooping pedicels; flower buds usually ± 1 cm. long just before opening. *Outer sepals* (6–) 8–12 mm. long and 3–3·5 mm. wide, shortly rusty-tomentose with a very narrow whitish or pale-grey edge, narrowly ovate-lanceolate, acuminate; inner sepals slightly shorter and narrower, with a pale grey or whitish tomentum and minutely ciliate, soon reflexed. *Corolla-tube* short, 1 mm. long; the 8 lobes linear-lanceolate or

narrowly oblong, ± 1 cm. long, rarely smaller (6–8) mm., the lateral appendages about as long, usually more acute than the lobes. *Filaments* thick, 1–2·5 mm. long, much shorter than the sagitate-oblong, or linear oblong, apiculate, 3–6 mm. long anthers. *Staminodes* long-triangular or lanceolate-subulate from a broad base, villous outside, shorter than the stamens but longer than the filaments. *Ovary* ovoid or oblong-ovoid, ± 2 mm. high, densely pilose; style glabrous, terete, slender, longer than the corolla and up to ± 12 mm. long, slightly tapering towards the apex which is truncate and often subcapitellate. *Fruiting pedicels* somewhat incrassate; calyx under fruit persistent, reflexed or ultimately deciduous. *Fruit* ovoid or ovoid-acuminate, 2–3·5 cm. long, 1–2 cm. in diam., often 1-seeded, ultimately glabrous, smooth, orange-red or yellow when ripe. *Seed*, when single, 2–2·5 cm. long, 8–10 wide and 6–8 mm. thick in the centre, oblong, with rounded apex and obliquely truncate-notched base, often distinctly keeled on the side above the small, circular, ± 2 mm. wide scar, but if more seeds are present in one fruit, often smaller and ± irregularly shaped, flattened and less distinctly truncate-notched or keeled; testa brown, shiny.

*General Distribution.*—From the Eastern Cape eastward and northwards into Natal, Swaziland, Zululand, Eastern Transvaal and Portuguese East Africa (possibly extending into tropical East Africa, because several species described from that area appear very similar from the descriptions, but no actual specimens seen) in evergreen forests in frost-free areas, mainly at low to fairly low altitudes.

Cape Province.—Alexandria: Olifantshoek, *Ecklon & Zeyher* (S, lecto., PRE, GRA isos); *Zeyher* (PRE), *Ecklon & Zeyher* or *Zeyher* (SAM). Bathurst: *Acocks* 11139 (PRE); Kariega Mouth, *Acocks* 18348 (PRE); Port Alfred, *Britten* 1681 (GRA, PRE). Albany: near Grahamstown, *MacOwan* 258 (GRA, HN, BOL, SAM); *Galpin* 179 (GRA, PRE); Beggar's Bush Forest Reserve, *Archibald* 5966 (PRE); Blaauwkrantz, *Britten* 897 (GRA, PRE); Paradise Kloof, *Story* 3128 (PRE). Stutterheim: *Sim* 2273 (or 21922?; NU); *Acocks* 8939; *Story* 1242. King William's Town: Pirie, *Sim* 1333 (NU); *Ross* s.n. (SAFD No. 1903). East London: *Galpin* 3164 (GRA, PRE), 9518, 10432 (PRE); *Smith* 3783, 3818 (PRE); *Sim* 2189 pp. (NU). Komgha: *Flanagan* 249 (PRE, BOL, SAM). Kentani: *Pegler* 765 (PRE, BOL, GRA, NBG); Qolora, *Edward* in h. Moss 17544 (J). Engcobo: Manina, *Zahn* 22, v.d. Merwe FD No. 2200 (SAFD). Ngqeleni: Qokama, *Acocks* 13426 (PRE). Port St. Johns: near Port St. Johns, *Moss* 4686 (J); *Boshoff* FD No. 5032 (SAFD). "Pondoland": Egossa and Port St. Johns, *Sim* 2418 (NU, PRE). Lusikisiki: *Acocks* 13426 (PRE), Miller FD No. 5771 (SAFD). Flagstaff: *R. C. Coloured School* s.n. (GRA).

Natal.—Port Shepstone: "South Coast Natal", *Pole Evans* 761 (PRE); Southbroom, *Codd* 9705 (PRE). Umzinto: Dumisa, *Rudatis* 1136 (L, PRE, isos of *M. rudatisii* Engl. et Krause). Umlazi: Park Rhynie, "*Indian collector*" s.n. (NH No. 14819); Winkle Spruit, *Van der Bijl* s.n. (NH No. 16136). Durban: Isipingo, *Ward* 342 (NU), 503 (NU, PRE); near Durban, *Wood* 5797 (BOL), 9112 (PRE); *Gerrard & McKen* 720, 869 (NH); *Rogers* 24502 (PRE); *Stayner* 20 (BOL); *Wylie* s.n. (= 23114, also PRE); Inanda, *Wood* 683 (BOL, NBG, isos of *M. woodii* Engl.); Umgeni Dam, *Bayer* 1387 (NU, NH, PRE, BOL). Pine Town: Marian Hill, *Forbes* 1039 (NH). Verulam: Umhloti Beach, *Codd* 1499 (PRE). Kranskop: Jameson's Drift, *Bayer* 540 (NU). Msinga: Nogbeva, *Edwards* 878 (PRE, NU). Nkandla: Middeldrift, *Edwards* 1423, 1424 (PRE, NU). Eshowe: *Lawn* 666 (NH); *Gerstner* 1922 (PRE), 2262, 2440 (NH, PRE), 2819 (BOL), 2994 (NH); Entumeni Waterfall, *Wylie* s.n. p.p. (NH No. 12940, the remainder is *M. caffra*). "Tugela": *Gerrard* 1642 (= iso. of *oleifolia* N. E. Br., NH). Mtunzini: near Mandeni, *Edwards* 1616 (PRE, NU). Lower Umfolozi; Umfolozi Game Reserve, *Ward* 3159 (PRE); *Kluge* 19 (NH); *Mtonjaneni*: *Gerstner* 3675 (NH, PRE); Empangeni, *Gerstner* 2767 (NH), 2730 (NH, BOL, PRE). Hlabisa: Hluhluwe, *Ward* 1700 (PRE); Masimba Hill, *West* 2078 (NH, PRE); Hlabisa

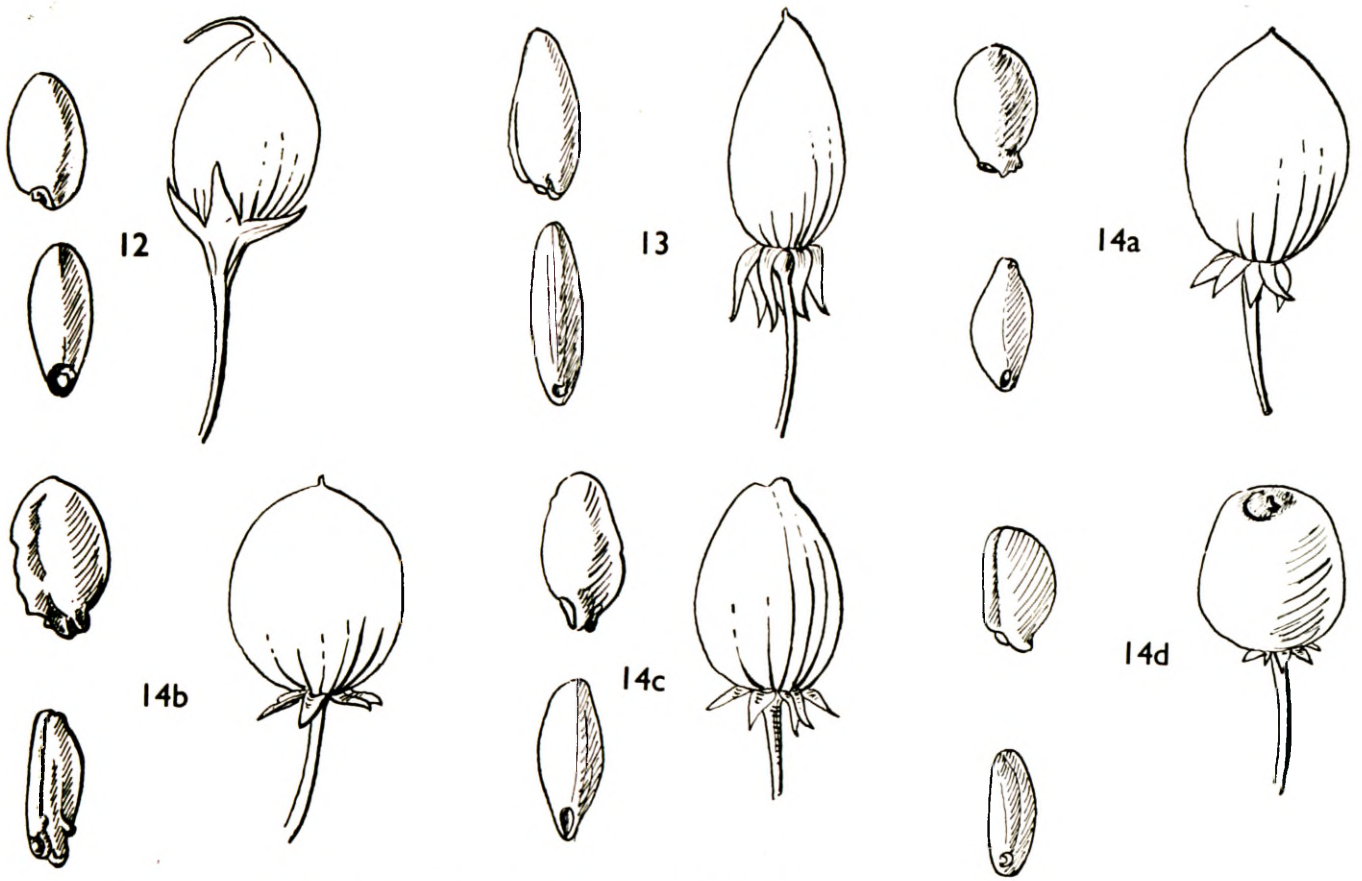



FIG. 12.—*Mimusops caffra*, seed and fruit (from *Howlett* 44, Kentani, E. Cape).

FIG. 13.—*Mimusops obovata*, seed and fruit (from a 1-seeded fruit of *Pegler* 765, Kentani, E. Cape). *N.B.*—Seeds of fruits with 2 or more seeds are often smaller and more or less deformed.

FIG. 14.—*Mimusops zeyheri*, seeds and fruits: (*a*) from *Codd* 3023 (Zoutpansberg, Transvaal), (*b*) from *Smuts & Gillett* 3286 (Zoutpansberg), (*c*) from *Lam & Meeuse* 4824 (Buffelspoortdam, nr. Pretoria, not far from the type locality!), (*d*) from a specimen without collector or locality, named *M. kirkii* in PRE, (*e*), figure on p. 353, from *O. B. Miller* B/220 (Molepolole, Bechuanaland Prot.). Note the variation in size and shape of fruits and seeds.

or Umbombo: near northern end of St. Lucia Lake, *Gerstner* 4987 (PRE). Nongoma: Wendelane Kloof, *Gerstner* 4659 (PRE, NBG). Ngwavuma: *Bayer* 760 (PRE). Natal without precise locality: *Gueinzuis* (original syntype gathering, presumably from the vicinity of Durban, in SAM); *Cooper* 1241 (BOL, NH, PRE).

