

THE COARSE-LEAVED MALLEE
(Eucalyptus grossa F. Muell. ex Benth.)

A—Flower-buds; B—Section of flower-bud; C—Anthers; D—Fruits; E—Section of fruit
 (Near Salmon Gums, Gardner 2228)

TREES

of Western Australia

By C. A. GARDNER, Government Botanist

No. 71—COARSE-LEAVED MALLEE

(*Eucalyptus grossa* F. Muell. ex Benth.)

THIS mallee is unmistakable by reason of its peculiar habit and thick rough-barked stem and branches, both of which have longitudinally-fissured persistent bark right up to the distinctly reddish branchlets. The leaves are broad and thick, a bright shining green in colour, with the mid-ribs usually a purplish-red. The heads of flowers are on thick red round-in-section foot-stalks which hang almost vertically, and the reddish bud-cap conceals the ultimately free, bright yellow filaments. The widely-spreading thick branches, and in general the rough stout appearance of the shrub inspired the name "grossa" from the Latin *grossus* meaning thick.

Originally described from specimens collected by Maxwell in the vicinity of the Phillips River, the main centre of distribution lies to the east, along the upper reaches of the Young and Lort Rivers, and northward to Salmon Gums, where it occurs sporadically in thickets of tea-tree on yellow clay or loamy soils. The plant seldom exceeds six or eight feet in height. It is not infrequently associated with such soils in proximity to granite rocks.

This remarkable species has no close relationship with other species of *Eucalyptus*, nor has the plant any known economic value, apart from the part it could play in horticulture. Being hardy, it would thrive in most localities in the South-West, and could be a distinct ornament in any garden or shubbery. It would however require space for its ultimate development, since although not of any appreciable stature, it can occupy a lateral diameter of up to ten feet.

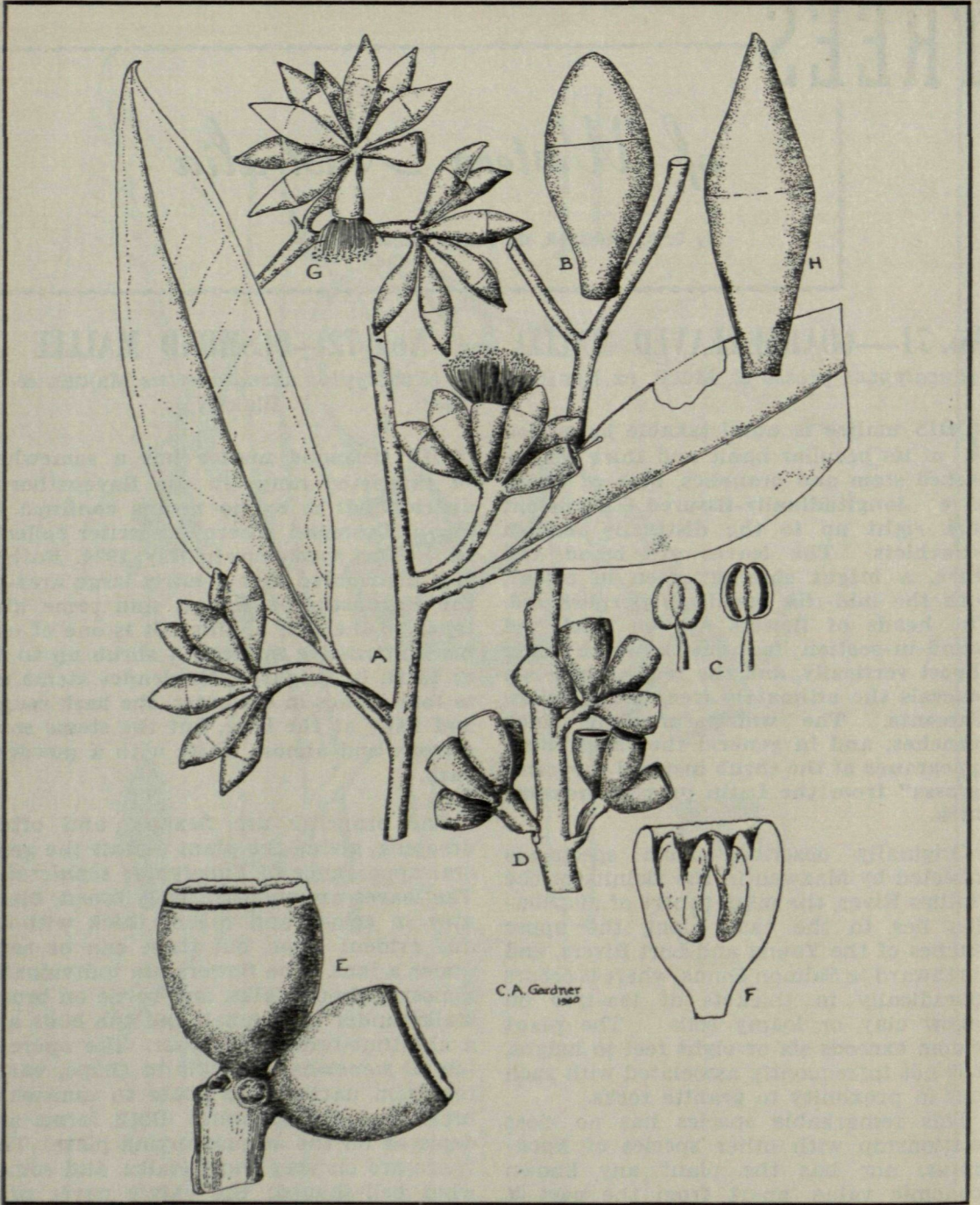
No. 72—DESMOND MALLEE

(*Eucalyptus desmondensis* Maiden & Blakely).

