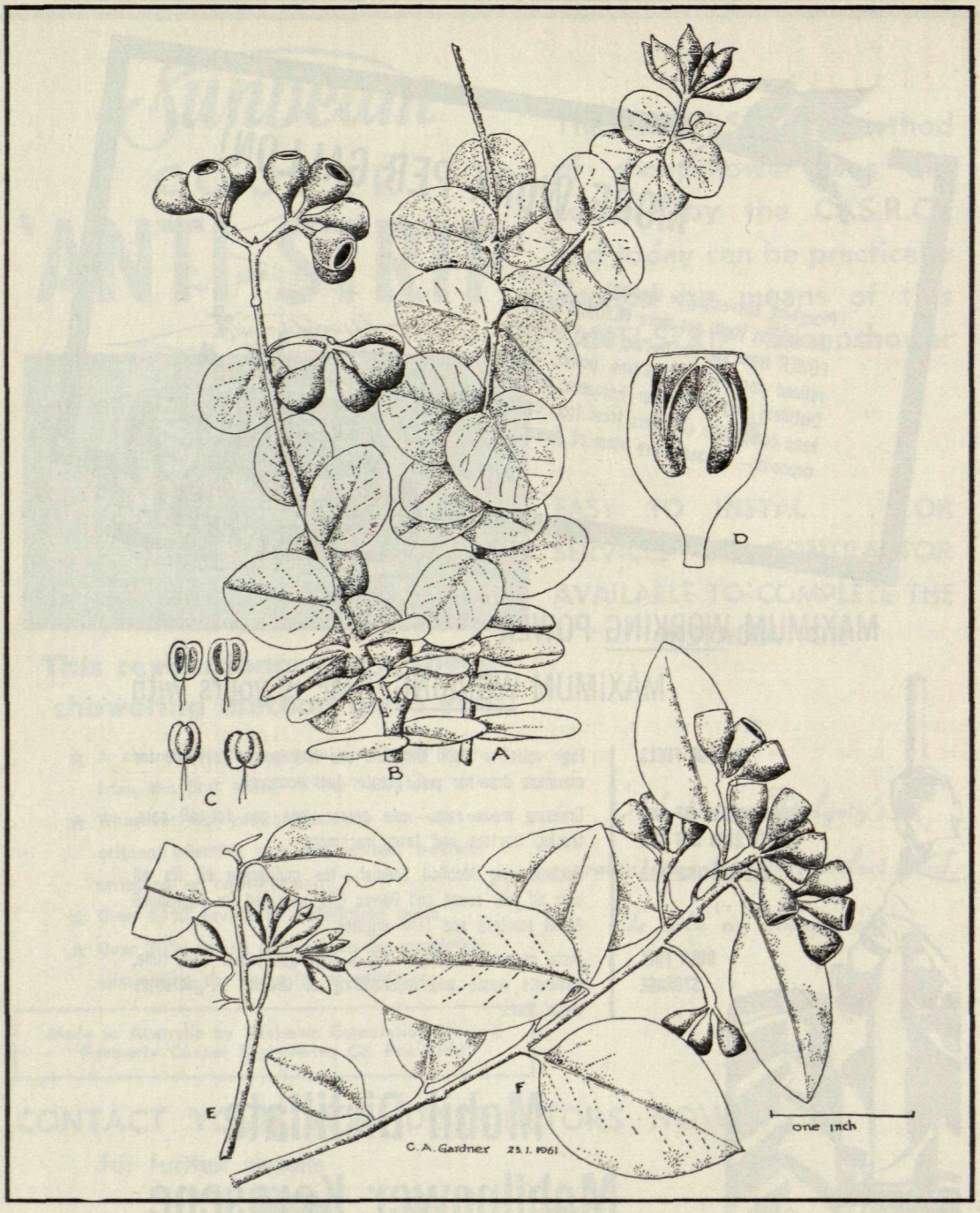


EUCALYPTUS KRUSEANA F. MUELL.

