WILDFLOWERS OF THE NORTHWEST

An Introduction to the Flora of Northwestern Australia
by J. S. Beard

Wildflowers in wattle scrub between Geraldton and Carnarvon

Pink Schoenia and yellow Cephalipterum under *Acacia tetragonophylla*

White heads of Ptilotus mingle with purple Swainsona and many-coloured composites.

A carpet of Cephalipterum extends under minnieritchie wattle (*Acacia grasbyi*).

FRONT COVER:
A bush of *Verticordia forrestii* on sandhills at about the 182 m.p., North-west Coastal Highway.

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Sturt's Desert Pea (*Clianthus formosus*)

INTRODUCTION

West Australian wildflowers have long been justly famous throughout the world, but in the public mind the principal wildflower area of the State has always been regarded as the South-West. It is this relatively well-watered region, the "South-Western Province" of the botanists, which does in fact contain the greater number of West Australian species and the greatest profusion of colourful and interesting forms. Being also the most closely settled and accessible portion of the State, the South-West has tended to become better known and more visited than other parts. None the less, the other parts have also their floral wealth which should not be neglected, and the purpose of this little work is to describe the flora of one such part, the North-West. By this we mean all that part of North-Western Australia between the Gascoyne and de Grey Rivers, in particular the Hamersley region. This vast, thinly peopled and semi-arid country has been drawing a steadily increasing number of visitors in recent years, attracted by its lovely winter climate and the spectacular scenery of its mountains and gorges. Latterly, big new mining developments have brought the region still more into the public eye and it can be expected that the number of visitors will increase still further. It is for them that this work is written, hoping that an understanding of the wildflowers seen along the way will add to the enjoyment of this visit.

The North-West can be approached, by road, by either of two routes: the North West Coastal highway through Geraldton, Carnarvon and Onslow, or the Great Northern Highway via Mount Magnet and Meekatharra. The North-West is officially entered on crossing the 26th Parallel which is signboarded at the roadside 205 miles north of Geraldton on the coastal highway, and would be passed some 40 miles north of Meekatharra on the inland route.

This book will take the form of a description of an itinerary or journey along each of these routes in turn from south to north, as it is seen during the height of the wildflower season, in August. It is expected that most visitors will travel around that time and are likely to see most of the species mentioned in flower. It must be remembered however that this is an area of low and unreliable rainfall, that flowering depends on adequate rains and will vary in luxuriance according to rains received. There will always be flowers in spring, but some seasons are better than others.

typical North-West River: the Lyons River above Gascoyne Junction.

THE NORTH WEST COASTAL HIGHWAY

On leaving Geraldton for Carnarvon, 296 miles by an excellent bitumenised road, the country is, at first, where not cleared for farming, covered by typical southern vegetation—York Gum *(Eucalyptus loxophleba)*, River Gum *(Eucalyptus rudis)*, Wattles and Prickly Hakea with Sheoak *(Casuarina cristata)* in rocky places, especially near the Murchison River. Such heavily wooded country was never outstanding for wildflowers. Some beautiful areas of sandplain used to occur on high ground but these have now mostly been put under the plough. Leaving Geraldton at the 312 milepeg from Perth the little town of Northampton is passed after 31 miles. From the 367 to 373 m.p. formerly stretched the Binnu sandplain, a beautiful wildflower area much visited by tourists, but the last of it was ploughed in 1963. The Murchison River is crossed in a deep valley at the 383 m.p. and soon after the last fields and pastures are left behind. There will be no more to be seen until returning to the south of the State. For some little distance southern vegetation still persists. 390–395 m.p. heath and mallee, 395–406 York Gum; 406-412 yellow sandhills with a beautiful heath flora, 412–468 heath on sandy rises alternating more and more with wattle thickets between them. Typical heath and "sandplain" shrubs that will be seen include *Banksia ashbyi, Hakea bucculenta, Grevillea eriostachya* (yellow fl.), *G. dielsiana* (red fl.); *G. annulifera* (white fl.), the Cypress pines Actinostrobus and Callitris, Native Poplar *Codonocarpus cotinifolius, Hibiscus farragei, Pityrodia oldfieldii* and *Verticordia etheliana* with numerous others.

Beyond the 468 m.p. the heath plants disappear, marking the transition from the South-western Botanical Province to the Eremaean. From here northwards nearly all species of trees, shrubs and other plants will be different from those familiar in the south. As far as the

512 m.p. the road runs in a straight line across an even plateau of limestone gradually descending northwards from a maximum of about 1,000 feet above sea level down to 200 feet. This plateau is stony with little soil, and bears a wattle scrub resembling the mulga. The actual mulga tree, however, *(Acacia aneura)* is rather rare here, occurring rather in the interior of the State. Here we have a mixture of other wattles such as Minnieritchie *(Acacia grasbyi)* whose bark peels in little curling flakes: the Curara *(Ac. tetragonophylla)* with thin spiky leaves and curled pods: the Black Wattle *(Ac. sclerosperma)*, leaves cylindrical and Sugar Brother *(Ac. brachystachya)*.