SWAZILAND.—*Stewart* s.n. (TRV No. 8824 in GRA, PRE); Ubombo Mts. near Stegi, *Keith* s.n. (PRE).

TRANSVAAL.—Sebasa: Phephidi River (prob. near Phephidi Falls), *Legat* 1 (SAFD). Letaba: Patatabos, *Botha* s.n. = FD. No. 7154 (SAFD, PRE); The Downs, *Renny* DB 52 (PRE); De Hoek, *Keet* FD No. 7413 (SAFD).

PORTUGUESE EAST AFRICA.—Sul do Save: Lourenço Marques, *Gomes e Sousa* 3859 (COI, PRE).

*N.B.*—The specimen mentioned in Fl. Cap. 4, 1: 442 from Warmbaths, Transvaal (*Burtt Davy* 2625) is not *M. obovata* Sond., but *M. zeyheri* Sond.

The shape of the leaves of one specimen is usually fairly uniform but the various forms described as *M. oleifolia* N.E. Br., *M. woodii* Engl. and *M. rudatisii* Engl. & Krause, are, in my opinion, only ecotypes, as was already suggested by Gerstner. The forest form has rather thin leaves which are large and obovate, and corresponds with the descriptions of *M. obovata* and of *M. woodii*; a depauperate form growing in rocky places in the sun, has small coriaceous leaves, flowers more freely and corresponds with the narrow-leaved *M. oleifolia*. Not only are all these forms linked up in the herbarium by intermediate specimens, but the flowers, branches, pedicels, fruits and seeds are also identical.

A type specimen was not defined, because Sonder mentions the numbers *Gueinzius* 583 and 101 ex parte from Durban, and Ecklon & Zeyher's "Sideroxylon No. 16" from Olifantshoek. The *Ecklon & Zeyher* collection being the best known and better represented in various herbaria, I propose the E. & Z. specimen in herb. Sonder (S) as the lectotype.

3. **M. zeyheri** *Sond.* in Linnaea 23: 44 (1850); Engl., Mon. Sapot. Afr. 73, t. 27, Fig. C (1904), incl. var. *laurifolia* Engl.; Wright in Dyer, Fl. Cap. 4, 1: 441 (1906); Gerstner in J. S. Afr. Bot. 12: 54 (1946); Meeuse in R. A. Dyer, Fl. Pl. Afr. 30: t. 1164 (1954), type: *Zeyher* 1130 in herb. Sonder, holo., BOL, NBG, isos.! *M. kirkii* Baker in Oliv., Fl. Trop. Afr. 3: 567 (1877); Engl., op. cit. 67; Gerstner, op. cit., 55, type: *Kirk* s.n. from Lower Shire Valley and *Kirk* s.n. from Rovuma in K, syns. *M. monroi* Sp. Moore in J. Bot. 49: 55 (1911); type: *Monro* 761 in BM, holo; BOL, SRGH, isos!

A tree reaching a height of at least 10–15 m., with spreading branches and a leafy, umbrageous canopy, but often appearing as a large shrub. *Innovations* densely adpressed rusty-tomentose, the twigs often retaining the pubescence for some time, the leaves sometimes in the form or irregular, powdery patches or along the midrib; branches, petioles and leaves ultimately glabrous. *Leaves* coriaceous or thinly coriaceous, shiny above, paler beneath, usually drying a pale greyish-green (young ones drying dark brown above, brownish-grey beneath), ovate-lanceolate to oblong-ovovate, sometimes obovate or broadly elliptic, sometimes broadly lanceolate, usually obtusely acuminate or gradually tapering into the obtuse or more rarely slightly emarginate, occasionally rounded apex, tapering, acute or subacute at the base, with slightly thickened and subreflexed margin, 4–9 (–11) cm. long (on coppice shoots occasionally up to 15 cm. long) and 2–4 (–5) cm. wide, on a (10–) 15–35 mm. long, terete, petiole which is rather firm, narrowly canaliculate at least near the leaf-base and not infrequently shows vestiges of the original reddish-brown tomentum; midrib forming a fine keel above, prominent below, very gradually tapering towards the apex of the leaf; lateral

nerves ascending at an angle of 45°–60°, usually not reaching the margin without branching, joining or deflexing, archingly joining near the edge of the leaf, not or hardly distinct from the tertiary nerves, the latter first more or less parallel to secondary ones, then becoming irregular, forming a rather coarse reticulate meshwork filled up by a finer reticulate nervation; secondary and tertiary nerves usually conspicuous, slightly raised, finer nervation often inconspicuous. *Pedicels* often numerous on the twigs in fascicles of 3 or more in the leaf axils, sometimes only 1–3 per axil, 10–30 mm. (but almost invariably between 15 and 25 mm.) long, rusty-pubescent, recurved, not lengthening but slightly incrassate (up to ± 1·5 mm. thick) in fruit. *Flower-buds* just before opening 5–7 mm. long and 3–4 mm. thick. *Sepals* long-triangular to ovate-lanceolate, acute; the outer ones rusty-pubescent often with a narrow pale edge, 5–6 (–7) mm. long and 2–3 mm. wide, the inner ones pale greyish-white tomentose, slightly shorter and narrower. *Corolla*-lobes about equalling the calyx, about 6 mm. long, linear-lanceolate, acute, their appendages about or long as shorter (4–6 mm.), linear-lanceolate and acute. *Anthers* elongate-sagittate, apiculate, about 3·5 mm. long on subulate, 1·5 mm. long filaments. *Staminodes* long-triangular or triangular-lanceolate, either shorter than the stamens and acute, or longer than the stamens and long-acuminate to nearly aristate, densely pilose outside. *Ovary* globose or ovoid, about 2·5 mm. long, villous, attenuated into a 5–10 mm. long style, the latter glabrous, terete, longsubulate, tapering towards the apex. *Fruiting calyx* not accrescent, somewhat spreading but not quite reflexed as a rule. *Berry* ovoid, ellipsoid or almost spherical, 2–3 cm. long, 1–2·5 cm. diam, sometimes smaller, glabrous and yellow when ripe, usually crowned by the persistent style (at least when young), with mealy, edible pulp, 1–4 seeded. *Seeds* obovate or elliptic, compressed, usually 15–20 mm. long, 9–12 mm. wide and 4–5 mm. thick, sometimes considerably smaller; often (especially when only 1 or 2 seeds are present) more or less laterally produced or at any rate somewhat attenuated at the base; the scar nearly basal, almost horizontal, in a hollow sinus; testa light brown, shiny.

*General Distribution.*—Bechuanaland, Transvaal, Swaziland, Portuguese East Africa, Rhodesia and extending into tropical East Africa.

Bechuanaland.—Gaberones, *Van Son* s.n.; Kanye, *O. B. Miller* B/298; Lobatsi Govt. Farm, *O. B. Miller* B/245 (PRE); Molepolole, *O. B. Miller* B/220 (PRE); Chobe Riv. nr. Serondela, *O. B. Miller* B/337 (PRE).

Transvaal.—Marico: *Louw* 610; Zeerust, *Thode* A1438. Rustenburg: Rustenburg, *Sutton* 885, 885a, 1023; *Phillips* s.n.; *Phillips & Schweickerdt* 3550; *Rose-Innes* 1 (PRE); Pretoria, Brits and Magaliesberg Range: *Zeyher* 1130 (BOL, SAM, isos!); *Burke* 72 (PRE, SAM, for practical purposes duplicates of *Zeyher* 1130); *Leendertz* s.n. 949; *Galpin* 6975; *Lam & Meeuse* 4824 (L); *Meeuse* 9095, 9095a; *Hutchinson & Mogg* 2905. Johannesburg: Modderfontein, *Putterill* 161. Middelburg: Olifants Riv. Gorge, *Mogg* 22447. Warmbaths: Warmbaths, *Burtt-Davy* 2149, 2625; *Galpin* 8853. Waterberg: Nylstroom, *Prosser* 1753, Rietspruit, 40 miles NNW of Vaalwater, *Smuts* 362. Potgietersrust: *Galpin* 8823, 9023; *Smuts* 2006, Pietersburg: Blaauwberg, Leipzig, *Bremekamp & Schweickerdt* 1118; Daviesville, Setali, *Gerstner* 5429; Woodbush, *Hoffmann* 30; De Hoek Forest Reserve, *Keet* h. No. FD 7413. Zoutpansberg: near Louis Trichardt, *Obermeyer, Schweickerdt & Verdoorn* 361a; *Hutchinson* 2004; *Rodin* 3987; *Rogers* 2177; Hanglip, *Gerstner* 5994; 20 miles NW of Louis Trichardt, *Codd* 3023; Happy Rest, *Gerstner* 6031; 10 miles E. of L. Trichardt, *Gerstner* 5731; Tshakoma, *Obermeyer* 1092; ± 10 m. W. of Wyllie's Poort, *Gerstner*

5923 (PRE). Sebasa: Phepidi Falls, *Smuts & Gillett* 3308, 3286; *Curson & Irvine* 55, 109; *Legat* 4819; Kruger National Park, near Pafuri, *v. d. Schijff* 578, 3812; id., Punda Maria, *Lang* s.n.; *Codd* 6514; *v. d. Schijff & Marais* 3728. Letaba: Duiwelskloof, *Gerstner* 5881. Lydenburg: Sekukuniland, *van Warmelo* 94; *Mogg* 16916 (PRE); *Barnard & Mogg* 762; *Barnard* 13 (PRE). Pilgrims Rest: Mariepskop, *Scheffler* FD herb. No. 9946 (SAFD); Lothian, FD herb. No. 890 (SAFD). Nelspruit: Kruger National Park, Numbi: *van der Schijff* 25; near Sabin, *Codd* 4409 *van der Schijff* 696, 1461 Barberton: *Thorncroft* 2177; *Liebenberg* 2630; *Burtt-Davy* 2810.

SWAZILAND.—Lebombo Mts., *Hornby* 2805; Stegi, *Codd & Dyer* 2910. *O. B. Miller* S/76; *Acocks* 15350.

PORTUGUESE E. AFRICA.—Sul do Save: Guija, *Myre & Balsinhas* 788 (PRE); *Pedrogão* 262 (PRE); *Pedro & Pedrogão* 2974 (PRE) Chegua, Chongoene, *Gomes e Sousa* 3999 (PRE); Matola, Imputa River, *Mogg* s.n. (PRE); Macovane, *Hornby* 2714 (SRGH, PRE). Manica e Sofala: Serra da Gorongoza, *Simão* 952 (PRE); " á milha 25 da T.Z.R.", *Simão* 818 (PRE); Lifumba (Mutarara), *Simão* 1488 (LM). Zambezia: Mocuba, Namagoa, *Faulkner* 56 (PRE, COI); betw. Régulo Ingive and Nante, *Barbosa & Carvalho* 4203 (PRE). Niassa: Pto. Amelia, btw. Mocimboa da Praia and Palma, *Barbosa* 2122 (PRE).