A—Branchlet with leaves and flower-buds; B—Branchlet with leaves and fruits; C—Anthers; D—Fruit in longitudinal section (enlarged), eight miles north from Karonie (J. H. Frank); E and F—Twigs with leaves, flower-buds and fruits from near Lake Cowan (G. E. Brockway), a form with larger stalked leaves (*E. brachyphylla* C. A. Gardn.)

TREES of Western Australia

By C. A. GARDNER

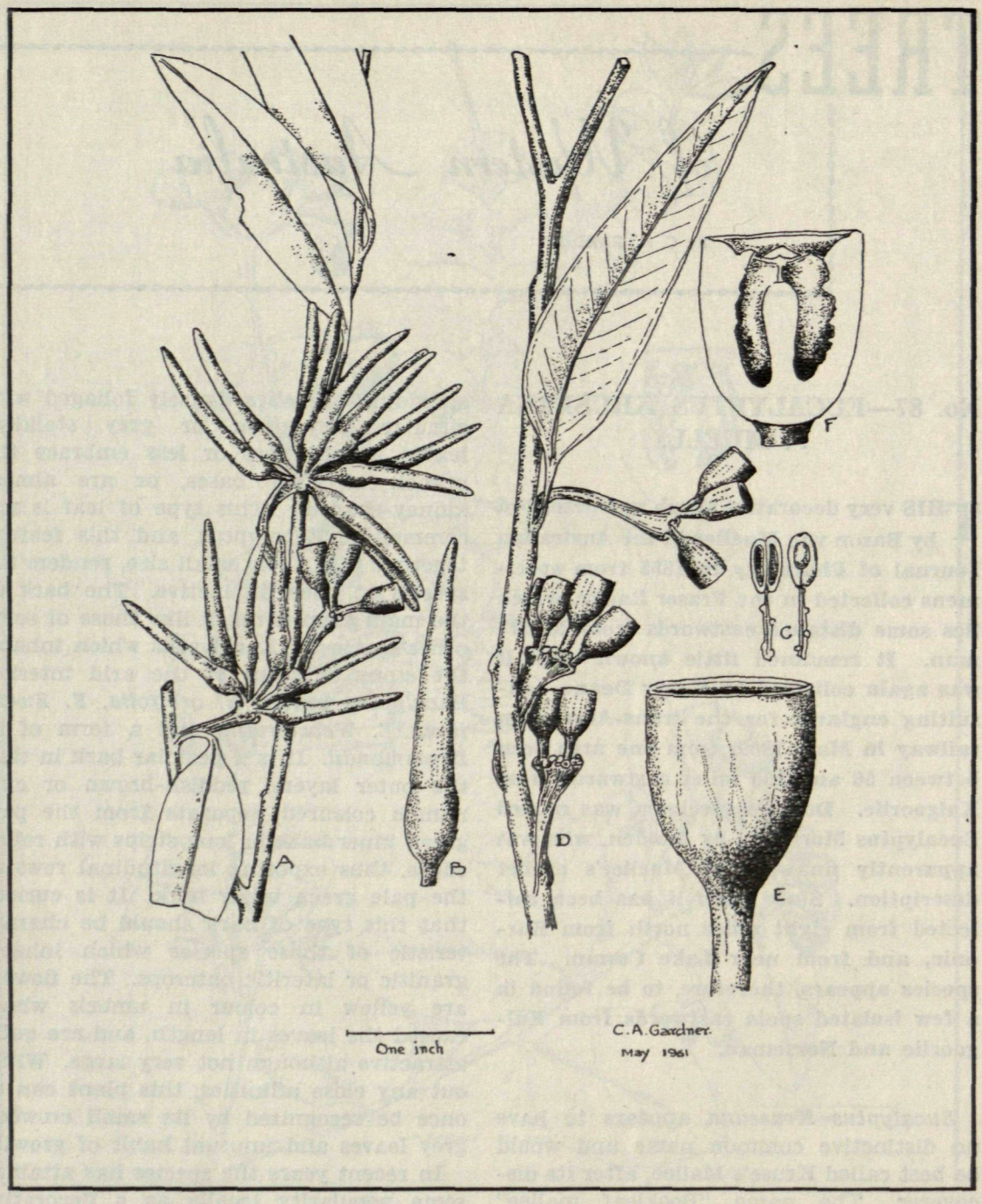
No. 87—EUCALYPTUS KRUSEANA F. MUELL.