THE Desmond mallee has a somewhat restricted range in the Ravensthorpe district, but is by no means confined to Mount Desmond, where the writer collected the first specimens in May, 1924. Rather is it distributed over a fairly large area of the Ravensthorpe Range, and some distance to the east of this. It is one of our more attractive mallees, a shrub up to 10 or 15 ft. in height, with slender stems up to four inches in diameter, the bark rough and flaky at the base, but the stems soon smooth and almost white with a powdery bark.

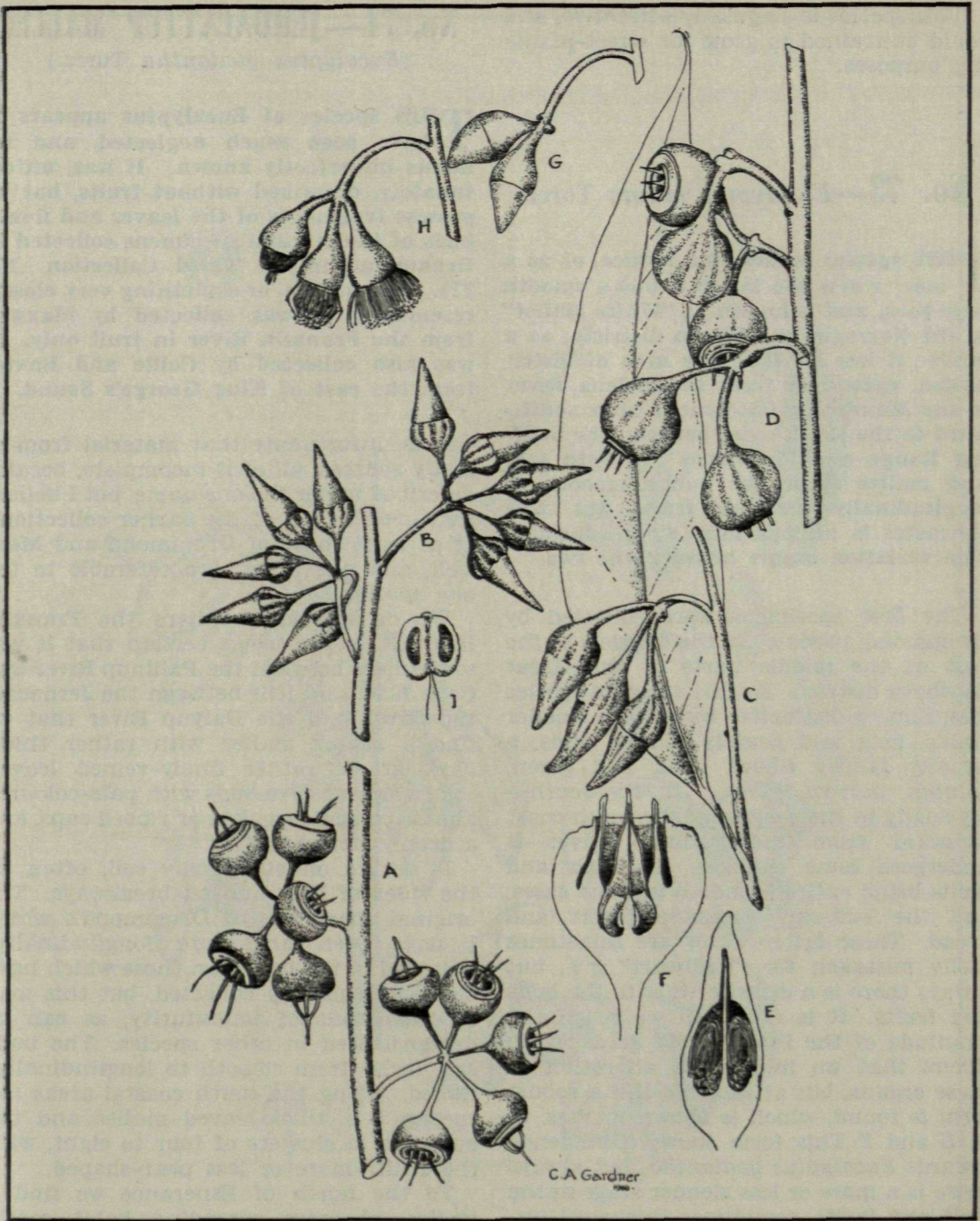
The branches are flexuose and often drooping, giving the plant almost the general appearance of *Eucalyptus sepulcralis*. The leaves are comparatively broad, blue-grey in colour and rather thick without any evident veins, but these can be seen under a lens. The flowers are individually almost without stalks, and borne on broad stalks under the umbel, and the buds are a chestnut-brown in colour. The operculum is somewhat variable in shape, varying from narrow and acute to somewhat broad and almost blunt. Both forms are depicted on the accompanying plate. The fruits are on very short stalks, and somewhat bell-shaped; the valves never projecting beyond the rim of the fruit. The filaments are pale yellow when fresh, but dry to a yellowish-brown colour.