S. RHODESIA.—Bulalima-Mangwe: Plumtree, *Davies* 280 (SRGH); Mangwe, Marula, *Plowes* 1309 (SRGH, PRE). Bulawayo: Matopos, *O. B. Miller* B/1257 (PRE), *Mundy* 892, 904, 909 (SRGH); *Plowes* 1331 (SRGH, PRE); *West* 2941 (SRGH); *Orpen* 049/50 (SRGH); *Borle* 45 (PRE); *West* 2494 (SRGH). *Belingwe*: *Harvie* 9/51 (SRGH); 9/51 (SRGH); *West* 2792 (SRGH); Nuanetsi: Matibi I Reserve, *Davies* 1773 (SRGH, PRE); Ft. Victoria: *Eyles* (?) in SRGH No. 3863; N.N. 52/51 in SRGH No. 34663; *McGregor* 2/47 (SRGH); *Acheson* 13 (SRGH); *Monro* 690 BOL); 761 (SRGH, BOL isos of *Mimusops monroi* Sp. Moore); Zimbabwe, *Hornby* 2831 (PRE); *Smuts* s.n. (PRE); *Gerstner* 6987 (PRE); *Seward* 47/51 (SRGH); *Seymour-Hall* 3/51 (SRGH) Chilimanzi: *Wormold* 21/51 (SRGH); *Mylne* 1/51 (SRGH); *Kirkham* 18/51 (SRGH); *Gibson* 5/51 (SRGH); *Greenhow* 24/51 (SRGH, PRE). Sabi-Lundi: *Wild* 3353, 3377 (SRGH, PRE). Ndanga: *Chase* 2338 (SRGH, PRE), 2416 (SRGH). Gwelo: *Eyles* 5555 (SRGH); leg. *Eyles* (?) (SRGH No. 3331); *Steedman* 210 (SRGH). Hartley: *Hornby* 3230 (SRGH); *Jack* s.n. (SRGH No. 4082); Umniati Riv., *Mills* 5/47 (SRGH). Umtali: *Obermeyer* 2070 (PRE); *Chase* 317, 1314, 1531 (SRGH), 869 (SRGH, PRE). " Eastern Border ": *Chorley* s.n. (SRGH No. 3685). Vumba Mts.: *Chase* 1741 (SRGH). Salisbury: Concession, *Eyles*? in SRGH No. 1124. Mazoe: *Eyles* 4773 (SRGH); *Mundy* s.n. (SRGH No. 2090); *Ford* s.n. (SRGH No. 5146). Lomagundi: *Eyles* 2689, 2715 (SRGH, PRE, SAM), 3130 (SAM, PRE) 4971, 4973 (SRGH) *Pardy* s.n. (SRGH Nos. 5918, 5924). " Zambesi ": *West* 2900 (SRGH). Urungwe: *Lovemore* 291, 361 (SRGH, PRE). Victoria Falls: Flanagan 3302 (BOL); *Galpin* 7044 (GRA, PRE, BOL), 14999 (PRE); *Rogers* 5310 (GRA, BOL, SAM); 7446 (J); *Schwartz* s.n. (BOL 25012); *Rodin* 4492 (PRE, SRGH); *Wild* 3130 (SRGH); *Greenway* 6250 (PRE), *Poynton* 12 = FD herb. No. 10403 (SAFD).

NORTHERN RHODESIA.—Nega-Nega Hills: *Burtt Davy* 762 (PRE).

NYASALAND.—Likubula Gorge: *Brass* 16366 (= Vernay Nyasaland Exp. 1946) (PRE).

As regards the identity of *M. zeyheri* Sond and *M. kirkii Baker* the following " differences " can be found in the original descriptions (see also Engler, op. cit.):

| | *M. zeyheri.* | *M. kirkii.* |
|---|---|---|
| Pubescence: | Young parts rusty-tomentose. | Twigs nearly glabrous. |
| Leaf: | Blade coriaceous, ultimately glabrous, oblong, obtusely acuminate, more or less narrowed at the base with distinct lateral veins, 7½–9 cm. long, 2½–3½ cm. wide, on a 16–20 mm. long petiole. | Blade coriaceous, glabrous, obovate-oblong, obtuse, cuneate at the base, with fine main veins, 5–10 cm. long, 3–4½ cm. wide on a 15–25 mm. long petiole. |
| Flowers: | Pedicels in fascicles of 3 or more, 12–18 mm. long, recurved, staminodes shorter than the stamens; (according to Engler's key): lateral appendages shorter than corolla-lobes; style short. | Few together, on 12–20 mm. long arching pedicels; staminodes about as long as the stamens (according to Engler's key): lateral appendages about as long as corolla-lobes; " style much exerted from the corolla ". |
| Fruit: | Ellipsoid, glabrous, an inch long, seed obovate, compressed, subproduced at the base. | Globose, glabrous, an inch long; seed? |

These differences appear to be very slight, and the most important ones seem to be the length of the lateral appendages, the length of the style and the shape of the fruit. However, subequal corolla-lobes and appendages can be found occuring with short staminodes and with longer ones, with short styles and with longer ones. The fruits in *M. zeyheri* vary from globose to ovoid and the seeds of fruiting specimens referred to *M. kirkii* (including the fruiting type specimen) in various herbaria show the characteristic produced base reported for *M. zeyheri*. Mr. B. de Winter compared specimens of *Mimusops* from the Transvaal with the type of *M. kirkii* and with authentic specimens of *M. zeyheri* at Kew and some of them correspond with either form, but there are intermediate specimens which link them up. The Rhodesian material I saw shows a complete continuous transition from the narrow leaved forms (= *M. zeyheri*) to the broad-leaved forms (= *M. kirkii*), and the rusty pubescence of the innovations occurs in both forms. In my opinion the form which corresponds with *M. zeyheri* is the Bushveld ecotype and often shrubby, whereas the broad-leaved form is a Lowveld ecotype (more tropical hence large trees), but there is no question about their specific identity.

*Mimusops monroi* S. Moore is a narrow-leaved form of " typical " *M. zeyheri*. Mr. de Winter kindly compared the type of *M. monroi* (*Monro* 761 in BM) and reported that it is an almost perfect match of *Burke* 72 from the Magaliesberg (in herb. Kew), which number is a " twin-type ", practically identical with *Zeyher* 1130, the type of *M. zeyheri*, so that there is no doubt about the conspecifity of both species. Duplicates of *Monro* 761 in BOL and SRGH which I have seen are indistinguishable from most Transvaal specimens and certainly conspecific.

EXCLUDED SPECIES OF MIMUSOPS.

*Mimusops altissima* Engl. = *Muriea* spec. [an *Muriea discolor* (Sond.) Hartog?], see p. 379.

*M. angolensis* Engl. = *Manilkara cuneifolia* (Baker) Dubard (a duplicate of the type, *Welwitsch* 4836 in COI, was studied).

*M. buchananii* Engl. = *Muriea* spec. (an *M. discolor*?, see p. 379).

*M. concolor* Harv. ex Wright = *Manilkara concolor* (Harv. ex Wright) Gerstner.

*M. cuneata* Engl. = *Austromimusops cuneata* (Engl.) A Meeuse, see p. 355.

*M. cuneifolia* Baker = *Manilkara cuneifolia* (Baker) Dubard.

*M. densiflora* Baker = *Manilkara multinervis* (Baker) Dubard (t. Engler and Hutch. & Dalz.)

*M. densiflora* Engl. non Baker = *Manilkara mochisia* (Baker) Dubard, see p. 369.

*M. discolor* (Sond) Hartog = *Muriea discolor* (Sond.) Hartog, see p. 344.

*M. dispar* N.E. Br. = *Austromimusops dispar* (N.E. Br.) A. Meeuse, see p. 352.

*M. fischeri* Engl. = *Manilkara* spec., prob. *M. mochisia* (Baker) Dubard.

*M. henriquesiana* Sim = *Lecomtedoxa henriquesii* (Engl. et Warb.) A. Meeuse, see p. 344.

*M. henriquesii* Engl. et Warb. = *Lecomtedoxa henriquesii*.

*M. klaineana* (Pierre ex) Engl. = *Lecomtedoxa klaineana* (Engl.) Dubard.

*M. macaulayae* Hutch. et Corb. = *Manilkara macaulayae* (Hutch. et Corb.) H. J. Lam, see p. 373.

*M. marginata* N.E. Br. = *Austromimusops marginata* (N.E. Br.) A. Meeuse, see p. 348.

*M. menyhartii* Engl. = *Manilkara mochisia* (Bak.) Dubard, see p. 369.

*M. mochisia* Baker = *Manilkara mochisia* (Bak.) Dubard.

*M. natalensis* (Pierre) Engl. non *M. natalensis Schinz* = *Muriea discolor*, see p. 377.

*M. natalensis* Schinz = *Austromimusops marginata* (N.E. Br.) A. Meeuse.

*M. schinzii* Engl. = *Austromimusops marginata* (N.E. Br.) A. Meeuse.

*M. spiculosa* Hutch. et Corb. — *Manilkara macaulayae* (Hutch. et Corb.) H. J. Lam.

*M. silvestris* S. Moore = *Austromimusops silvestris* (S. Moore) A. Meeuse, see p. 354.

" *M. transvaalensis* Schinz " (sphalm.) ex Radlk. (recte: *natalensis*) = *Austromimusops marginata* (N.E. Br.) A. Meeuse.

*M. umbraculigera* Hutch. et Corb. = *Manilkara macaulayae* (Hutch. et Corb.) H. J. Lam.

*M. welwitschii* Engl. = *Manilkara cuneifolia* (Baker) Dubard.

*M. zanzibarensis* Engl. = *Manilkara zanzibarensis* (Engl.) Dubard.

## 8. MANILKARA.

*Adans. emend. Gilly* in Trop. Woods 73: 1–22 (1943); Lam & Royen in Taxon. 2, 5: 112 (1953); Royen in Blumea 7: 401 (1953), nomen conserv. propos.

*Manilkara* Adans., Fam. Pl. 2: 166 (1763); Dubard in Ann. Mus. Col. Marseille 23: 6 (1915); Baehni in Candollea 7: 462 (1938); Lam in Blumea 4: 323 (1941).

*Mimusops* pro parte, A.DC. in DC., Prodr. 8: 203 (1844) (quoad sect. *Ternaria* ADC.); Bentham & Hook., Gen. Pl. 2: 661 (1876); Baker in Oliv., Fl. Trop. Afr. 3: 505 (1877); Engl., Mon. Sapot. Afr. 55 (1904) (quoad section *Euternaria* Engl. exclus. *Muriea*); Wright in Dyer, Fl. Cap. 4, 1: 439, 1906; Phillips, Gen. S. Afr. Fl. Pl. ed. 2, 568 (1951).