THIS very decorative shrub was described by Baron von Mueller in the Australian Journal of Pharmacy in 1895 from specimens collected in the Fraser Range, which lies some distance eastwards from Norseman. It remained little known until it was again collected by Henry Deane, consulting engineer for the trans-Australian railway in May, 1909, from one area seen between 50 and 150 miles eastwards from Kalgoorlie. Deane's specimen was named Eucalyptus Morrisoni by Maiden, who was apparently unaware of Mueller's earlier description. Since then it has been collected from eight miles north from Karonie, and from near Lake Cowan. The species appears, therefore, to be found in a few isolated spots eastwards from Kalgoorlie and Norseman.

Eucalyptus Kruseana appears to have no distinctive common name and would be best called Kruse's Mallee, after its discoverer. The name "Bookleaf mallee" which has a certain use is without tangible meaning.

The plant is described as a shrub six to 10 feet tall, but under cultivation it attains a height of 12 to 15 feet with usually a single stem and more or less horizontally spreading branches densely foliaged with circular grey-green or grey stalkless leaves which more or less embrace the branch at their bases, or are almost kidney-shaped. This type of leaf is not common in Eucalyptus, and this feature together with their small size, renders the species at once distinctive. The bark of the main stem is much like those of some other species of Eucalyptus which inhabit the stony outcrops of the arid interior, *Eucalyptus crucis, E. orbifolia, E. Ewartiana E. Websteriana* and a form of E. *Drummondii.* It is a peculiar bark in that the outer layers, reddish-brown or cinnamon coloured, separate from the pale green inner bark in long strips with rolled edges, thus exposing longitudinal rows of the pale green inner bark. It is curious that this type of bark should be characteristic of those species which inhabit granitic or lateritic outcrops. The flowers are yellow in colour in umbels which exceed the leaves in length, and are quite attractive although not very large. Without any close affinities, this plant can at once be recognised by its small crowded grey leaves and unusual habit of growth.

In recent years the species has attained some popularity locally as a decorative shrub, growing well in the light sand of the west coastal regions, but it is equally at home in the clay soils of the interior, and is suitable for garden planting throughout the agricultural districts at least as far south as Bruce Rock.



EUCALYPTUS MACRANDRA F. MUELL. EX BENTH.

A—Branchlet with flower-buds and leaves; B—Flower-bud (enlarged); C—Anthers; D—Branchlet with fruits; E—Fruit (enlarged); F—The same in longitudinal section. Hamersley River, Gardner, January, 1935

No. 88
EUCALYPTUS MACRANDRA F. MUELL. EX BENTH.

THIS species is of southern distribution, extending from the Stirling Range in the west and eastwards as far as the Phillips River where it is found in sandy loamy soils, usually in depressions or on the banks of streams. It is most common along the Fitzgerald River and its tributaries.

Originally collected by George Maxwell in this general area of distribution it was named by Mueller, but published by Bentham in 1867 in the *Flora Australiensis*. The name is derived from two Greek words *makros* long, and *ander* (*andra*), a man, in reference to the long stamens—the stamens being the male organs of the flower. It thus received the vernacular name of "Long-flowered marlock" from Blakely, but the name is inappropriate, firstly because the flowers are no longer than a number of other species, especially the Yate and its relatives (of which this is one) and because it is not a marlock. The name marlock has been proposed for those species of Eucalyptus which are shrubby but not mallees, i.e., which do not possess woody stock-like bases from which a number of stems arise, these being mallees. As a matter of fact there is rarely such a distinction in the shrubby species of Eucalyptus, and as previously remarked in this series, the mallee form of growth is frequently if not usually the result of circumstances affecting the growth of the plant, amongst which fire is an important factor. The bushman would call Eucalyptus macrandra a Yate of some sort, and the name River Yate would not be inappropriate. It does in fact belong to that group of species which includes the Moitch, the Yates, the Mallets and the Moort—the *Coruntae*, in which the stamens are erect (not incurved) in the horn-like bud-cap.