The ground between the open growth of these shrubs is brilliantly carpeted, in due season, with the flowers of herbaceous species of all kinds, forming a most wonderful display for miles. The "everlastings" (compositae or daisy family) predominate. The commonest species include the yellow and white colour-forms of *Cephalipterum drummondii*, a composite or daisy with a spherical, compound flower head. The two colour forms of the species which are otherwise identical tend to occur in separate patches, the yellow on higher and drier ground than the white. Other daisies include the pink *Schoenia cassiniana* and golden Podolepis species and *Myriocephalus guerinae*, the latter with composite heads. The purple pea flowers of a trailing vine, *Swainsona occidentalis*, will be commonly seen. This plant is common throughout the North-West, usually in salty soil. One vine may bear as many as 5,000 flowers.

Two species of mulla-mulla occur here (*Ptilotus alopecuroideus* and *P. macrocephalus*) especially in the northern part; these are large and much-branched herbs with their flowers arranged in "bottlebrushes". Other and more attractive species with mauve flowers will be seen further north. Other wildflowers include Velleia, yellow-flowered herbs related to Leschenaultia; Solanum, blue-flowered shrubs with felty leaves and prickles; Abutilon, yellow-flowered hairy shrubs. This stretch may also provide the first introduction to the Eremophilas or Poverty Bushes, of which two species, *Eremophila clarkei* and *E. maitlandii* should be seen, and are attractive shrubs with mauve flowers. A discussion on Eremophila will be found on page 19.

This stretch is one of the most colourful for flowers along the route. The turn-off to Shark Bay is at the 490 m.p. and the 26th Parallel, gateway to the North-West, is crossed at the 516 m.p. At the 512 m.p. the road descends from the low plateau and runs along the shores of Hamelin Pool (part of Shark Bay) before turning inland to cross the Wooramel River. Here we see a typical North-west river for the first time, a broad sandy bed normally dry but running violently in spate after rain, lined by River Gums *(Eucalyptus camaldulensis)* and Coolabah Trees *(Euc. microtheca)*. The former is usually found on the actual banks of watercourses, often with Cadjeput *(Melaleuca*

Schoenia cassiniana **in the Brown Range, Carnarvon.**

Brachycome latisquamea **in saltbush country south of Carnarvon.**

leucadendron), a paperbark or teatree, whereas the Coolabah rather occurs on the floodplain back from the river bank. Both, in the North-west, grow as "ghost gums" with smooth, shining white bark. This has the effect of reflecting sunlight and thus protecting the stem and branches from sunscorch.

For 75 miles north from the Wooramel River there is a long and relatively uninteresting stretch of salt marshes, flat and vegetated with various species of saltbush (Bassia, Atriplex and Kochia) and wattles. The purple vetch, Swainsona, is however common, with patches of the white form of Cephalipterum, golden Myriocephalus and purple Brachycome. A large species of the latter, a purple daisy with a gold centre, *Brachycome latisquamea,* is a climber and may be seen sprawling over the small bushes. A striking white-flowered true "everlasting" with papery bracts, *Helipterum splendidum,* is occasionally seen. For 5–6 miles south of the Gascoyne River at Carnarvon the road winds through a belt of red sandhills known as the Brown Range, on top of which the American Space Tracking Station is built. The scrub on these sandhills is colourful, consisting mainly of wattles with some "poverty bushes" *(Eremophila)* and in between them herbaceous plants making a brilliant show—the pink daisy *Schoenia cassiniana* mainly, a golden one, *Podolepis auriculata,* and purple Brachycome; an orange pea *Tephosia flammea* and the purple *Swainsona elegans.* Here too, for the first time we meet the tall blue-flowered herb *Trichodesma zeylanicum* of the borage family, which is common in the North-west and often reaches 6 feet in height.

Carnarvon is at the mouth of the Gascoyne, one of the biggest rivers of the North-west. Water from its sandy bed is used to irrigate plantations of bananas on the banks. The road to the north crosses the river 9 miles upstream and the bitumen used to cease after a further ten miles but is now being extended. Beyond here roads are of gravel or earth but are kept well-graded. Milepegs are numbered from Carnarvon. As far as the 48 m.p. the road crosses the alluvial flats of the Gascoyne, uninteresting country with claypans and low sandy rises, patches of saltbush and low wattle scrub. The everlastings are usually good though, and a lookout should be kept for Stemodia, a shrub with blue bells, in swampy places. Between 48 and 77 m.p. is a belt of well-defined ridges of red sand trending north-south, which have an interesting flora which is colourful in season. Between the sand ridges there is

normally, where it has not been burnt or damaged, a dense and tall scrub of wattle with two species of Cassia as understory. These, *C. chatelaineana* and *C. desolata,* have showy yellow flowers. There are few other components of note, a Solanum, Trichodesma, a few clumps of spinifex. It is the sandhills which are so striking, when in flower. The wattle *Acacia linophylla* (Bowgada or Wanderrie) is dominant with *Grevillea stenobotrya.* The latter unfortunately does not flower until early summer. Smaller shrubs include the pink star-flower, *Calythrix muricata,* which is very common, a tall form of orange Coppercups, *Pileanthus peduncularis,* and a Baeckea species; also the Birdflower, *Crotalaria cunninghamii,* some native Hibiscus; the hibiscus-like shrub *Adriana tomentosa* and some Eremophilas.