On Mount Desmond the shrub grows in stony soil on the lower slopes of the hill, but in some places it may be found in clay. It flowers in the winter and spring, from May to November.



THE DESMOND MALLEE
(Eucalyptus desmondensis Maiden & Blakely)

A—Branchlet with buds and flowers; B—Flower-buds; C—Anthers; D—Fruits; E—Single fruit (enlarged);
 F—Section of same, Mount Desmond, Gardner May 1924 (Type); G—Flower-buds; H—The same enlarged.
 Ravensthorpe district (Gardner 2935, November 1931)



Eucalyptus falcata Turcz.

A—Fruits; B—Flower buds, Mundaring catchment area, D. H. Perry (this is the typical form); C—Flower-buds; D—Fruits; E—Section of flower-bud; F—Section of fruit; I—Anther, Hatter's Hill, Gardner; G—Flower-buds; H—Flowers, 35 miles westwards from Esperance, G. H. Burvill.

This species is singularly attractive, and could be trained to grow for street-planting purposes.

No. 73—*Eucalyptus falcata* Turcz

THIS species occurs as a mallee, or as a tree: when the latter it has a smooth pale bark, and is known as "White Mallet" in the Narrogin and Wagin districts; as a mallee it has an extensive area of distribution, extending from the Helena River in the Mundaring Catchment Area, southward to the south coast between the Stirling Range and Esperance. In both tree and mallee forms we find a smooth or longitudinally-furrowed fruit, but this character is unimportant, since considerable variation occurs between the two.

The first specimens were collected by Drummond, probably in the districts to the east of the middle parts of the Great Southern district. In this area the species maintains a distinctive form, with slender stalks, long and acutely-pointed buds, a usually faintly ribbed fruit, and green, shining, narrow leaves. In the south—especially in the regions of the south coast eastward from the Pallinup River—it undergoes some changes, the buds and fruits being entirely smooth in some cases, and the bud-cap sometimes short and broad. These latter forms are sometimes easily mistaken for "Redheart" *q.v.*, but always there is a definite stalk to the buds and fruits. It is not until we reach the longitude of the Phillips and Jerdacattup Rivers that we find much alteration to these organs, but at Hatter's Hill a robust form is found, which is shown in Figs. C, D, E and F. This form shows a tendency towards *Eucalyptus goniantha*, but always there is a more or less slender stalk to the buds and fruits, sometimes thickened upwards. Farther east, in the sand near the coast, the buds become smaller on shorter, thicker stalks, and it is here that the species most closely approaches *Eucalyptus decipiens*.

The bark of the tree form is not high in tannin, and is sometimes added to brown mallet bark as an adulterant.

No. 74—**JERDACATTUP MALLEE**

(*Eucalyptus goniantha* Turcz.)

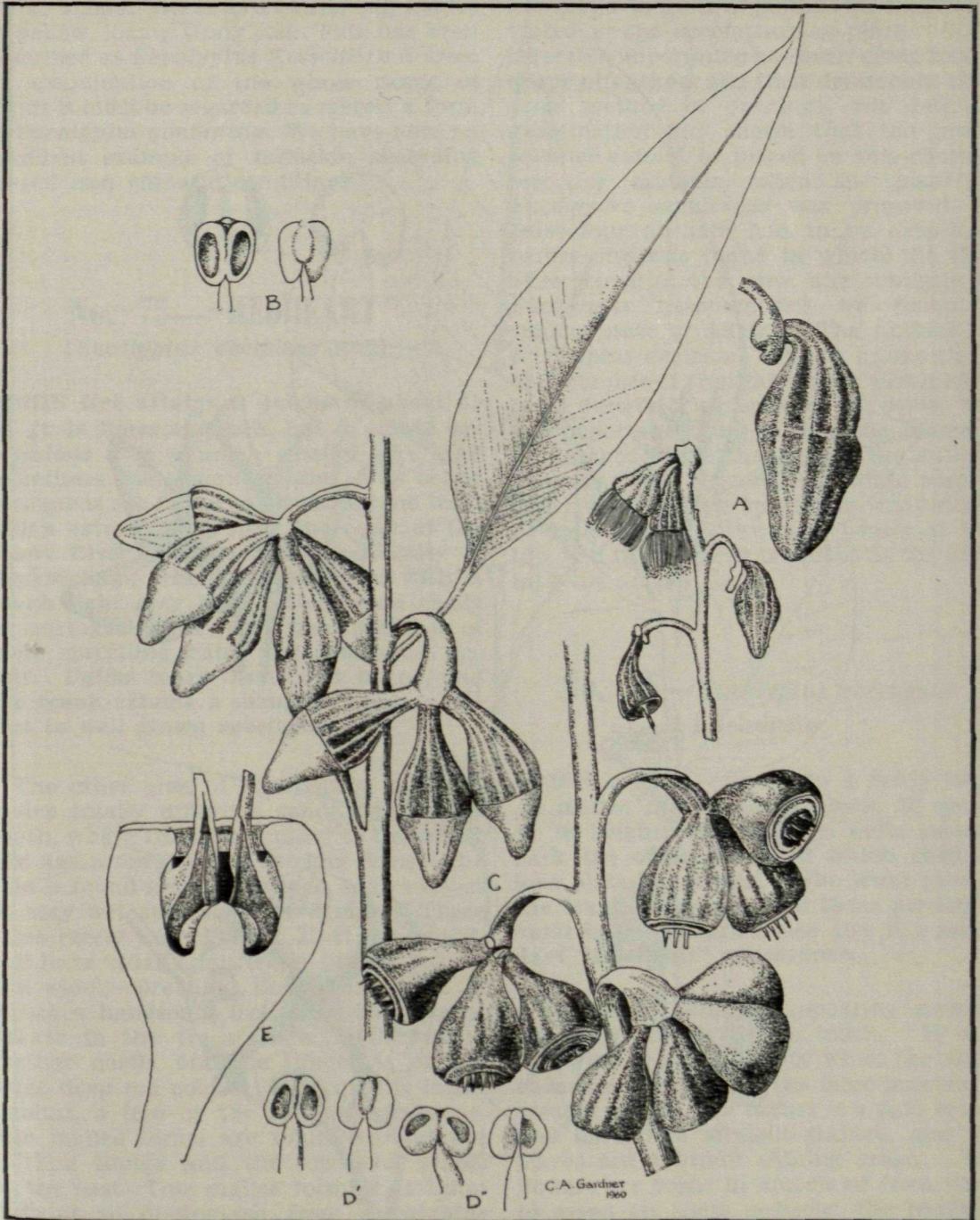
THIS species of *Eucalyptus* appears to have been much neglected, and remains imperfectly known. It was, unfortunately, described without fruits, but we possess fragments of the leaves and flower buds of the original specimens collected by Drummond in his Third Collection (No. 71). This mallee, or something very closely resembling it, was collected by Maxwell from the Franklin River in fruit only. It was also collected by Collie and Baxter from the east of King George's Sound.