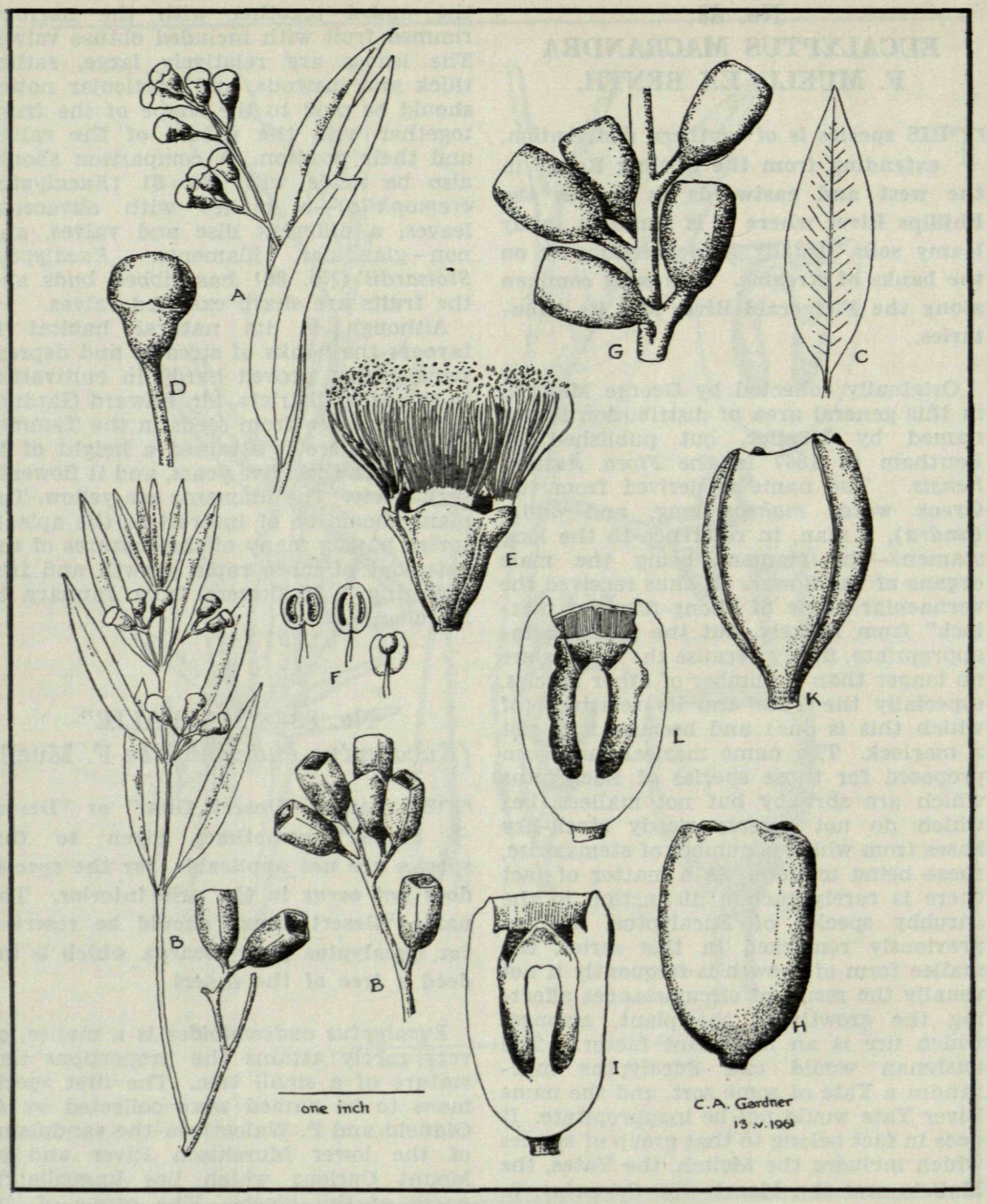
The principal characteristics of this species are the long narrow horn-like bud caps, the stalked buds and fruits, the flattened common flower-stalk (peduncle) and the numerous (up to 16) flowers in the umbel together with the narrow-rimmed fruit with included obtuse valves. The leaves are relatively large, rather thick and lustrous, and particular notice should be paid to the shape of the fruit, together with the nature of the valves and their position. A comparison should also be made with No. 81 (*Eucalyptus eremophila*)—a mallee with olivaceous leaves, a different disc and valves, and non-glandular filaments. *Eucalyptus Stowardii* (No. 80) has ribbed buds and the fruits are sharp exserted valves.