At the 77 m.p. one re-enters swampy country with poor wattle scrub but with colourful everlastings and crosses the Minilya River at the 91 m.p., leaving the swampy country again at the 105 m.p. At this point, approximately, the Tropic of Capricorn is crossed and there is another important transition in vegetation, passing from the wattle and mulga scrub of the southern part of the Eremaean Province which has a predominantly winter rainfall, into the spinifex country of the northern part with a predominantly summer rainfall. The spinifex, otherwise called porcupine grass, forms the predominant vegetation of the arid centre and north of Australia. Technically speaking the term spinifex is restricted by botanists to the coarse grasses which colonise sand dunes, the inland porcupine grasses being named botanically Triodia or Plectrachne. However, "spinifex" has come into use as a popular term and aptly describes these spiny grasses. They are a strange form of plant life, one peculiar to Australia. Deserts in the Americas have evolved the succulent, spiny cacti belonging to a whole botanical family (Cactaceae), and the South African deserts are also noteworthy for succulents, not so spiny, and much cultivated in gardens—all those plants known collectively as Mesembryanthemums, Aloe, Haworthia and so on. In Australia such succulents as there are, are largely restricted to salt lakes and the predominant desert vegetation is spinifex. Spinifex is a strange form of grass with rigid, sharp-pointed leaves. The culms of the grass intertwine to form a domed hummock presenting a serried phalanx of spines to the exterior. When spinifex flowers, which it does after summer rain, the flower stalks rise some 18 inches above the hummock and the spinifex plain resembles a waving cornfield. Spinifex seeds used to be eaten by the aborigines.

Between 191 and 192 m.p., two miles north of the Barradale crossing on the Yannarie river, a new road branches off to cross the Ashburton at Nanutarra and rejoin the coastal highway at Peedamulla. This itinerary will follow the old road to Onslow.

The plant cover along this stretch is very mixed and is essentially an alternation of

A typical clump of spinifex (*Triodia pungens*) in flower.

spinifex country on sandy plains and sand ridges with wattle scrub on clay flats. The wattle is mostly *Acacia xiphophylla,* a spreading species with large, coarse bluish leaves, but others include the mulga *(Ac. aneura),* with *Ac. coriacea* and *Ac. sclerosperma.* A particularly colourful Eremophila, *E. cuneifolia,* occurs as a small subshrub and other prominent ones are a hopbush *Dodonea pachyneura* with pink fruits and a purple-flowered Solanum, *S. morrisonii.* There will be many mulla-mullas with mauve heads *Ptilotus exaltatus* (an annual herb) and *P. polakii,* a woody shrub. *Wahlenbergia gracilis* is a herb with pale blue flowers. Ground plants include the Calandrinia, a prostrate succulent herb with reddish-mauve bell shaped flowers. However, it is the spinifex country which is the most colourful part of the route, with the tall, straggly *Grevillea eriostachya* making a brave show of bright yellow flowers, and the small, spreading dwarf wattle *Acacia translucens* joining in at a lower level. Other shrubs include several Cassias; a Pityrodea, a soft shrub with mauve flowers; *Pterigeron macrocephalus,* a soft shrub of the daisy family, the flowers sticky and evil-smelling; *Scaevola macrostachya,* a sprawling shrub with blue flowers; and *Stylobasium spathulatum,* a large bush with spherical fruit. Many species of Ptilotus (mullalullas) occur in between the spinifex cushions and rather occasionally there may be a small tree of *Eucalyptus setosa,* one of the northern bloodwoods. The spinifex itself is of three species. *Triodia lanigera,* the buck spinifex, *T. pungens,* gummy spinifex, and *Plectrachne schinzii,* feathertop spinifex (with feathery awns).

The red sand ridges which occur here and there and especially between 105–115 and 165–182 m.p. will be found to carry a special flora of their own, similar to that of the red sand ridges further south except that here *Verticordia forrestii* is particularly conspicuous. Named after Sir John Forrest, this morrison is a large shrub to 6 feet or more, with flowers brilliantly red or pink. Other plants include *Grevillea stenobotrya* and *G. eriostachya, Calythrix muricata, Pityrodia loxocarpa, Hibiscus pinonianus, Trichodesma zeylanicum,* several wattles and numerous mullamullas.