Trees or large shrubs. *Stipules* caducous or none. *Leaves* usually crowded at the tips of the branches; often more or less oblong-obovate with rounded (and emarginate) apex; lower side often lighter than upper one, mesophyll with sclereids; the nervation is usually parallel (tertiary nerves parallel to secondary ones), often causing a striate appearance of the leaf. *Flowers* axillary, usually in the axils of the lower leaves of the branches or of the scars of fallen leaves, 3-merous or occasionally 4-merous. *Sepals* biseriate, 3 + 3 (or 4 + 4), often rather broad. *Corolla* 6- (or 8)– lobed, each lobe (in the South African species) with two dorsal appendages. *Stamens* 6 (or 8), inserted in the throat of the corolla tube; filaments usually longer than the rather small anthers. *Alternipetalous staminodes* 6 (or 8), or sometimes fewer than the number of stamens, but never absent, usually small, often more or less dentate, lobed, fimbriate or divided, glabrous; not incurved and not covering the style as in *Mimusops*, but erect with the stamens of reflexed with the corolla. *Ovary* 6– (or 8)-loculated, sometimes up to 15-loculated; ovules ventrally or basiventrally attached. *Berry* one- to several-seeded. *Seeds* more or less laterally compressed; testa crustaceous, brittle, or hard and bony; scar ventral, long and narrow, or basiventral and rather large and wide, rarely small, basal; endosperm copious, cotyledons thin, foliaceous.

Type species: *Mimusops kauki* L., Sp. Pl. ed. 1, 349 (1753) = *Manilkara kauki* (L.) Dub. in Ann Mus. Col. Marseille 23: 9 (1915), fide Van Royen in Blumea 7: 402.

*Distribution.*—Circumtropical; about 25 species in tropical America, about 30 in tropical Africa, South Africa and the Mascarenes and about 15 in the Far East and Pacific islands.

*Manilkara* is now almost universally recognised as a distinct genus. For a detailed discussion of the differences between this genus and *Mimusops*, cf. Lam., op. cit., 345–347. For the area under discussion, the main differences are given in Table II.

Both *Manilkara* and *Mimusops* have alternipetalous staminodes (which distinguish these two at once from *Muriea*, which has either 12 fertile stamens and no alternipetalous staminodes, or 12 sterile stamens), and both have seeds with endosperm, which distinguishes the two from *Austromimusops* apart from the very large seed scar in the latter. Gilly, in Trop. Woods 73 (1943), p. 1–22, extended the genus *Manilkara* by including *Achras* L. This would mean that *Manilkara* Adans. (1763) has to be replaced by *Achras* L. (1753) and all the old world species of *Manilkara* apart from the American ones would have to be renamed. Gilly's interpretation is accepted by Lam and Van Royen who drew the consequences and proposed that it would be better to conserve *Manilkara* against *Achras* (see Taxon 2, 5: 112). In anticipation of adoption of this proposal for conservation, I retain the African representatives in *Manilkara*.

Twigs slender, not conspicuously zig-zag, divaricate or subverticillate; leaves not congested at the *very* tips of the branches;

Sepals 5–6 mm. long; staminodes about as long as the stamens, not fleshy, more or less irregularly serrate, incised or lacerate; leaves often more than 6 cm. long and over 2·5 cm. broad; petioles often more than 1 cm. long..... 1. *M. zanzibarensis.*

Sepals about 3·5 mm. long; staminodes usually shorter than the filaments, more or less fleshy, occasionally with a long apical filamentous portion; leaves usually less than 6 cm. long and 2·5 cm. broad; petioles 5–8 mm. long..... 2. *M. concolor.*

Twigs thick, conspicuously zig-zag, divaricate or subverticillate; leaves almost invariably crowded in fan-like groups at the very tips of the branches or on short lateral side-shoots; small trees resembling species of *Terminalia:*

Leaves quite glabrous, young ones very soon losing their pubescence; pedicels 8–12 mm. long, sparingly pubescent; sepals sparsely pubescent outside..... 3. *M. mochisia.*

Leaves usually retaining vestiges of the dense pubesce of the young leaves, at least near the midrib or towards the base, rarely becoming quite glabrous; pedicels often more than 12 mm. long; sepals tomentose outside..... 4. *M. macaulayae.*

1. **M. zanzibarensis** (*Engl.*) *Dub.* in Ann. Mus. Col. Marseille 23: 26 (1915); Brenan & Greenw., Tanganyika Terr. Check List. *Mimusops zanzibarensis* Engl. in Pflanzenw. O. Afr., C, 307 (1895), and in Mon. Sapot. Afr. 58, t. 21, Fig. B (1904), type: *Stuhlmann* coll. No. 1, 1009 in B, holo†, from Zanzibar.

A large shrub or small tree up to 15 mm. high. *Branches* terete, glabrous, faintly longitudinally striate or sulcate, the ultimate ones rather uniformly leafy. *Leaves* elliptic, or obovate-oblong to (elliptic-) oblong, 3–12·5 cm., but usually 6–10 cm., long, 2–5 cm. wide, coriaceous, rather opaque but sometimes shiny with a greyish or silvery shine beneath, glabrous, obtuse, rounded or sometimes emarginate at the apex, acute at the base, with distinctly reflexed margin; midrib immersed but often more or less keeled above, very prominent and when dry longitudinally finely striate or sulcate below; secondary nerves numerous (16–25 on either side), slender, impressed hence conspicuous above, far less conspicuous beneath, straight or ascending; tertiary nerves parallel to secondary ones, but somewhat thinner and often shorter; ultimate nervation fine, reticulate, immersed and conspicuous above, less conspicuous beneath. *Petioles* stout, terete, canaliculate above, 0·5–3·5 but usually 1·2 cm. long, glabrous, in dried specimens more or less sulcate or striate below. *Flowers* trimerous, in fascicles in the axils of the leaves or of leaf-scars, few or many together; pedicels 5–8 mm. long, more or less angular, densely and shortly rusty-pubescent. *Sepals* ovate-oblong to oblong, acute, 5–6 mm. long; the outer ones about 3 mm. wide, shortly rusty-pubescent outside and whitish-pubescent inside near the margins and near the apex, with a broad base; the inner ones thinner in texture, 2–3 mm. wide, whitish-tomentose outside and glabrous inside except near the very apex, ciliate along the margins, with a narrower base. *Corolla* white, glabrous; the tube 2 mm. long, the lobes linear-oblong, 4–5 mm. at the apex, sometimes bifid and the lobes variously incised, glabrous. *Filaments* long-subulate, ± 2 mm. long; anthers biapiculate, ovate-elliptic, about as long as the filaments. *Ovary* depressed semi-globose, about 10-loculated and more or less distinctly lobed, densely covered with greyish hairs, about 0·75 mm. high and about 1·5 mm. in diameter, very abruptly narrowing into the terete, glabrous, ± 5 mm. long, truncate style. *Fruit* (according to Engler) obovoid, 10 mm. long and ± 7·5 mm. in diameter, 2–4 seeded; seeds oblong, compressed ± 8 mm. long, with a short cicatrix above the base.

*N.B.*—The figure A of tabula 21, B in Engler's monograph (1904) is not correct in that the flowers are drawn far too small although the legend mentions natural size. The other figures are properly drawn to scale.

*General Distribution.*—Coast of East Africa, from Zanzibar southwards and extending into the province of Niassa, Portuguese East Africa.

ZANZIBAR.—Imp. For. Herb. 834 leg. *Vaughan* (PRE).

TANGANYIKA.—Mafia Island, *Greenway* 5013, 5356 (PRE).

PORTUGUESE E. AFRICA.—Niassa: between Macomia and Mipande near Pto. Amelia, *Barbosa & Lemos* 2302 (LM); between Mahate and Metuge near Pto. Amelia, *Barbosa* 2346 (LM).

2. **M. concolor** (*Harv.* ex Wright) *Gerstner* [sphalm. (" E. Mey) Gerstner "] in J. S. Afr. Bot. 14: 171 (1948).

*Mimusops concolor* Harv. ex Wright in Dyer, Fl. Cap. 4, 1: 443 (1906); type: *Gerrard & Macken* 1662 in TCD, holo, teste C. H. Wright, K. iso, from Zululand.

Although the combination " *Manilkara concolor* (Harvey) Gerstn. " was erroneously published by Gerstner by putting " E. Mey " as the original author, it is evident from some of his notes and names on labels in the National Herbarium, Pretoria, that he actually meant the combination " *Manilkara concolor* (Harv.) Gerstn. ", and he was credited as the author of this combination in the Index Kewensis.

A much branched large shrub or small tree, up to 15 m. but usually well under 10 m. high. *Branches* terete, greyish, more or less distinctly longitudinally fissured and with very prominent and large scars, the ultimate ones rather slender and almost invariably under 3 mm. in diameter, soon quite glabrous. *Innovations* glabrous or at least very soon quite glabrous. *Leaves* crowded at the ends of the twigs but not strictly terminal as in the next two species, varying from obovate-oblong or narrowly spathulate-oblong to oblanceolate-oblong, sometimes elliptic or elliptic-oblong, but usually narrowly spathulate-oblong or almost oblong (but with the greatest width just above the middle), 2–5 cm., rarely up to 8½ cm. long and 1–2 (–3·5) cm. wide, coriaceous, glabrous, with subreflexed margin an emarginate or retuse, rarely rounded apex. and narrowed, but never very acute, base; midrib slightly raised or subimmersed, flush or minutely keeled, but always narrow above, rather prominent below; secondary nerves very slender, inconspicuous or more or less conspicuous because they are impressed on both sides. 10–15 on either side, parallel, straight or rather straight, and ascending at an angle of 60°–90°; tertiary nerves rather few, parallel to but shorter than the secondary ones; ultimate reticulate tessellate nervation fine, immersed on both sides and as a rule distinct or conspicuous. *Petiole* semi-terete, flattened and channelled above, rather stout, 3–8 mm. long, glabrous. *Flowers* in the axils of the leaves and of scars of fallen leaves, fasciculate, often very numerous, 3-merous or sometimes 3-merous and 4-merous on one specimen; pedicels comparatively stout, terete or sub-glabrous, abruptly widening into the calyx, *Sepals* ovate or ovate-elliptic, obtuse, about 3·5 mm. long; the outer ones tomentose outside and inside near the apex, 2–2·5 mm. wide; the inner ones thinner, petaloid, slightly narrower, about 2 mm. wide, vaguely midribbed, whitish tomentose outside, glabrous inside. *Corolla* yellow or yellowish, glabrous; the tube 0·75–1 mm. long, the lobes oblong-linear or oblanceolate-spathulate, obtuse or rounded, with a very narrow, base, 3·3–5 mm. long and about 0·75 mm. wide; the appendages about as long and wide, but from a broad base lanceolate-linear, acute or acuminate, often with a few coarse serrations near the apex. *Staminodes* sometimes fewer than the number of calyx-lobes, glabrous, fleshy, usually ovate-suborbicular or subquadrate, and much shorter than the filaments, usually more or less trilobed or tridentate, occasionally some produced in a thin filiform apical portion equalling the filaments and if so, equalling or longer than the stamens. *Filaments* 1·5–2 mm. long, glabrous; anthers somewhat sagittate, apiculate, 1–1·5 mm. long. *Ovary* 6- (or 8-) loculated, semiglobose-conical, faintly lobed, hairy, nearly 1 mm. long and about 1·25 mm. in diameter, more or less gradually passing into the rather thick, subulate, glabrous and truncate, about 2·5 mm. long style. *Fruiting* pedicels not or hardly lengthened, somewhat incrassate; calyx persistent. *Berry* 1- or 2-seeded, edible, ellipsoid or subglobose, 10–15 mm. long and 8–15 mm. in diameter. *Seeds* obovoid, hardly compressed when single, often with one flattened lateral side when from a 2-seeded fruit, obliquely truncate at the base, 9–11 mm. long 6½–8 mm. wide, those from 1-seeded fruits 5–7 mm. thick, those from 2-seeded fruits 3–5 mm. thick; testa brown, smooth and shiny, hard; scar ovate, oblong or elliptic, occupying the truncate basilateral side of the seed, 6–8 mm. long and ± 3 mm. wide.