Although in its natural habitat it favours the banks of streams and depressions, it has proved hardy in cultivation in the drier districts. Mr. Edward Gardner raised the tree from seeds in the Tammin district, where it attained a height of 15 feet in less than five years, and it flowered very freely. The filaments are yellow. The plant should be of interest to the apiculturist, having many of the features of the yate, but of more rapid growth and free flowering. It flowers from January to March.

No. 89—"MALLALIE"
(*Eucalyptus eudesmioides* F. Muell)

THE names "Desert Gum" or "Desert Mallee" sometimes given to this species are not applicable, for the species does not occur in the arid interior. The name "Desert Gum" should be reserved for Eucalyptus gongylocarpa which is indeed a tree of the desert.

Eucalyptus eudesmioides is a mallee, or very rarely attains the proportions and stature of a small tree. The first specimens to be named were collected by A. Oldfield and P. Walcott on the sandplains of the lower Murchison River and at Mount Curious which lies immediately north of this river. The range of the species as known at present extends from about half way between Northampton and Shark Bay in the north, to Walebing and Piawaning in the south, whilst to the east we find it as far inland as Perenjori and Eradu, as a small bushy mallee with an average stature of about six or eight feet



"MALLALIE"
(Eucalyptus eudesmioides F. Muell*)*

A—Branchlet with leaves and flower-buds; B—Branchlet with leaves, flower-buds and fruits; C—Leaf; D—Flower-bud (enlarged); E—Flower (enlarged); F—Anthers, Mingenew, Gardner 690; G—Fruits; H—Fruit (enlarged); I—The same in longitudinal section, Walebing, Gardner; K—Fruit (enlarged); L—The same in section, Hill River, T. N. Stoate 22

with a pale pink, or yellowish-pink bark, the outer bark shedding in dark grey plates. The leaves are opposite, usually glaucous and thin, and distinctly stalked, but in the northern extremity of its range we find mallees with deep green larger and quite lustrous leaves. The flowers are always in umbels of three, on slender stalks collected on a common peduncle or common stalk. The hypanthium is campanulate or bell-shaped, and is four-toothed at the top, and the broad obtuse operculum is broader than the hypanthium. The filaments are white, and arranged in four distinct groups or bundles with a claw-like base (see Fig. E), and the anthers are rather short and broad. The only other South Western species with a similar staminal arrangement are *Eucalyptus erythrocorys* (No. 4 of this Series), *E. tetragona* the Tallerack (No. 71), and *E. ebbanoensis*. This group represents primitive forms of the species of Eucalyptus.

Eucalyptus eudesmioides is the "Mallalie" of the Murchison aborigines, according to Oldfield. Wherever possible Oldfield seems to have obtained the native names for native species and it is to be regretted that other collectors did not do the same.

The mallee grows on poor sandy or sometimes lateritic soils, and restricted to the area outlined above. It flowers from January to March, and is a hardy species in cultivation. I would recommend it for planting in exposed situations near the western seaboard.

Although in the middle areas of its range it maintains a fairly constant character, in the north, as stated, it has larger fruits and green leaves (probably the typical form). The common form of the intermediate regions has thinner usually pale foliage and smaller fruits (e.g., Fig B). In the Hill River district we find another form with fruits like those found in the North but more angular, and thick, but perhaps more glaucous leaves. In case of any doubt one should examine the arrangement of the stamens.