Red sandhills 75 miles north of Carnarvon with Pileanthus and Calythrix in flower.

A typical Eremophila (*E. cuneifolia*).

From the 205 m.p. to the Ashburton river bridge at 256 m.p. the road approaches the river and is first of all in clay plains with *Acacia xiphophylla,* later in coolabah woodland *(Euc. microtheca).* North of the river for the last 24 miles into Onslow the road crosses a flat and treeless coastal plain of grass and spinifex, with here and there a recurrence of the sandhill country. Unfortunately both Calythrix and Verticordia which are the best of the sandhill flora, appear to be missing here.

A deep stretch of the Fortescue River at Millstream.

The Millstream Palm, *Livistona alfredii.*

The coast at Onslow is typical of that all along the North-west coast and is admittedly disappointing for the visitor, consisting of mud and mangrove rather than sparkling sandy beaches. The dead flat coastal plain merges very gradually into a muddy and lifeless ocean by way of a series of salt flats, sand bars and mangrove inlets. There are two species of mangrove on this coast, both shrubs and small trees growing in tidal mud, *Rhizophora mucronata* which has aerial or "stilt" roots, and *Avicennia marina* which produces upright "breathing roots" or pneumatophores. These may be seen poking up about two inches out of the mud around the trees.

From Onslow the usual route taken is to Wittenoom via Millstream Station, turning off the coastal highway at Yarraloola and passing

Pool at Millstream.

The distant Hamersley Range from a plain carpeted with mullamullas.

through Deepdale and Yalleen stations along the Robe river. The coastal plain is flat and uninviting, covered with spinifex or with ordinary grass in summer-swampy places. There are very few trees and shrubs. Turning off inland, breakaway hills appear and begin to close in on the coastal plain. This area is now under iron-ore development. The road winds through barren hills till 13 miles beyond Yalleen it climbs to a plateau 1,000 ft. above sea level and a magnificent view of the Hamersley Range opens out on the right hand side. The great northward facing scarp stretches for 200 miles and will be on view on our right as far as Wittenoom and beyond. The Fortescue River runs along parallel to it and a few miles from its foot.

In the broken country along the Robe River, rivergums and coolabah will be seen along the main creeks, and further back on minor drainage lines the "variable-barked blood-wood", *Euc. dichromophloia;* the bark is partly scaly in this species and has a pinkish tinge. Another bloodwood, with thick stringy bark, is *Euc. setosa;* on stony hills and breakaways the snappy gum, *Euc. brevifolia,* will be seen, this one having pure white bark. Here will be seen also the holly-leaved Grevillea, *G. wickhamii,* with brilliant red flowers. Specimens of the Ashburton Pea should be seen too, a giant herb up to 8 feet tall. It is a Swainsona, *S. maccullochiana,* the flowers varying from pink to bronze or violet. In the last 40 miles to Millstream the road is traversing a typical North-west spinifex plain at the foot of the Hamersley Range, the typical plants being spinifex *(Triodia pungens)* and a few scattered large shrubs, *Acacia pyrifolia,* a wattle with an unequal-sided, prickly leaf. *Grevillea pyramidalis* (fl. white) and *Hakea lorea* (fl. pale yellow). Patches of *Acacia xiphophylla* occur where moisture is more abundant.

The red flowers of Sturt's desert pea should be commonly seen here, perhaps for the first time on the journey, but yellow and mauve are the predominant colours in the North-west. Yellow is provided by the numerous Cassias and their relatives the Petalostyles and other legumes such as Crotalaria and Atylosia, also Pimelea, Corchorus and Sida. Blues, mauves and purples come from the mullamullas, some different legumes such as Psoralea and Indigofera, and from Solanum. All these are normally seen flowering profusely among the spinifex.

After a burn they will be more abundant and showy for a few years, declining as the spinifex matures.