NATAL.—Kranskop: Tugela near Jameson's Drift, *Bayer* 648 (NU). Mtonjaneni: Mtonjaneni, *Gerstner* 3710 (NH, PRE); Fule Drift near junction with Umhlatuzi, *Gerstner* 2735 (BOL). Lower Umfolozi: Umsindusi Bridge, *West* 1873, 1911 (NH); Empangeni, Nagana Res. St., *Kluge* 30 (NH); Umfolozi Game Reserve, *Ward* 1467 (NH, PRE). Hlabisa: Duku–Duku forest, *Forest Dept.* FD h. No. 8603 (Pre, SAFD); near Matubatuba, *Gerstner* 8974 (NH, PRE); Hluhluwe Game Reserve, *Ward* 1593 (NH, PRE); False Bay, *Gerstner* 4791, 5061 (NBG, PRE), 5235 (PRE). Nongoma: about 13 m. N. of Nongoma on road to Magut, *Acocks* 13015, *Codd* 1943 (PRE); Wendelane Kloof. *Gerstner* 2522 (BOL), 4683 (NBG, PRE). Ubombo: Mkusi, Galpin 13319 (PRE).

PORTUGUESE EAST AFRICA.—Sul do Save; Lourenço Marques distr., Maputo, Santaca, *Gomes e Sousa* 3799, 3819 (COI, PRE). 3861 (PRE).

3. **M. mochisia** (*Baker*) *Dub.* in Ann. Mus. Col. Marseille 23: 26 (1915); Gerstner in J. S. Afr. Bot. 14: 171 (1948), sphalm. "(Baker) Gerstner". *Mimusops mochisia* Baker in Oliv., Fl. Trop Afr. 3: 506 (1877); Engl., Mon. Sapot. Afr. 63, t. 22, Fig. B (1904); type: *Kirk* 304 from Tete, K, lecto.; fragment in PRE!.

*Mimusops densiflora* Engl., Pflanzenw. O.-Afr., C, 307 (1895), and in Mon. Sapot. Afr. 63, t. 22, Fig. C (1904), non Baker in Kew Bull. 1895: 148; type: *Stuhlmann* coll. No. 581 in herb. Hamburg, lecto.

*Mimusops menyhartii* Engl., op. cit. (1904), 63, t. 23, Fig. D; type: *Menyhart* 771 from Boruma in Z, holo., PRE, photo!.

"*Manilkara densiflora* Engl.", Dale, in Imp. Forestry Inst. Paper 18: 25 (1939); *M. densiflora* Dale, q.e. nom. nov., ex Brenan and Greenw., Check list Tanganyika Terr. 2: 563 (1949). *M. densiflora* (Engl.) H. J. Lam in Blumea 4, 2: 355 (1941), nomen illeg. *M. menyhartii* (Engl.) H. J. Lam, op. cit., 356.? *Sideroxylon fischeri* Engl. in Pflanzenw. O. Afr., C, 306 (1895). = *Mimusops fischeri* (Engl.) Engl., Mon. Sapot. Afr. 64 (1904). = *Manilkara fischeri* (Engl.) Lam in Blumea 4: 355 (1941).

A much branched deciduous large shrub or small to medium-sized tree, up to 10 m., rarely up to 15 m., high, with divaricate, subverticillate or zig-zag wise arranged, often crooked branches, resembling several African species of *Terminalia* in habit. *Branches* dimorphous; main shoots rather long (internodes usually 5–10 cm. long); "lateral" short branches usually under 20 mm. long; internodes of main shoots terete, rather smooth, finely longitudinally sulcate and, if not very young, glabrous and over 3 mm. thick, only the very young growing ones bearing a few leaves that are not strictly terminal. *Short shoots* and apices of the branches frequently somewhat thicker than the adjoining internodes, very rough with the scars of fallen leaves; youngest shoots at first pale yellowish- or whitish-tomentose, glabrescent. (New shoots are formed laterally under the terminal thickened and leaf-bearing portions of the branches and and this causes the peculiar divaricate or subverticillate branching, the original terminal portion becoming a short "lateral" branch). *Leaves* in rather dense, more or less fan-wise spreading groups on the short lateral branches and terminal apices (apparently both lateral and terminal thickened portions of the stems being able to produce young leaves during several season in succession); young leaves almost completely glabrous as soon as they appear, the older ones quite glabrous; blade narrowly elliptic-obovate, narrowly spathulate-oblong, cuneate-oblong or more or less oblanceolate-oblong, sometimes obovate-oblong, 1·5–4 (–6) cm. long and 0·75–2 (–2·75) cm wide, coriaceous, or subcoriaceous, with a usually distinctly emarginate or retuse, sometimes rounded, apex, and narrowing towards the base, with minutely reflexed margins, drying greyish-green, paler beneath; midrib usually not very prominent on either side, but as a rule flush or slightly immersed above and slightly prominent beneath, distinct and discolorous in dried specimens; lateral nerves slender, immersed, ascending at an angle of 45°–60°; secondary nerves rather numerous (10–15 on either side), tertiary nerves not or hardly discernible from the ultimate, fine, impressed, reticulate nervation. *Petioles* 2–4 mm., rarely up to 7 mm., long, flattened above, on either side minutely winged by a continuation of the leaf margins. *Flowers* trimerous (at least no 4-merous ones seen), often appearing with the young leaves or just before the leaves, solitary or in fascicles in the axils of fallen leaves below the young growths; pedicels and calyx greenish or green tinged with brown. *Pedicels* 8–12 mm. long, rather slender, more or less angular, sparingly whitish pubescent, abruptly widening into the calyx. *Sepals* 3 + 3; the

outer ones ovate, sometimes oblong, 4–5 mm. long, 2·5–3 mm. wide, sparingly pubescent outside, pubescent inside near the apex and margins; the inner ones more petaloid, oblong, 4–4·5 mm. long and 2–2·5 mm. wide, acute, tomentose outside, glabrous inside, vaguely midribbed. *Corolla* glabrous; the tube about 1 mm. long; the lobes elliptic-lanceolate from a narrow base, obtuse or rounded; about 4 mm. long and 0·75–1 mm. wide, the appendages about as long, linear, obtuse or rounded, 0·5–0·75 mm. wide. *Staminodes* variably in size but usually much shorter than the filaments, rather fleshy, subquadrate, ovate or spathulate, trilobed, tridentate, bifid or incised, occasionally produced at the apex in a long subulate or filamentous appendage equalling the filaments, rarely even longer. *Filaments* long-subulate, about 2·5 mm. long, anthers oblong, apiculate, about 1·5 mm. long. *Ovary* 6-loculated, semiglobose-conical, about 1 mm. high and about 1·5 mm. in diameter, densely covered with rather long hairs which also cover the base of the about 3 mm. long, subulate, terete, glabrous, truncate style. *Fruiting pedicels* hardly lengthened, somewhat incrassate, fruiting calyx persistent *Berry* ellipsoid or ellipsoid-obovoid, yellow when ripe, highly appreciated by natives

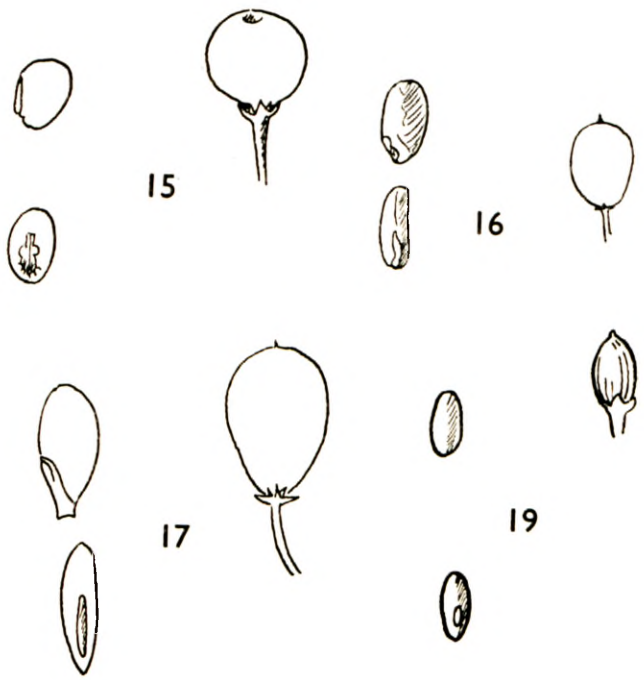



FIG. 15.—*Manilkara concolor*, seed and fruit (from *Gerstner* 3759, " Nangusi Forest ", Zululand, in NH).

FIG. 16.—*Manilkara mochisia*, seed and fruit (from *Wild* 2748, Ndanga, S. Rh., in SRGH).

FIG. 17.—*Manilkara macaulayae*, seed and fruit (from *Lovemore* 250, Sebungwe, S. Rh., in SRGH).

FIG. 19.—*Muriea discolor*, seed and fruit (from *Wood* 1349, Inanda, Natal, in NH).

and baboons for the flavour, 10–12 mm. long and 8–10 mm. in diameter, those I have seen 1–3 seeded. *Seed* brown, obovate-oblong or oblong, compressed, 8–11 mm. long, 5–7 mm. wide and 3–4 mm. thick, sub-produced at the base; testa brown, rather smooth, not very shiny, hard; scar basilateral, linear-elliptic or linear, 3–5 mm. long and 0·5–1·5 mm. wide, surrounded by a rather wide, pale brown, callus-like zone which includes the whole subproduced base of the seed.

A type specimen was originally not designated, as Baker, l.c., mentions two specimens, viz., a specimen from Batoka country, N. Rhodesia and one collected near Tete (Zambezia, P.E.A.), both leg. *Kirk*. As Engler only mentions the specimen from Tete in his monograph, I propose to make this one the lecto-type (in herb. Kew.)

NATAL.—Umbombo: Otobotini, near Ndumo Game Reserve, *Gerstner* 3438 (NH).

SWAZILAND.—Probably near Stegi, *Pole Evans* 3488 (= 66).