If the leaves are mainly opposite (not exactly a reliable characteristic since in the northern and Hill River forms they are sometimes alternate) and the fruit 4-angled and longer than broad with the valves not protruding, the plant will be *Eucalyptus eudesmioides*.

No. 90—THE ROSE MALLEE

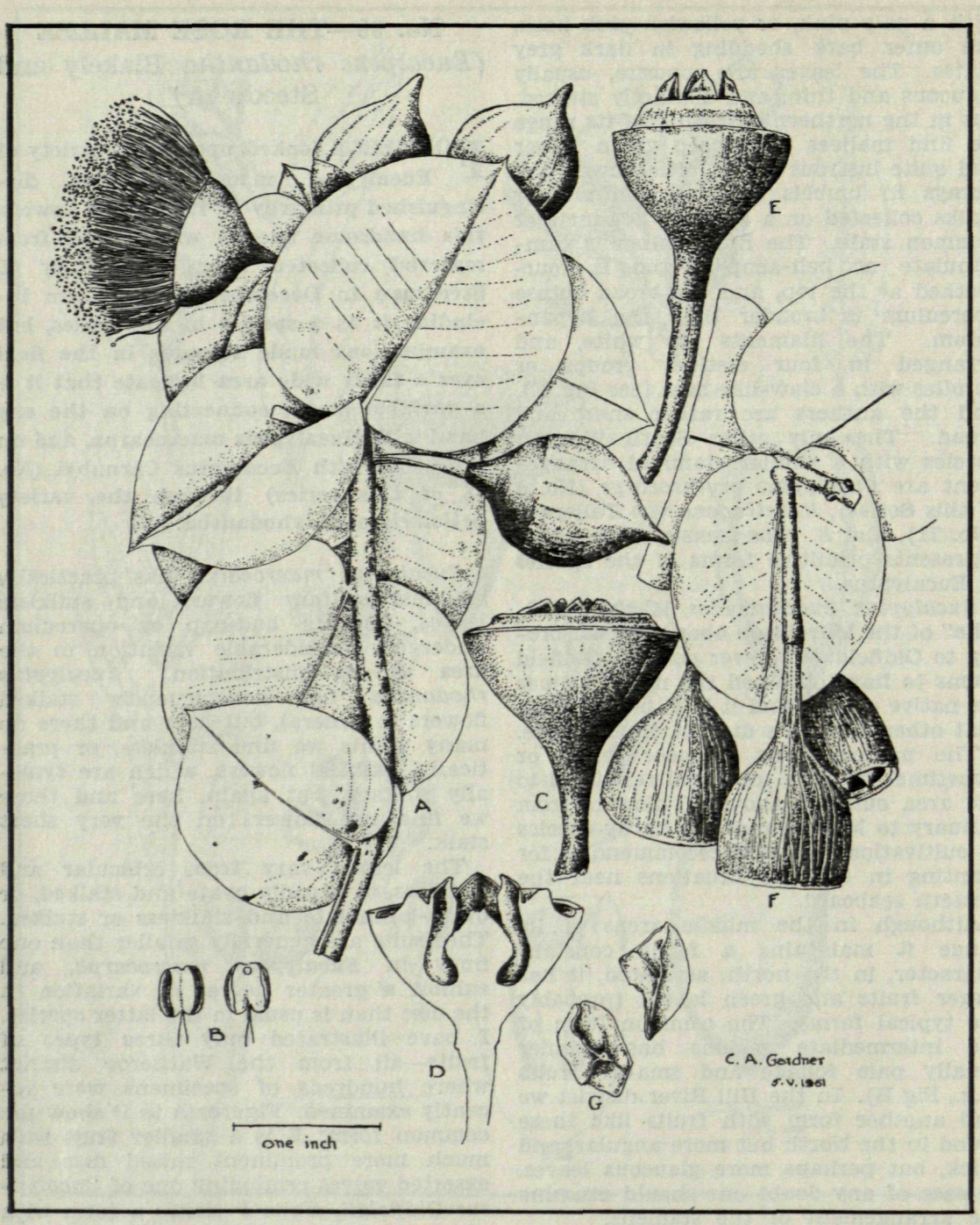
(*Eucalptus rhodantha* Blakely and Steedman)