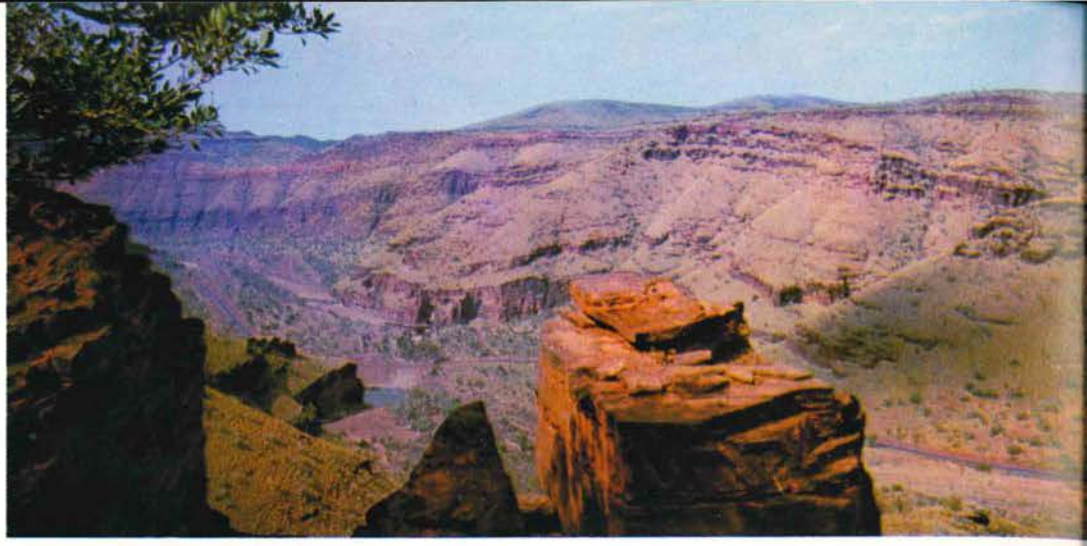
Millstream Station is a veritable oasis and is situated on the Fortescue River. About 4 miles upstream warm springs come up in the bed of the river causing it to flow permanently at the rate of 12 million gallons a day. The water is warm and smells faintly sulphurous. As a result a luxuriant vegetation occurs along the river. There is one long reach of several miles where the water is over 40 feet deep, lined with beautiful river gums. Numerous other deep pools occur and are used for swimming. Tracks lead one to the various pools and lookout points on lateritic cliffs above the stream. Date palms, water lilies and aquatic ferns have been introduced and gone wild. The native flora includes a species of palm, *Livistona alfredii*, which is only found here, and the yellow Hibiscus, *H. panduriformis; Stemodia grossa,* a soft hairy shrub with purple flowers, and *Corchorus pachyphyllus*, a spindly shrub with small but somewhat hibiscus-like flowers coloured apricot. There are also very fine groves of Cadjeput trees *(Melaleuca leucadendron)* in the river bed, with a pea-flowered tree, *Sesbania formosa.*

The 100 miles from Millstream to Wittenoom is by way of the main road between Wittenoom and Roebourne which is used to transport the blue asbestos from the Wittenoom mine to the port. For the first 20 miles the country is wooded steppe, spinifex with *Eucalyptus brevifolia* and *Euc. dichromopholia,* after which the road rises to cross for thirty miles a plateau of the Chichester Range about 1,400 feet above sea level on which there is only shrub steppe, spinifex with low scattered shrubs of Acacia, Grevillea and Hakea as remarked on the approach to Millstream. Areas of flat ground which receive extra moisture by run-off from surrounding slopes tend to be covered with true grass, not spinifex, with great masses of purple mullamullas *(Ptilotus carinatus* and *Gomphrena cunninghamii),* whilst the distant Hamersley Range is in full view to the southward. After Mount Florence Station the road skirts the Fortescue valley and passes through mulga country not so far seen on the coastal route. Mulga is an Acacia *(Acacia aneura),* a small tree forming an open woodland. Its "leaves" or phyllodes are silver-grey in colour and are held erect pointing at the sky, two devices for reducing the effects of intense sunlight. It flowers in summer, but colour is provided in spring by the mullamullas, mainly the herbaceous species *Ptilotus exaltatus,* which replace the everlastings in the northern mulga.

The road finally arrives at Wittenoom township after crossing the Fortescue valley, the river having no defined course.

Crotalaria dissitiflora.

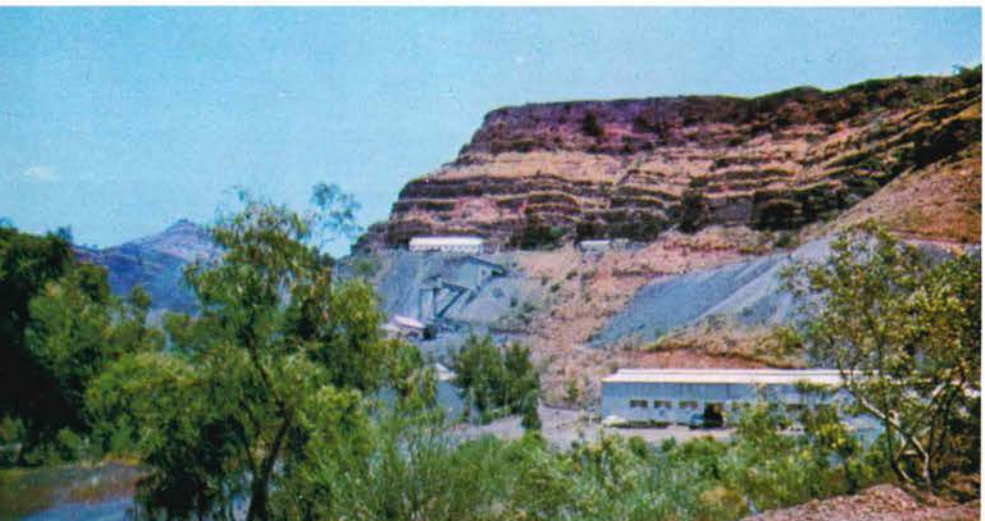
The Ashburton Pea, *Swainsona maccullochiana.*



Wittenoom Gorge at Sunset.