It is unfortunate that material from so many sources, all of it incomplete, became described under the one name, but I believe that even so, all of the earlier collections, or at least those of Drummond and Maxwell, and one other, are referable to the one species.

We do not know where the Franklin River is, but it seems certain that it was somewhere between the Pallinup River and Cape Arid, and it is between the Jerdacattup River and the Dalyup River that we find a robust mallee with rather thick, dark green, rather finely-veined leaves, somewhat massive buds with pale-coloured almost conical streaked or ribbed caps, and a deeply ribbed fruit.

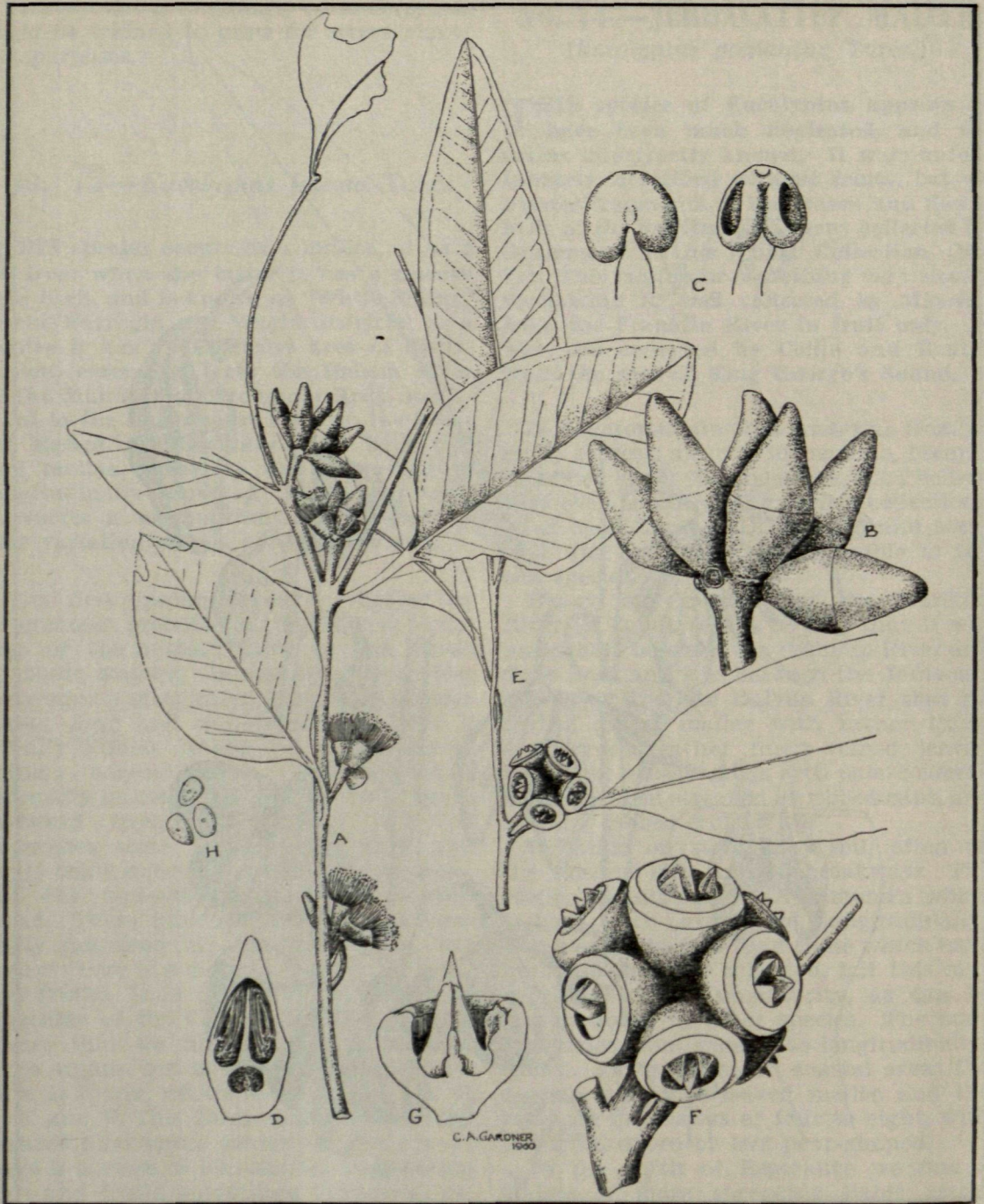
It occurs on stony clay soil, often on the sides of hills and on breakways. The original specimens of Drummond's which I have seen are more longitudinally-wrinkled in the bud than those which have been subsequently collected, but this may be the result of immaturity, as can be demonstrated in other species. The bud-cap varies from smooth to longitudinally-ribbed. Along the south coastal areas the species is a thick-leaved mallee and the buds are in clusters of four to eight, with the fruits more or less pear-shaped.