TRANSVAAL.—Nelspruit: Kruger National Park, Skukuza, *Codd & deWinter* 4992, *van der Schijff* 1262. Pretoriuskop, *v. d. Schijff* 2014; Mbeyamide, *v. d. Schijff* 2044, 1136. Pilgrims Rest: Kruger National Park, near Skukuza *Codd* 4388; Nwanetsi, *v. d. Schijff* 320. Letaba: Kruger National Park, near Shingwedsi, *Codd & Dyer* 4660; near Letaba, *Lamont* 33. Sebasa: Punda Maria *Codd* 4238, *Codd & Dyer* 4537, *v. d. Schijff* 568, 570; Nuanetsi, *Gerstner* 6061 (all PRE).

PORTUGUESE E. AFRICA.—Sul do Save: Maputoland, Pto. Henrique, *Gerstner* 6670 (PRE); Lourenço Marques, *Borle* 144 (PRE); nr. Macia, *Pedro & Pedrogão* 1442 (PRE); nr. Chibuto, *Pedro & Pedrogão* 1535 (PRE); Guiza, *Pedrogão* 348 (PRE); nr. confluence of Limpopo and Nuanetzi Rivers (nr. Transvaal border); *Smuts* P. 332 (PRE); Maringua, Sabi Riv., *Chase* 2454 (SRGH). Zambesia: Tete, *Kirk* 304 (fragment of type in PRE, ex herb. Kew); id., Baroma, Sisitso Riv., *Chase* 2753 (SRGH); *Menyhart* 771 (Z, photo PRE!, holotype of *M. menyhartii* Engl.).

SOUTHERN RHODESIA.—Ndanga: *Wild* 2748 (SRGH); *Chase* 2367 (SRGH). Chipinga: Makosa Hills, *Phelps* 200 (PRE, SRGH). Melsetter: *Chase* 1767 (SRGH). West Nicholson: *Plowes* 1524 (PRE, SRGH).

NYASALAND.—Chiromo: *Hornby* 2902 (PRE).

TANGANYIKA.—Lindi: Lake Lutamba, *Schlieben* 5500 (PRE). In addition, the following material was kindly sent on loan from the E. African Herbarium, Nairobi, which I refer to this species:

TANGANYIKA TERRITORY.—Moa-Mwakijembe: *Kermode* AH9930. Tabora: *Forest Guard Tabora* 1517.

KENYA.—Bura, Tana Riv.: *Bally* B2805. Kitui Distr., Nzui; *Edwards* E79. Coast, Kiunga: *Elliott* OX 888; N. Giriama: *Kale* K 3663. Kibwezi: *Gibbons* K2571.

Engler describes *Mimusops mochisia* in his monograph as having staminodes often bearing a long filamentous portion at the apex (Engler, op. cit., 1904, t. 22, Fig. B, d, and in the description, op. cit., 63: " staminodiis e parte basali subquadrati in appendicem filiformem filamenta aequantem saepe productis "). Baker (l.c.) does not mention

the filiform appendages, but describes " 6 minute toothed petaloid cuneate truncate glabrous staminodes ". Miss Kies, our officer stationed at Kew in 1950, examined one of the original specimens (leg. *Kirk* at Tete), and reported that this specimen does not possess the filamentous appendages (at least not in the flowers she dissected). Upon examination of a fragment of the specimen *Kirk* 304 from Tete, kindly sent through the courtesy of the Keeper of the Herbarium at Kew, I came to the same conclusion. In my opinion, the shape of the staminodes in this group of *Manilkara* (Section *Isogyne* of Engler, op. cit., 1904) is not a constant character. Both in *Manilkara concolor* and in *M. macaulayae* a great variation in the shape of the staminodes is found, from small and subsquamiform to long-subulate, or some having filamentous appendages (see Fig. 17), and in the few flowering specimens of *M. mochisia* I could examine, several different forms of staminodes were found: trilobed, spathulate, dentate, bifid, etc. Apart from the differences in the shape of the staminodes, the differences mentioned by Engler between *M. mochisia*, *M. densiflora* and *M. menyhartii* are negligible. The leaf-shape reported for *M. menyhartii* is frequently found on specimens also having some longer and narrower leaves. The three type specimens are evidently only forms of one rather variable species, and *Mimusops mochisia* Baker being the oldest name, the name *Manilkara mochisia* (Baker) Dubard applies to all three forms under discussion. A syntype, which I propose as the lecto-type, of *Mimusops densiflora* Engl. non Baker is still extant (in herb. Hamburg) and was compared by Mr. de Winter with specimens of *M. mochisia*. He reported that they are identical. An isotype of *M. menyhartii* in herb. Zürich also proved to be a good match.

*Mimusops fischeri* (Engl.) Engl., the type of which was destroyed during the last war and of which no isotypes could be traced, is most probably closely related to *M. mochisia*, but I hesitate to refer it to this species, because in the description of *M. fischeri*, the innovations are reported to be densely tomentose, whereas the older leaves are said to be glabrous. The young parts of *M. mochisia* are never densely tomentose in the specimens I have seen and on the other hand the older leaves of *M. macaulayae*, which species also comes into consideration, are very rarely quite glabrous, but may by an oversight have been described as glabrous in Engler's description. The old leaves are described as coriaceous which applies to *M. mochisia* rather than to *M. macaulayae*. The pedicels of the type specimen, which was in bud, were described as 3–6 mm. long, which points to *M. mochisia* rather than to *M. macaulayae*. Upon my request, Dr. B. Verdcourt of the East African Herbarium, Nairobi, sent me their material labelled *M. densiflora*. The specimens in question, including those from the type area of *M. fischeri*, proved to be *M. mochisia* and did not include specimens referable to *M. macaulayae*. For these reasons the identity of *Mimusops fischeri* Engl. remains somewhat uncertain, but the evidence is mostly in favour of *M. mochisia*, and I therefore regard *Mimusops fischeri* as a probable synonym of *M. mochisia*.

The history of the name of *Manilkara densiflora* is interesting from a nomenclatural point of view, although the name falls into synonomy. Engler and Baker published the binomial *Mimusops densiflora* almost simultaneously, but for different plants. Baker's name (in Kew Bull. 1895, p. 148) antedates Engler's [Pflanzenw. Ost-Afr., C. (1895), p. 307]. Strictly speaking, all combinations based on Engler's name are invalid, but of course the name *densiflora*, not being preoccupied in *Manilkara*, can still be used for this species. Brenan and Greenway, therefore, took up the combination made by Dale as a " new name ", *Manilkara densiflora* Dale. *Mimusops densiflora* Baker was reduced to *Mimusops multinervis* Baker by Engler in his Sapotaceae monograph, and

*Mimusops densiflora* Engler, as was pointed out above, becomes a synonym of *Manilkara mochisia*. *M. mochisia* is closely related to *M. concolor* and *M. macaulayae*, and resembles especially the latter very much in habit. There is no doubt that they represent three distinct species which can be distinguished as follows:

| | *M. concolor.* | *M. mochisia.* | *M. macaulayae.* |
|---|---|---|---|
| Arrangement of leaves | Older leaves not strictly terminal, no short thick lateral shoots bearing leaves. | Older leaves strictly terminal, and on very short thick lateral shoots. | As in *M. mochisia.* |
| Pubescence.... | Leaves quite glabrous.. | Leaves quite glabrous | Leaves usually more or less pubescent; older ones rarely *quite* glabrous. |
| Seeds..... | Rather small, brown, smooth and shiny, not or hardly compressed, 9–11 mm. long, and 5–7 mm. thick (if one seed per fruit) or 3–5 mm. thick (more seeds per fruit). | Rather small, brown, rather smooth, not very shiny, much compressed, 9½–11 mm. long and 3–4 mm. thick. | Rather large, greyish-brown, not smooth, dull, much compressed, about 16 mm. long and 3½–4 mm. thick. |
| Scar..... | ± 3 mm. wide, not surrounded by a callouslike zone. | ½–1½ mm. wide, surrounded by a rather wide callus-like zone which includes the whole sub-produced base of the seed. | ½–1 mm. wide, surrounded by a callus-like zone, which includes the whole produced base of the seed. |

Although *M. mochisia* and *M. macaulayae* are distinct species, it is difficult to distinguish specimens of the latter with only glabrous old leaves from *M. mochisia*. In this case the additional characters used in the key, viz., the length of the pedicels and the pubescence of the calyx, can be used to distinguish them.

4. **M. macaulayae** (*Hutch. et Corb.*) *H. J. Lam* in Blumea 4: 356 (1941).

*Mimusops macaulayae* Hutch. et Corb. in Kew Bull. 1924: 329,330, fig. A (1924); type: *MacAulay* 1002 from Northern Rhodesia in K, holo; fragment in PRE. *M. spiculosa* Hutch. et Corb., op. cit., 330, 331, Fig. B., type: *Allen* 185 from Victoria Falls in K, holo; BOL! and PRE!, isos. *M. umbraculigera* Hutch. et Corb. l.c., and Fig. C (p. 330); type: *N.N.* from Southern Rhodesia in K, holo, = SRGH No. 2639, iso!. *?Mimusops fischeri* (Engl.) Engl., Mon. Sapot. Afr. 64 (1904).

*Manilkara spiculosa* (Hutch. et Corb.) H. J. Lam, l.c., and *M. umbraculigera* (Hutch. et Corb.) H. J. Lam, l.c.

A small to medium-sized deciduous tree up to about 15 m. high, with divaricate, subverticillate or zig-zag wise arranged, often crooked branches. *Branches* dimorphous: main shoots rather long (internodes usually 5–10 cm. long), lateral short branches usually ±5 – ± 15 mm. long, rarely longer; internodes of main shoots terete, rather smooth with faint longitudinal fissures, striations or wrinkles and (if not very young) glabrous and at least 3–6 mm. thick, and only the very young ones bearing a few leaves that are not strictly terminal; short shoots and apices of branches frequently thicker than the adjoining internodes, very rough with the close scars of fallen leaves; youngest shoots at first densely yellowish- or pale rusty-tomentose,