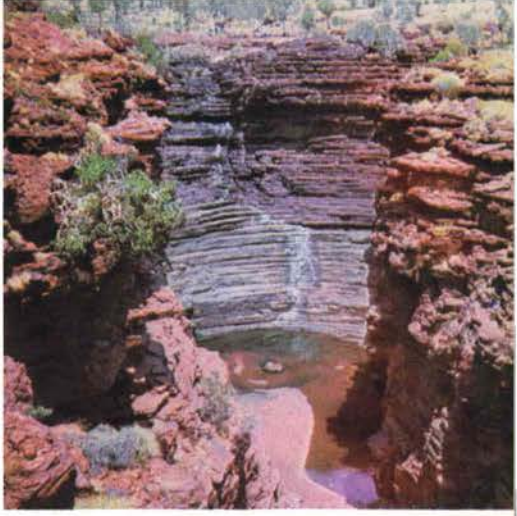
WITTENOOM GORGE AND HAMERSLEY RANGE

Wittenoom township is situated at the foot of the Hamersley escarpment at the mouth of the gorge of the same name, and subsists by virtue of the Asbestos Mine a few miles up the gorge. It will be seen that the Range consists of horizontal bands of a very dense hard rock called jaspilite with some dolomite, a form of limestone. Thin bands of blue asbestos occur intercalated in these from place to place and are mined by following the veins horizontally. The jaspilite is of interest in that it is very rich in iron. These rocks are of Proterozoic age, that is, they are over a thousand million years old, and were deposited by chemical action at the bottom of a sea. Such a chemical process no longer occurs in the world's oceans and it is probable that it was brought about by primitive forms of life which derived energy from certain relatively simple chemical reactions, in the course of which iron and lime were precipitated. It is probable in fact that in these rocks we see the product of the dawn of life on earth. The average iron content of the whole Hamersley Range is of the order of 25%, which makes it all a low grade ore, in incalculable quantities. Here and there chemical action in later geological time has enriched the rock and increased its iron content to some 60%, which is then



The Asbestos Mine, Wittenoom.

In Bee Gorge, Hamersley Range.



Joffre Falls.

high grade ore, and it is such local pockets which are now being mined. Pockets they are, relative to the whole Hamersley Range, but the quantities available still run into thousands of millions of tons. This is the greatest resource of iron in the world.

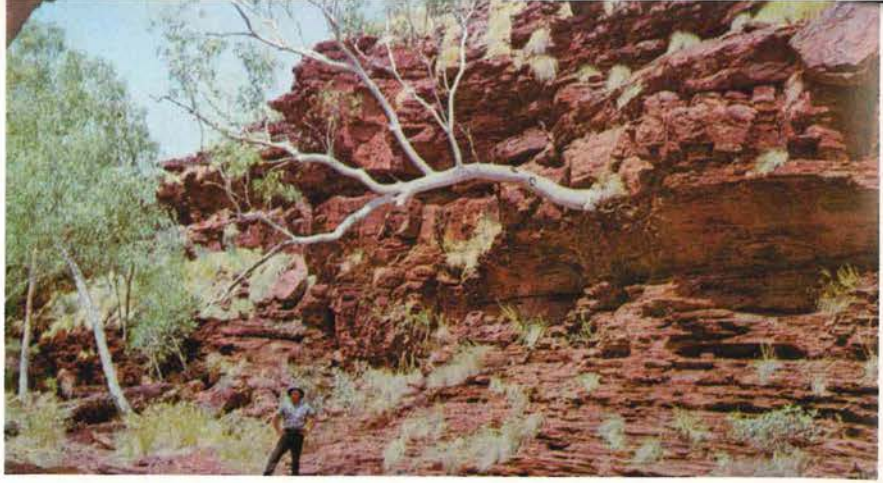
Wittenoom township stands at about 1,500 feet above sea level and the escarpment rises 800 feet above the town. Those who can make their way up it will find that on top there is a distinct plateau level or peneplain with rounded hills rising from it up to a further 700 feet, the highest summits at 3,000 feet above sea level.