To the north of Esperance we find a mallee of more spreading habit rarely exceeding four to five feet in height, in which the flowers appear to be constantly in groups of three, and the fruit is more coarsely ribbed. Still farther north—in heavier soil—it becomes larger, and near Circle Valley a tree form occurs up to 45 ft. in height with a rough persistent bark. Farther north, in clay soil we find it as



THE JERDACATTUP MALLEE
(Eucalyptus geniantha Turcz.)

A—Flowers and buds; B—Anthers, Drummond (type collection); C—Buds and fruits; D—Anthers; E—Section of fruit, Jerdacattup River (Gardner December 1940)



"REDHEART"
(*Eucalyptus decipiens* Endl.)

A—Branchlet with flowers and buds; B—Flower buds enlarged; C—Anthers; D—Flower bud in section;
E—Branchlet with fruits; F—Cluster of fruits (enlarged); G—Fruit in section; H—Seeds
(Toll's Pass, Stirling Range, Gardner 1931)

far as Salmon Gums as a rather tall mallee in yellow, loamy stony soil. This has been described as *Eucalyptus Kessellii*, but from an examination of the whole range of forms it must be regarded as merely a form of *Eucalyptus goniantha*. We have here an excellent example of variation according to soil and climatic conditions.

No. 75—"REDHEART"

(*Eucalyptus decipiens* Endl.)

THIS tree attains a height of about 45 ft. in limestone soils, but in sandy depressions it is a much smaller tree, and sometimes has a mallee form. The better specimens are found in the limestone tract which extends from near the coast at the Moore River southward to the vicinity of Rockingham, where it is a tree with a rough light grey bark which could easily be mistaken for a tuart tree, but it is of more spreading habit and somewhat untidy. Unlike tuart the timber is red, and the trunk attains a diameter of over two feet in well grown specimens.

The other area of distribution is found under totally different conditions in the south, where from Katanning to Denmark, and again towards the Stirling Range, the tree is found growing in poor sand subject to very wet conditions in winter. These trees rarely exceed 20 or 25 ft. in height, and have usually gnarled or twisted trunks and widely-spreading, untidy branches. It is not a handsome tree. The bark too is darker in the trees from the limestone farther north, but the timber is of the same deep red colour. It is, in this latter habitat, a tree of the sandy depressions. The mallee forms are found around the Stirling Range and the low-level plains to the east. This mallee form is at times difficult to distinguish from *Eucalyptus falcata*, but always the buds and fruits are to all purposes stalkless, whereas those of *Eucalyptus falcata* are distinctly stalked.

The anthers of *Eucalyptus decipiens* exhibit some diversity in size and form. They have been described as opening in pores, and this is sometimes true of the immature anthers, but in the fully mature state they