glabrescent. (New branches are formed under the terminal thickened portions of the branches and this causes the peculiar divaricate or subverticillate appearance, the original terminal portion becoming a short lateral branch). *Innovations*, young leaves (mainly below), pedicels and outside of calyx-lobes with a pale buff pubescence, the latter often, and on the leaves always, turning white. *Leaves* in rather dense, more or less fan-wise spreading groups on the short lateral branches and terminal apices (apparently both terminal and lateral thickened portions of the stems being able to produce young leaves in several seasons in succession); blade narrowly elliptic-obovate to narrowly spathulate-oblong or more or less cuneate-oblong, usually rather narrow, 3–5 (–7·5) cm. long and 1–2 (–3) cm. wide, with a usually distinctly emarginate or retuse, sometimes rounded apex, narrowing to the base, with minutely reflexed margins, rather firm but not coriaceous (*M. mochisia* has more coriaceous leaves as a rule), drying an opaque green or brown, slightly paler beneath, densely tomentose or pubescent when young, at least on the lower surface, very rarely becoming quite glabrous, but usually at least retaining vestiges of an adpressed whitish pubescence beneath, especially near the midrib and towards the base; midrib either slightly raised or slightly immersed, flush or minutely keeled and not very wide above, prominent beneath, usually discolorous in dried specimens; secondary nerves slender, often inconspicuous, rather numerous (± 10 to ± 15 on either side), parallel and straight, ascending at an angle of about 60°, faintly raised above, subimmersed below, usually bifurcate well inside the margin and their ramifications soon merging with the finer reticulate nervation; tertiary nerves not or hardly descernible from the very fine, tessellate, reticulate nervation which is always distinct in older leaves. *Petioles* flattened and canaliculate 3–7 (–10) mm. long, glabrescent but as a rule never becoming quite glabrous. *Flowers* often appearing with or just before the young leaves, solitary or in small fascicles in the axils of fallen leaves below the young growths; pedicels and calyx of a greenish-fawn or buff colour. *Pedicels* often more than 12 mm. long, rather slender and faintly angular, abruptly widening into the calyx. *Sepals* 3 + 3 or sometimes 4 + 4; those of the outer and inner rows subequal, ovate-elliptic (3–) 4 mm. long and (2-) 3 mm. wide, but the outer ones with a broad base, the inner ones slightly thinner in texture, with a narrower base and the greatest width just above the middle, all obtuse, tomentose outside, glabrous inside except near the apex. *Corolla* glabrous, probably yellow or yellowish; the tube less than 1 mm. long, the lobes and lateral appendages subequal, oblong-lanceolate, 3–4 long and ± 1 mm. wide, rounded or obtuse at the apex. *Staminodes* sometimes fewer than the number of calyx-lobes, usually much shorter than the filaments but sometimes nearly as long, glabrous, very variable in shape, varying (often in one specimen or even in one flower) from triangular, trilobed, tridentate or subquadrate to oblong, irregularly dentate or serrate to linear-subulate or subulate from a sub-quadrate or semi-orbicular basal portion. *Filaments* subulate or linear-terete, 1·5–2 mm. long; anthers ovate-oblong or ovate-lanceolate, 1·5–2·5 mm. long. *Ovary* 6- (or 8-)-loculated, ovoid-globose, more or less angular, 1¼–1¾ mm. long and 1–1¼ mm. in diameter, pubescent, more or less gradually tapering into the glabrous, long-subulate, angular to subterete and minutely truncate, 3–4 mm. style. *Fruiting* pedicels lengthening and up to 25 mm. long, slightly incrassate and ultimately about 1 mm. thick, glabrescent; calyx under fruit persistent. *Berry* ellipsoid or obovoid-oblong, with a narrow base, about 18 mm. long, 8–10 mm. in diameter, edible, the few seen all one-seeded. *Seed* obovate oblong, compressed, ± 16 mm. long, ± 7 mm. wide and 3½–4 mm. thick, narrowed and more or less unequal at the base, laterally produced at the side of the scar; testa a dull greyish brown, more or less rugose, or tuberculate, hard; scar linear, ± 8 mm. long and 0·5–1 mm. wide, surrounded by a light brown and rather shiny, slightly thickened zone which is about 12 mm. long and about 3 mm. wide and includes the whole produced base of the seed.

ANGOLA.—Caposolo: *Faulkner* (A) 64 (PRE).

BECHUANALAND.—Chobe: Serondela, *O. B. Miller* B/1128, B/1203, (PRE). Kachikau on road to Kasane, *Erens* 380 (PRE, SRGH). Small island in marches near Ghanzi. 22′ 30¹ E, 19° 5′ S: *Story* 4789 (PRE).

SOUTHERN RHODESIA.—" Matabeleland ": Mrs. *Pardy* s.n. (SRGH No. 5027). Urungwe: *Wild* 4163 (PRE, SRGH). Sebungwe: *Lovemore* 250 (SRGH). Hartley: Umswewe River, *Hodgson* H. 35/48 (SRGH); Gatooma, *Golding* s.n. (SRGH No. 31015, 31267); *Eyles* in QVM. Herb. No. 7264, 7507 (SRGH); Hartley: *Eyles* in QVM. Herb. No. 7507 (SRGH). Wankie: Wankie Camp, *Pole Evans* 2751 (PRE, SRGH); Victoria Falls, *Allen* 185 (isotype of *Mimusops spiculosa*. Hutch et Corb., (PRE, BOL); *Galpin* 7052 (PRE); *Wild* 3088, 3106 (SRGH). Bulawayo: *Hodgson* s.n. (PRE, SRGH). Without precise locality: *N.N.* in SRGH 2639 (isotype of *Mimusops umbraculigera* Hutch. et Corb.); specimen sent by *Dept. of Munitions*, S. Rh., to Bolus Herb (BOL. 25013).

NORTHERN RHODESIA.—Victoria Falls, N. bank, *Pole Evans* 2751 (8) (PRE, SRGH) Lusaka: Mumbura. *MacAulay* 1002 (fragment of type of *Mimusops macaulayae*, PRE).

A study of the few flowering specimens I have seen (including a fragment of the type specimen and, in addition, isotypes of *Mimusops spiculosa* and *M. umbraculigera*) showed that the staminodes are very variable in shape and length and that in a single flower triangular, serrate, bifid, dentate and subulate ones may occur (Fig. 18). In the isotype of *M. umbraculigera*, I found bifid and triangular staminodes apart from the irregularly dentate ones described in the species diagnosis by Hutchinson and Corbishley; in the isotype of *M. spiculosa* bifid ones occur apart from the subulate ones mentioned in the original species diagnosis. In *Faulkner* (A) 64 such a great variation is found (see Fig. 18), that I am convinced that the three species described by Hutchinson and Corbishley, are conspecific. Apart from the character of the staminodes, the differences they mentioned are very slight and as far as I have seen, not constant (such as the shape of the filament, relative lengths of filaments and anthers, pubescence) so that there is no reason to distinguish more than one species. As regards the possible identity with *Mimusops fischeri* Engl., see the discussion under *Manilkara mochisia*.

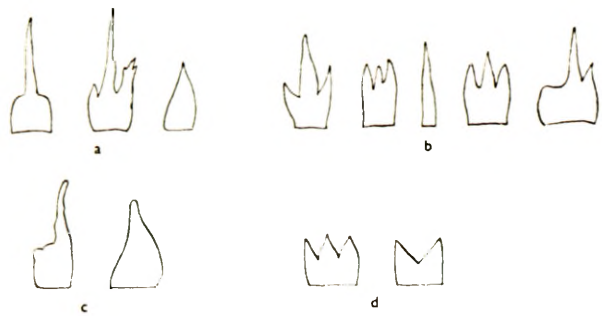



FIG. 18.—Shapes of staminodes in *Manilkara macaulayae*: (*a*) 3 staminodes found in one flower of *Faulkner* (A) 64 from Angola; (*b*)5 staminodes of another flower of the same specimen; (*c*) 2 staminodes from isotype of *Mimusops umbraculigera* (SRGH No. 2639 from Rhodesia); (*d*) 2 staminodes out of one flower of *O. B. Miller* B/1128 from Bechuanaland.

## 9. MURIEA

*Hartog* in J. Bot. 16: 145 (1878) (diagnosis on p. 72 sub. *Eichleria* Hartog); Dubard in Ann. Mus. Col. Marseille 23: 28 (1915); H. J. Lam in Blumea 4: 348 (1941) and Table 1 (p. 350). *Eichleria* Hartog in J. Bot. 16: 72 (1878), non *Eichleria* Progel in Mart., Fl. Bras. 12, 2: 518 (1877).

*Labourdonnaisia* Boj. ex parte, Benth. & Hook, Gen. Pl. 2: 659 (1876); Gerstner in J. S. Afr. Bot. 12: 40 (1946).

*Mahea* Pierre, Not. bot. Sapot. 8 (1890).

*Mimusops* L. sect. *Muriea* Hartog in J. Bot. 17: 358 (1879).

*Mimusops* L., subgenus *Ternaria* (A. DC) Engl., sect. *Euternaria* Engl., subsect. *Muriea* (Hartog) Engl. in Mon. Sapot. Afr. 55 (1904), and sect. *Mahea* (Pierre) Engl., op. cit., 65.

*Mimusops* L., ex parte, C. H. Wright in Dyer, Fl. Cap. 4, 1: 439 (1909), p. 439; Phillips in Genera S. Afr. Flow. Pl., ed. 2: 568 (1951).

Type species: *Labourdonnaisia discolor* Sond. in Linnaea 23: 73 (1850) = *Muriea discolor* (Sond.) Hartog.

Trees with exstipulate, parallel-nerved leaves. *Flowers* trimerous, axillary, solitary or in fascicles. *Sepals* 3 + 3; corolla with short tube and 6 lobes, these lobes either bearing two lateral appendages (in this case 12 fertile stamens, sub-biseriate: 6 epipetalous and 6 alternipetalous) or the lateral appendages reduced, sometimes 0 (in this case usually stamens more or less sterile and transformed into subulate staminodes). *Stamens* inserted in the throat of the corolla tube. *Ovary* 6-loculated, hairy; style long-cylindric-subulate; ovules with basal or basilateral attachment. *Berry* (always?) 1-seeded. *Seed* with basilateral, oblong or elliptic scar; testa rather thin and brittle; endosperm copious; cotyledons thin, foliaceous.

Number of species: At least one in the coastal regions of Southern East Africa, possibly one or two more in tropical East Africa (if not conspecific with the first) and, according to Hartog (1878) and others, another species in the West Indies.

The nomenclature of the type species *Muriea discolor* (Sond.) Hartog is rather complicated. Sonder described it as a *Labourdonnaisia* and it was included in this genus by Bentham and Hooker in Gen. Pl. 2: 659. Hartog (1887) pointed out that the petals in *Labourdonnaisia* are equal and placed in one whorl, their number varying from 12–17, with an equal number of stamens, whereas the species described by Sonder has 6 corolla lobes with each 2 lateral appendages. On account of this difference, among other things, Hartog decided that the plant belongs to a different genus, which he described as *Eichleria*. This name being illegitimate on account of *Eichleria* Progel, Hartog changed the name to *Muriea*. A year later, he regretted this decision and included his genus *Muriea* as a section in his large genus *Mimusops* which comprised practically all the Sapotaceae—Mimusopoideae. Engler (1904). whose conception of *Mimusops* agrees with that of Hartog, included *Muriea* as a subsection of his section *Euternaria* (the greater part of which is now generally recognised as belonging to the genus *Manilkara* Adans.)

Dubard in 1915 resuscitated *Muriea*, which genus he placed near his section *Mahea* of *Manilkara*, on account of the absence of staminodes.

Baehni in Candollea 7: 467 (1938), reduces *Muriea* to *Mimusops*, which is altogether incomprehensible to me, because Baehni, op. cit., 465–466 excludes all forms with 3-merous flowers from *Mimusops* (and includes most of them in *Manilkara*).

*Mahea* Pierre remained a more or less problematic genus for a long time. Engler (1904) reduced it to a section *Mahea* of a large genus *Mimusops*. Dubard (op. cit., 27) reduced *Mahea* to a section of *Manilkara*. Baehni (op. cit., 461) follows Dubard.