FORMERLY looked upon as a variety of Eucalyptus macrocarpa but distinguished primarily by its stalked flowers, this handsome species was named from material collected near Gunyidi by H. Steedman in December, 1934. I am including it as a species in this series, but examinations made recently in the field over a fairly wide area indicate that it is a variable plant, connecting on the one hand with Eucalyptus macrocarpa, and on the other with Eucalyptus Carnabyi (No. 68 of this series) through the variety petiolaris of E. rhodantha.

Eucalyptus macrocarpa has practically stalkless solitary flowers and stalkless leaves, but its bud-cap or operculum undergoes considerable variation in the area of its distribution. *Eucalyptus rhodantha* has conspicuously stalked flowers in general, but here and there on many plants we find stalkless, or practically stalkless flowers, which are typically solitary, but again, here and there we find two flowers on the very short stalk.

The leaves vary from orbicular and stalkless, to broadly ovate and stalked, or ovate-lanceolate and stalkless or stalked. The fruits are generally smaller than one finds in *Eucalyptus macrocarpa*, and exhibit a greater degree of variation in the disc than is usual in the latter species. I have illustrated only three types of fruits—all from the Watheroo district where hundreds of specimens were recently examined. Figures A to D show the common form; E is a smaller fruit with much more prominent raised disc and exserted valves reminding one of *Eucalyptus Oldfieldii*, while F shows a form with drooping fruits of even smaller size and a very narrow disc. In addition, but not figured are practically stemless fruits which as stated vary from one to two on the extremely short stalk.

If one remembers that *E. macrocarpa* sometimes has a rather long conical oper-



THE ROSE MALLEE

(Eucalyptus rodantha Blakely and Steedman*)*

A—Branchlet of the typical form with leaves, flower-buds and one flower; B—Anthers; C—Typical fruit; D—Section of same; E—Smaller fruit with much exserted valves; F—A form with smaller leaves and pendulous smaller fruits with narrow disc; G—Seeds

Watheroo, Gardner 12780, February, 1961, except Fig. F, which was collected by A. J. Gray in the same area, 1960

culum, and compares the drawings of *Eucalyptus rhodantha* and *Eucalyptus Carnabyi* (*Eucalyptus macrocarpa* will be dealt with in the next issue of this series) it will be apparent that there is little difference between the three, bearing in mind that the variety *petiolaris* of *E. rhodantha* has stalked leaves. All three have red, or yellowish-white filaments.

Notwithstanding this variation, I have for the present regarded *E. rhodantha* as something distinct, whether as a species or a variety, and it is a plant that is almost unsurpassed for cultivation. Typically it is a shrub four to eight feet tall of greater diameter, but frequently we see specimens over 18 feet in height. The leaves are usually shorter and smaller than those of *E. macrocarpa,* and the plant does not appear to be affected by insect attacks as is so frequently the case with *E. macrocarpa.* Although two floral colours are to be seen, the commoner colour of the filaments is a deep red, and these smaller more richly coloured flowers on stalks which enable them to protrude beyond the foliage gives the plant a distinct advantage over *Eucalyptus macrocarpa.*

Eucalyptus rhodantha extends from the Hill River (where it is mixed with *E. macrocarpa)* to Gunyidi, some miles eastwards from Watheroo and southwards to near New Norcia. Its range is thus much more restricted than *Eucalyptus macrocarpa,* which extends from Mingenew to Kulin. It is worthy of note that *Eucalyptus Carnabyi* occurs with *Eucalyptus macrocarpa* at Barberton and Piawaning, and a form intermediate between the two is found not far from Bolgart.

The species flowers almost throughout the year.