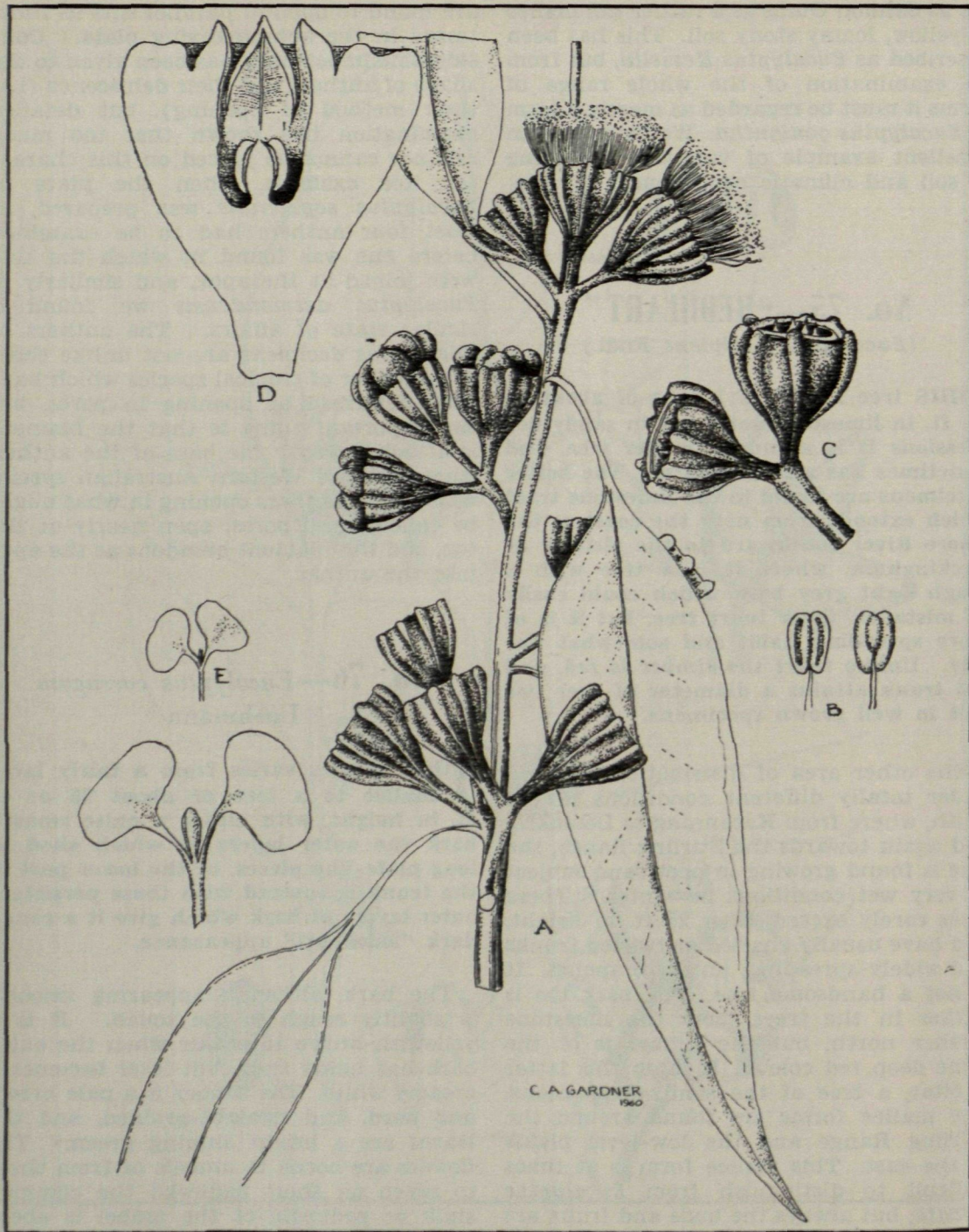
are found to open in parallel slits as illustrated in the accompanying plate. Considerable importance has been given to the shape of anthers and their dehiscence (i.e., their method of opening), but detailed examination has shown that too much reliance cannot be placed on this character: for example, when the plate of *Eucalyptus sepulcralis* was prepared, at least four anthers had to be examined before one was found in which the slits were joined at the apex, and similarly in *Eucalyptus desmondensis* we found a similar state of affairs. The anthers of *Eucalyptus decipiens* are not unlike those of a number of tropical species which have been described as opening in pores, but the important thing is that the filament is attached above the base of the anther, whereas those Western Australian species which have anthers opening in what might be called small pores, open nearly at the top, and the filament broadens at the apex into the anther.

No. 76—*Eucalyptus corrugata* Luehmann

THIS species varies from a fairly large mallee to a tree of about 35 or 40 ft. in height, with either a quite smooth bark the outer layers of which shed in long plate-like pieces, or the lower part of the trunk is covered with these persistent outer layers of bark which give it a rough dark "blackbutt" appearance.