Gerstner in J. S. A. Bot. 12: 49 (1946), finally, resuscitated the name *Labourdonnaisia discolor* Sond. In a subsequent publication in J. S. Afr. Bot. 14: 173 (1948), Gerstner pointed out that the anthers and the corolla-segments of this plant are reduced when the flowers develop in dry weather, or if the tree is not growing on fertile soil. He distinguished four *formae*, a *forma perfecta* and three progressively more depauperate forms. The most depauperate form corresponds with *Mahea natalensis* Pierre, so that *Mahea* becomes a synonym of *Muriea**. Incidentally, a specimen of *Wood* 1134 (type number of *Mahea natalensis* Pierre) in BOL bears fruits and its fruits and seeds are identical with those of *Muriea discolor*.

The synonymy of the plant described as *Mahea natalensis* Pierre is also rather complicated. Engler, when he reduced *Mahea natalensis* to *Mimusops*, made the combination *Mimusops natalensis* (Pierre) Engl. (1904). However, Schinz had validly published as specific name *Mimusops natalensis* Schinz in Bull. Herb. Boiss. 4: 441 (1896) and Engler renamed this species *Mimusops schinzii* Engl. Under the present rules, *M. natalensis* (Pierre) Engl. is illegitimate, being antedated by *M. natalensis* Schinz. The first name becomes a synonym of *Labourdonnaisia discolor* Sond., the second of *Mimusops marginata* N.E. Br. [= *Austromimusops marginata* (N.E. Br.) A. Meeuse, quod vide, see p. 350].

My reasons for resuscitating *Muriea* Hartog, at least for the species *Labourdonnaisia discolor* Sond., are the following:

1. *Labourdonnaisia* was described as having 12–18 equal corolla-lobes (and not 6 lobes each with 2 lateral appendages) and 12–17 stamens, sometimes with a few staminodes, whereas *Muriea* has 6 corolla-lobes, each having, in perfect flowers, 2 lateral appendages, and always 12 stamens (or rarely 12 staminodes).

2. *Labourdonnaisia* is reported to have a large and basal seed scar, whereas *Muriea* has a basiventral, rather narrow seed scar. *Muriea* has its affinities clearly with *Manilkara*; it is, in fact, a *Manilkara* with normally 6 + 6 stamens instead of 6 stamens + 6 alternipetalous staminodes. Its habit is also very much that of a *Manilkara* (parallel substriate nervation of the leaves, etc.). However, the absence of alternipetalous staminodes distinguishes it clearly from *Manilkara*.

The synonymy of the only South African species, therefore, becomes as follows:—

**M. discolor** (*Sond.*) *Hartog* in J. Bot. 16: 145 (1878); Dubard in Ann. Mus. Col. Marseille 23: 28 (1915).

*Labourdonnaisia discolor* Sond. in Linnaea 23: 73 (1850); Gerstner in Jl. S. Afr. Bot. 12:49 (1946), and 14: 173 (1948); Syntypes: *Gueinzius* 128 and *Gueinzius* 547 from Durban, Natal, in herb. Sonder nunc S. *L. sericea* Benth. et Hook. f., Gen. Pl. 2: 660, (1876), nomen.

*Eichleria discolor* (Sond.) Hartog in J. Bot. 16: 72 (1878).

*Mimusops discolor* (Sond.) Hartog in J. Bot. 17: 358 (1879); Engl., Mon. Afr. Sapot. 55, t. 34, Fig. A (1904); C. H. Wright in Dyer, Fl. Cap. 4, 1: 440 (1906).

*Mahea natalensis* Pierre, Notes Bot. Sapot. 10 (1890); type: probably *Wood* 1134, holo in P?, also in BOL, GRA.

*Mimusops natalensis* (Pierre) Engl., Mon. Afr. Sapot. 65, t. 25, Fig. B (1904) non *Mimusops natalensis* Schinz (1896); C. H. Wright, l.c.

A medium-sized tree, 10–20 m. high with a stem diameter up to about 60 cm. with grey, longitudinally fissured bark; on young branches the bark is smoother and often full of leaf-scars. *Ultimate branches* rather stout (at least 1·5 mm. thick), terete.

* This reduction of the lateral appendages in one species could possibly occur in the related genus *Manilkara* and that is why, to my mind, the species of Gilly's subgenus *Manilkariopsis* (Trop. Woods 73: 9) should be re-examined in the light of Gerstner's observations on *Muriea*, i.e., in relation to prevailing ecological conditions at the time of flowering.

*Innovations* shortly puberulous-tomentose, the pubescence cinnamon-coloured; older parts except the lower surface of the leaf very soon glabrous. *Leaves* more or less distinctly crowded at the tips of the branches, rather uniform in shape, almost invariably obovate-oblong, sometimes oblong, or more or less spathulate- or lanceolate-oblong, narrowed but usually not distinctly cuneate at the base, with a rounded, obtuse, subacute or very shortly acuminate and usually recurved, almost invariably emarginate apex, green above (often drying brown or greyish-brown), densely adpressed-silvery pubescent beneath, except on the midrib, with slightly recurved margins, 3·5–7 (–10) cm. long, 1·5–3·5 (–4·5) cm. wide; midrib immersed and distinctly channelled above, very prominent beneath, at first finely rusty-pubescent, ultimately glabrous and of a different colour than the silvery lower surface of the leaf (yellowish brown or dark brown when dry); secondary nerves 10–15 or more on either side, straight, ascending at an angle of 70*e*–90*e*, archingly joining near the margin, immersed but rather conspicuous above, immersed and partly hidden by the silvery tomentum below; tertiary nerves parallel to the secondary ones, usually inconspicuous below, but appearing as a fine striation above; fine ultimate nervation reticulate, usually invisible below except in the oldest leaves, but distinct and impressed above and giving the upper surface of the leaf a minutely tessellate, dull appearance. *Petioles* terete, hardly thickened towards the base, narrowly canaliculate above, glabrous, 6–15 mm. long. *Flowers* in few-flowered fascicles (often about 3 together). *Perfect flowers*: pedicels 5–10 mm. long, rusty-pubescent; *flower-buds* rounded at the top, broadly obovoid, ± 5 mm. long and 3–4 mm. in diameter; *sepals* almost completely free; the three outer ones rather coriaceous, broadly ovate, narrowed towards the tip, but not acute, ± 5 mm. long and ± 4 mm. wide, rusty-pubescent outside, subciliate, glabrous inside except near the apex, the inner ones narrower, 5–5·5 mm. long and ± 3 mm. wide, yellowish, whitish adpressed-pubescent outside and near the apex inside; *corolla* white or yellowish; tube 1·5–2 mm. long, cylindric; the lobes long-spathulate with a long-tapering, narrow base and rounded top, the appendages broader, lanceolate-oblong or linear, acuminate, all segments 3–3·5 mm. long; *filaments* 2–2·5 mm. long, filiform and slender; anthers 1·5–2 mm. long, ovate-cordate, apiculate; *ovary* depressed-conical, ± 1 mm. high and ± 1 mm. in diameter, densely sericeous-pilose; style glabrous cylindric, 3–3·5 mm. long, rather gradually tapering into the flat, subcapitate and ± 6-lobed stigma. *Imperfect flowers* on short pedicels (sometimes under 5 mm. long), often considerably smaller (e.g., calyx and corolla lobes only 2 mm. long); *corolla lobes* with reduced lateral appendages, trifid, tridentate or entire; *anthers* very small or wanting or sometimes developed, *ovary* and *style* as above but sometimes ovary more subglobose and style only ± 2 mm. long. *Fruit* spherical, edible and red when ripe, according to Gerstner (1946), but when dried ellipsoid, 8–12 mm. long and 5–10 mm. wide, crowned by the peristent style. *Fruiting pedicels* not appreciably lengthened or incrassate; fruiting calyx adpressed to the fruit. *Seed* elliptic in outline, compressed, ± 8 mm. long, ± 5 mm. wide, and ± 3·5 mm. thick in the middle; scar basilateral, oval or elliptic, 3–4 mm. long, and 1–2 mm. wide in the widest place; testa pale fawn-coloured when dry, thin and brittle.

*Distribution.*—Natal, from Durban northwards, Zululand, Swaziland, P.E. Africa and extending into East Tropical Africa.

NATAL.—Durban: *Thorns* s.n. (NH No. 40612, PRE); Durban, Albert Park, *Van der Byl* s.n. (HN No. 16245 and 16246 in NH, GRA); *Gerstner* 4703 (PRE), *Butcher* (= *Gerstner* 4712) (PRE, SRGH); *Gerstner* 6820 (NBG, PRE). Pinetown: Umzinyati, *Wood* 11440 (PRE, NU, J). Ndwedwe: Inanda, *Wood* 1134 [GRA, BOL, one of the numbers cited by Engler sub. *Mimusops natalensis* (Pierre) Engl.], 1349 (NH, BOL, SAM). Palmiet, *Wood* 8378 (NH, NU, PRE). Lower Tugela: Darnal, *Schmidt* 39, 40 (NH). Hlabisa: near Hlabisa, *Gerstner* 4117 (NH, PRE) 4527 (PRE); Emgangado, *Gerstner* 5077 (RE, BOL, NBG); Hluhluwe Game Reserve, *Ward* 2639

(NH, PRE), " Zululand "; *Gerstner* 2539 (BOL). Ubombo: Bangazi Lake, *Boocock* FD herb. No. 5720 (PRE, SAFD). Swaziland (?): Mangusi Forest (prob. near Hlatikulu) FD. Herb. No. 5314 (PRE, SAFD).

PORTUGUESE EAST AFRICA.—Sul do Save: Maputo, *Sim* 20992 (NU, PRE); Lourenço Marques: *Oliveira* 74 (LM); Inhaca Island, Mrs. *Moss* (J. No. 27637, also PRE) between Chongoene and Chidinguel: *Pedro* 247 (PRE); Chibuto e Vila Gomez da Costa, *Pedro & Pedrogão* 1559 (PRE). " Zavala Distr.," Afr. Music Res. Libr. III (PRE); Inhambane, *Gomes e Sousa* 1657 (PRE, COI), 1949 (COI); Inhambane, Maxixe, *Amostra* 1 (LM). Manica e Sofala: Macuacua, *Simão* 1251 (PRE); Gazaland, *Earthy* 27 (PRE); Masiyeni, *Earthy* 169 (PRE). Niassa: Porto Amelia, *Barbosa* 1865 (LM), *Barbosa & Lemos* 2031 (PRE); entre Pundankas e Nanga, *Barbosa* 2190 (PRE).

SOUTHERN RHODESIA.—Umtali: *Chase* 4664, 4559, 5722, *Ball* 1 (PRE, SRGH).

As this species is most probably found in other parts of tropical East Africa, it is not unlikely that it was described from this area under a different name. It is quite likely that Engler's species *Mimusops buchananii* in Pflanzenw. O. Afr., C, 307 (1895) and in Mon. Sapot. Afr. 56, t. 19, Fig. B (1904) and *Mimusops altissima* Engl., op. cit. (1904), 55, are referable to this species. These two have 12 stamens and the descriptions (and Figure of *M. buchananii*) agree very well indeed. This would extend the range of *Muriea discolor* to Nyasaland and Tanganyika.