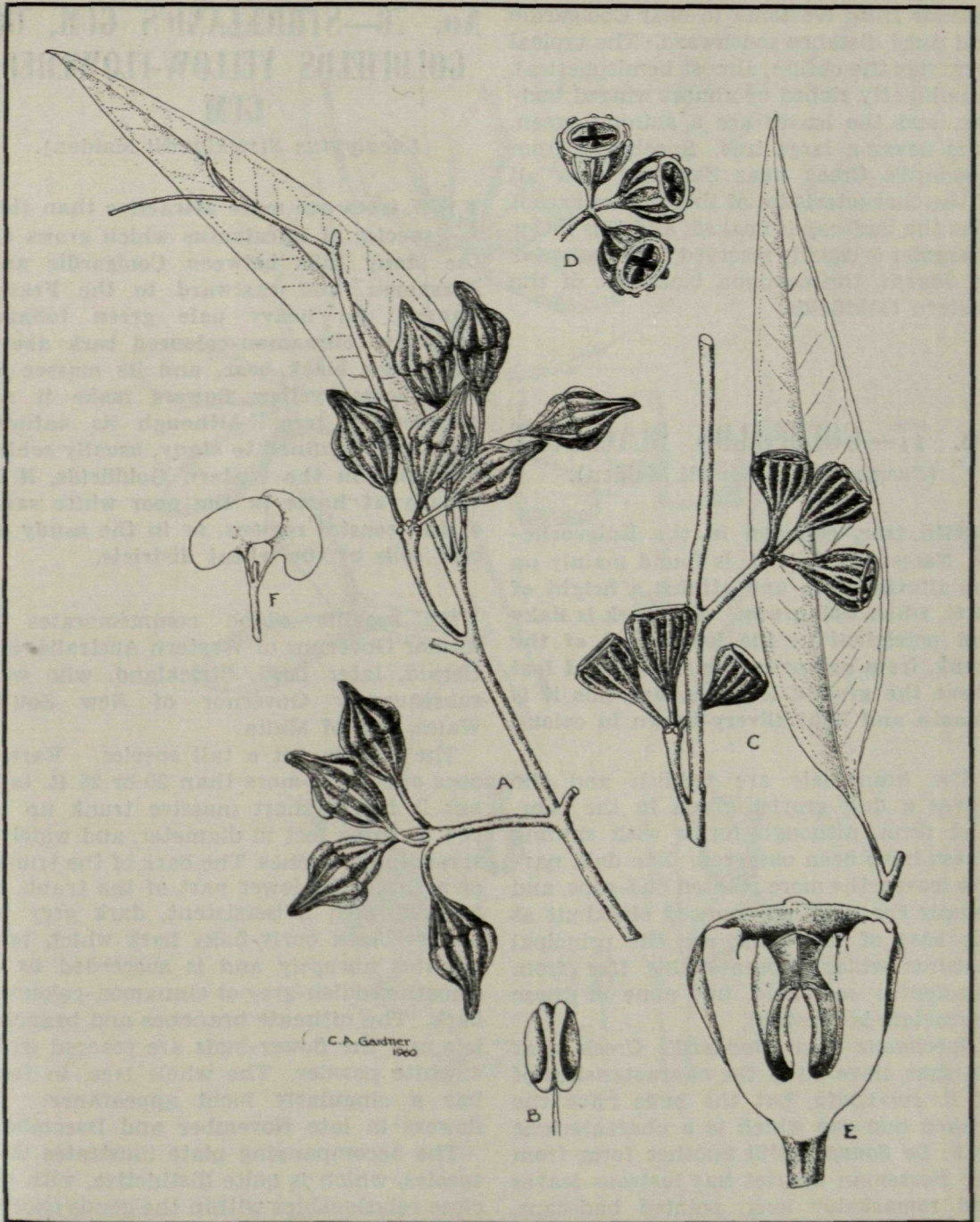
The bark, although appearing smooth, is slightly rough to the touch. It is a yellowish-brown in colour when the outer bark has newly shed, but later becomes a creamy white. The timber is a pale brown and hard, and straight-grained, and the leaves are a bright shining green. The flowers are borne in umbels of from three to seven on short pedicels; the common stalk or peduncle of the umbel is about half an inch long. The buds and fruits are prominently ribbed, and the bud-cap or operculum is normally broad and blunt, being almost hemispherical, and is even more prominently ribbed than the calyx.

Eucalyptus corrugata grows on stony soil, usually on rising ground, and its range



Eucalyptus corrugata Luehmann.

A—Branchlet with buds, flowers and fruits; B—Anthers; C—Fruits; D—Section of fruit; E—Cotyledons
 (Westonia, Gardner 1965)



GOLDFIELDS BLACKBUTT
(Eucalyptus Le Souefii Maiden)

A—Branchlet with buds; B—Anther; C—Branchlet with leaf and fruits; D—Fruits; E—Fruit in section; F—Cotyledons
 (Higginsville, Gardner 9535)

extends from Westonia to near Coolgardie and some distance southward. The typical form has the obtuse, almost hemispherical, prominently ribbed or almost winged bud-cap, and the leaves are a shining green. It is never a large tree. Specimens from Goddard's Creek near Zanthus show all of the characteristics of this species except that the bud-cap is beaked, and this latter character is usually reserved for *Eucalyptus Le Souefii*, the common blackbutt of the Eastern Goldfields.

No. 77—GOLDFIELDS BLACKBUTT (*Eucalyptus Le Souefii* Maiden).

THIS tree, common in the Kalgoorlie-Norseman district, is found mainly on the alluvial flats, and attains a height of 45 ft. when well grown. The bark is flaky and persistent in the lower part of the trunk, from one or two to six or eight feet above the ground level. Above this it is smooth and light silvery-brown in colour.

The branchlets are reddish and the leaves a dull greyish-green in the common form, although forms with shining leaves have been observed. The dull, narrow leaves, the more pointed bud-caps, and usually the more pronounced blackbutt at the base of the trunk are the principal features which separate this tree from *Eucalyptus corrugata*, but none of these characters is constant.

Specimens from Goddard's Creek near Zanthus, have all of the characteristics of *E. corrugata*, but the buds have the beaked bud-cap which is a characteristic of *E. Le Souefii*. Still another form from the Norseman district has lustrous leaves and remarkably long, pointed bud-caps. Perhaps all three should be grouped as a single species.

The range of the typical form of *Eucalyptus Le Souefii* extends from Kalgoorlie to Norseman, and westward to Coolgardie. As previously stated, it grows on low-lying flats and shows a certain tolerance to salt.

No. 78—STRICKLAND'S GUM, OR GOLDFIELDS YELLOW-FLOWERED GUM

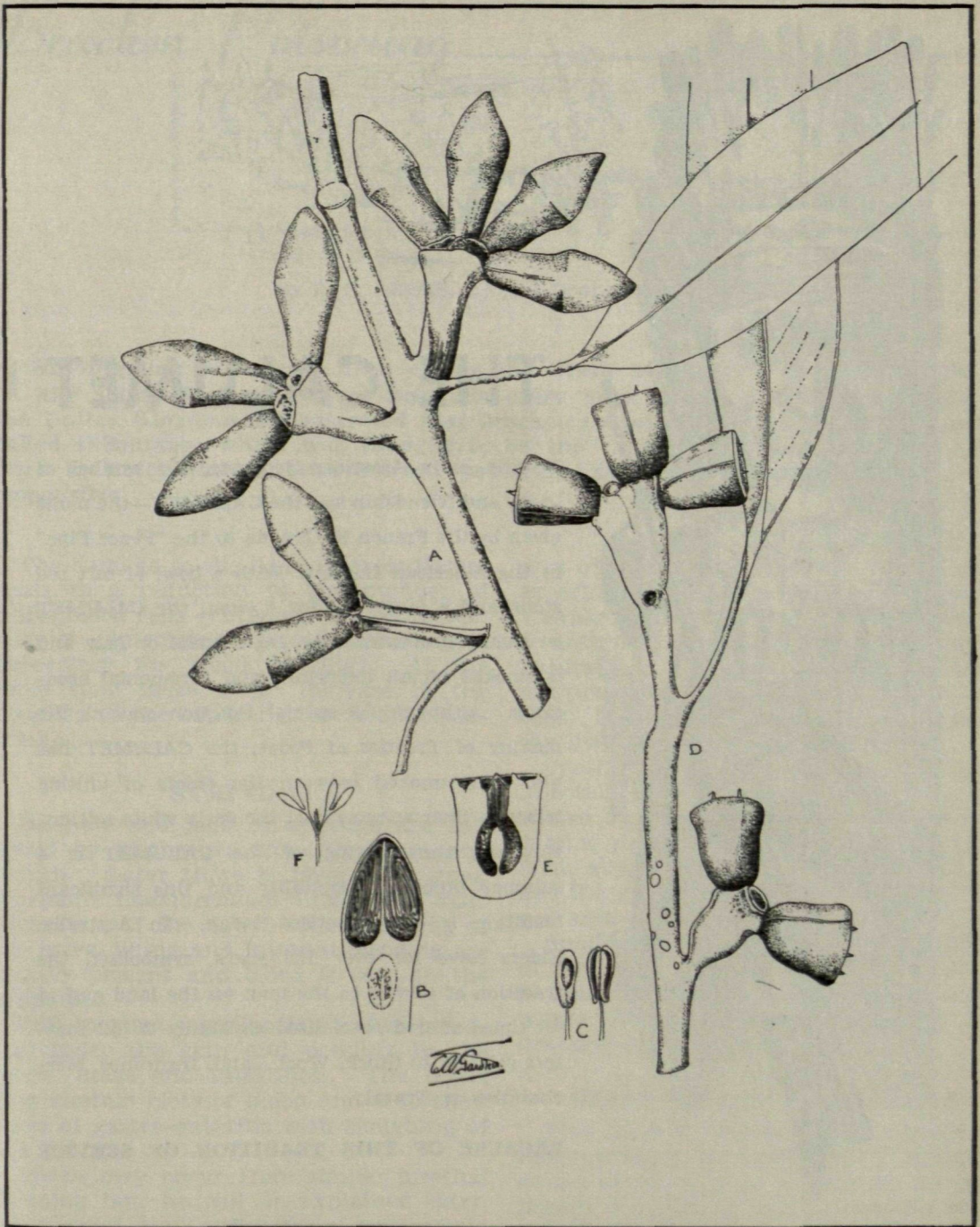
(*Eucalyptus Stricklandii* Maiden).

FEW trees are more attractive than this species of *Eucalyptus* which grows on the stony hills between Coolgardie and Norseman, and eastward to the Fraser Range. Its heavy pale green foliage, attractive cinnamon-coloured bark above the rough black base, and its masses of large lemon-yellow flowers make it an outstanding tree. Although its natural habitat is confined to stony, usually schistose hills in the Eastern Goldfields, it is equally at home in the poor white sand of the coastal regions, or in the sandy or clay soils of the wheat districts.

Its specific name commemorates a former Governor of Western Australia, Sir Gerald, later Lord, Strickland, who was subsequently Governor of New South Wales, and of Malta.

The tree is not a tall species. Rarely does one see it more than 20 or 25 ft. tall, but it has a short massive trunk up to two or three feet in diameter, and widely-spreading branches. The bark of the trunk, or at least the lower part of the trunk, is covered with a persistent, dark grey or almost black curly-flaky bark which terminates abruptly and is succeeded by a smooth reddish-grey or cinnamon-coloured bark. The ultimate branches and branchlets and the flower-buds are covered with a white powder. The whole tree, in fact has a singularly lucid appearance. It flowers in late November and December.

The accompanying plate illustrates this species, which is quite distinctive, with no close relationships within the genus except *Eucalyptus Carnei* which grows in the Sandstone district. Points which should be observed in *Eucalyptus Stricklandii* are the stout, flattened, common flower-stalks, the stalkless individual flowers, the shape of the fruit and the cylindrical-ovate operculum which is yellow when the bud is ready to burst.



STRICKLAND'S GUM, OR GOLDFIELDS YELLOW-FLOWERED GUM
(Eucalyptus Stricklandii Maiden)

A—Branchlet with flower-buds; B—Flower-bud in section; C—Anthers; D—Branchlet with fruits; E—Section of fruit; F—Cotyledons
 (Widgiemooltha, Gardner 1950)