The various gorges are cut down abruptly into the plateau. Owing to the hardness of the rock there is very little soil and the slopes are forlornly dotted with small clumps of spinifex—a species peculiar to this formation, *Triodia wiseana*—and occasionally small trees of *Eucalyptus brevifolia* and *E. gamophylla*. In the bottom of the gorge there are river gums, mullamullas in profusion, and some Hibiscus species. A mauve-flowered form, *H. goldsworthii* is fiendishly prickly and should be respected. A pink one which is common in and around the township, is a relation, *Gossypium australe*. Wildflowers growing above the gorge are numerous and include the following:—Wattles —*Acacia umbellata, A. patens, A. xylocarpa, A. lycopodifolia* (very delicate foliage). *Grevillea wickhamii* (the holly Grevillea), *Hakea lorea* (Corkwood), *Dodonaea* (hopbush), *Calythrix interstans* (a star flower), *Gastrolobium grandiflorum* (a poison bush); 2 yellow peas, *Mirbelia viminalis* and *Burtonia polyzyga; Goodenia stapfiana*, a large herb with showy blue flowers and very sticky leaves; many Cassias including their relatives *Petalostyles* (these have a red mark on the inside of the petals); the wild Tobacco, *Trichodesma zeylanicum;* numerous mullamullas including the graceful *Ptilotus calostachyus* with its waving grass-like stems; and a type of Rottnest Daisy, *Trachymene glaucifolia,* white in colour.

On the hill summits can be found a mallee with large pink flowers, *Eucalyptus kingsmillii,* which is to be found otherwise in a separate area further south between Wiluna and Leonora, in the mulga.

A trip into the Range is rewarding and is undertaken by following the road to Roy Hill along the front of the Hamersley Range eastward for 14 miles, and turning off up Yampire Gorge. This is less shut in than Wittenoom, the slopes well tree-clad. Good stands of River Gums and Cadjeput will be seen in the river bed. There are abandoned Asbestos workings 11 miles up.

At 13 miles up one emerges from the gorge, at its head, onto the plateau which is broken with rounded hills and wide plains. Spinifex and light Eucalypt cover, part trees, part mallee, *Eucalyptus brevifolia, gamophylla* and *setosa*. At 17 miles mulga appears in the valley bottom, and at 18 miles there are the turn-offs, right to Joffre Falls, left to Dale's Gorge.



A hardy tree of Eucalyptus brevifolia.

These are the two most popular beauty spots visited by tourists in the Hamersley Range and it is usual for anyone visiting Wittenoom to go there. The Joffre Falls (see picture on previous page) stand at the head of a gorge where a watercourse plunges down from the plateau and form an impressive amphitheatre with a pool at their foot. Both the Falls and Dale's Gorge are approached from above, by way of the plateau reached through the Yampire Gorge. It is fascinating if time permits to clamber down into these gorges and to see what shade and moisture-loving plants may be found there. It may be borne in mind too that these gorges at present accessible to visitors are not be any means the only ones in the Hamersley Range and further exploration would be rewarding for those equipped to move about the country.

If instead of branching off to these attractions one keeps straight on a track will lead one in another 32 miles (with a right fork after 9 miles) to Mount Bruce, highest peak in Western Australia and 4,054 feet above sea level. It is worth a visit but the track is difficult for domestic motor cars. It follows valleys between mountains, the hills and their footslopes in spinifex and eucalypts, the valley floors in mulga. Wildflowers seen along here will include most of those listed above the Wittenoom Gorge, particularly *Cassia* and *Ptilotus*. *Ptilotus rotundifolius* will probably be seen, a low perennial shrub with glaucous (silvery) and softly hairy leaves. It will be noticed that very many north-west plants have foliage of a silver colour or are covered with fine hairs. Both these are useful adaptations, the foliage colour reflecting the intense light like the white

On the Hamersley plateau. Burtonia and Goodenia in flower.

A

B

Wildflowers of the Hamersley:

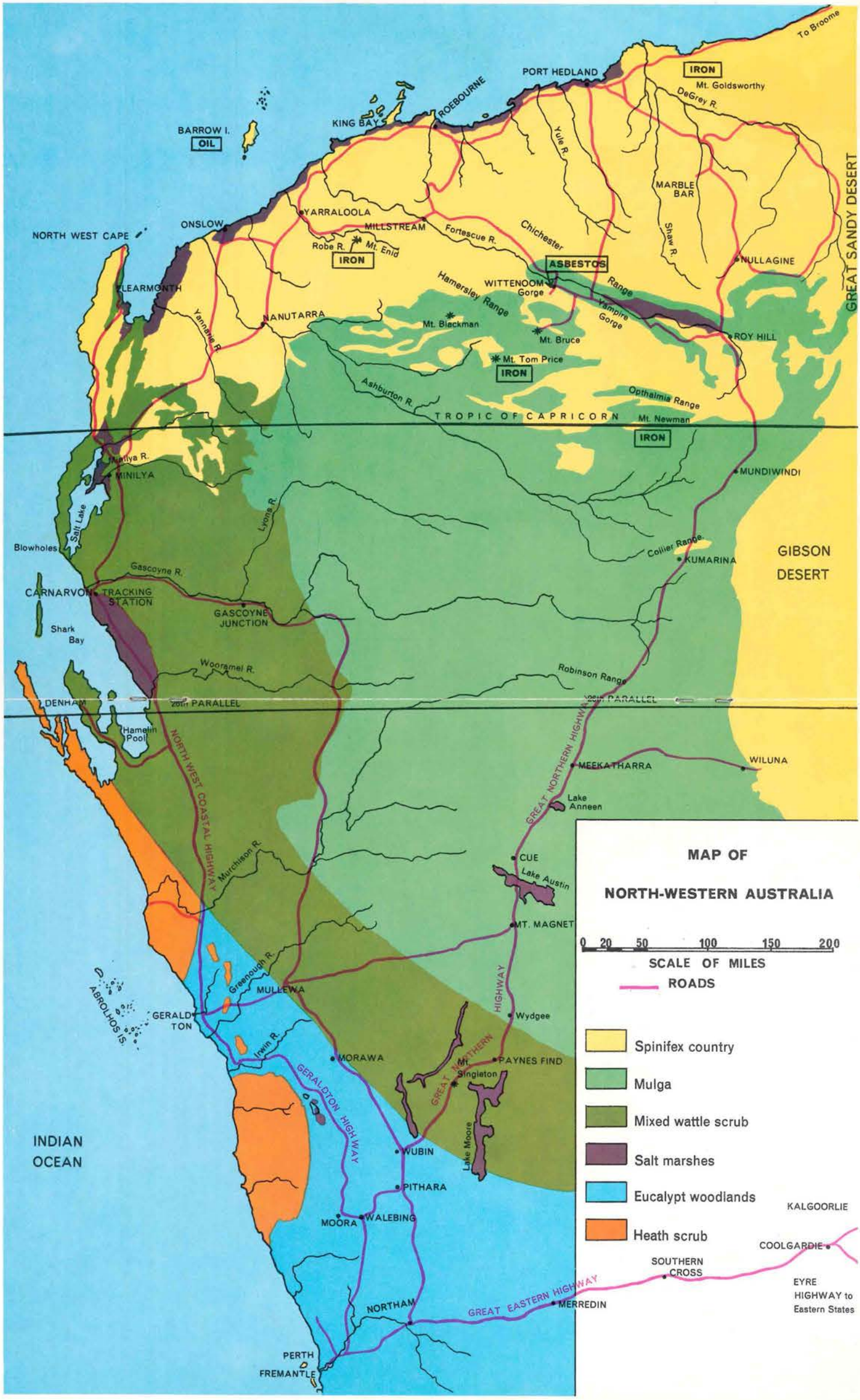
A.
Hibiscus panduriformis
B.
Hibiscus goldsworthii
C.
Solarum sp.
D.
Corchorus pachyphyllus
E.
Gossypium robinsonii
F.
Ptilotus exaltatus

C

D

F

E


To Broome
PORT HEDLAND
IRON
Mt. Goldsworthy
DeGrey R.
ROEBOURNE
KING BAY
BARROW I.
OIL
Yule R.
MARBLE BAR
Shaw R.
GREAT SANDY DESERT
YARRALOOLA
ONSLOW
NORTH WEST CAPE
MILLSTREAM
Fortescue R.
Chichester
Robe R.
Mt. Enid
IRON
ASBESTOS
NULLAGINE
WITTENOOM Gorge
Hamersley Range
Range
Yampire Gorge
CLEARMONTH
Yannarie R.
NANUTARRA
Mt. Blackman
Mt. Bruce
ROY HILL
Mt. Tom Price
IRON
Ashburton R.
Opthalmia Range
TROPIC OF CAPRICORN
Mt. Newman
IRON
Mirilya R.
MINILYA
MUNDIWINDI
Salt Lake
Lyons R.
Blowholes
Collier Range
KUMARINA
GIBSON DESERT
Gascoyne R.
CARNARVON
TRACKING STATION
GASCOYNE JUNCTION
Shark Bay
Wooramel R.
Robinson Range
DENHAM
26th PARALLEL
Hamelin Pool
NORTH WEST COASTAL HIGHWAY
GREAT NORTHERN HIGHWAY
MEEKATHARRA
WILUNA
Lake Anneen
CUE
Lake Austin
Murchison R.
MT. MAGNET
Greenough R.
MULLEWA
ABROLHOS IS.
GERALDTON
Wydgee
Irwin R.
MORAWA
PAYNES FIND
Mt. Singleton
GERALDTON HIGHWAY
GREAT NORTHERN HIGHWAY
Lake Moore
INDIAN OCEAN
WUBIN
PITHARA
MOORA
WALEBING
NORTHAM
GREAT EASTERN HIGHWAY
MERREDIN
KALGOORLIE
COOLGARDIE
SOUTHERN CROSS
EYRE HIGHWAY to Eastern States
PERTH
FREMANTLE
MAP OF
NORTH-WESTERN AUSTRALIA
0 20 50 100 150 200
SCALE OF MILES
ROADS
Spinifex country
Mulga
Mixed wattle scrub
Salt marshes
Eucalypt woodlands
Heath scrub

Mount Bruce from 10 miles.

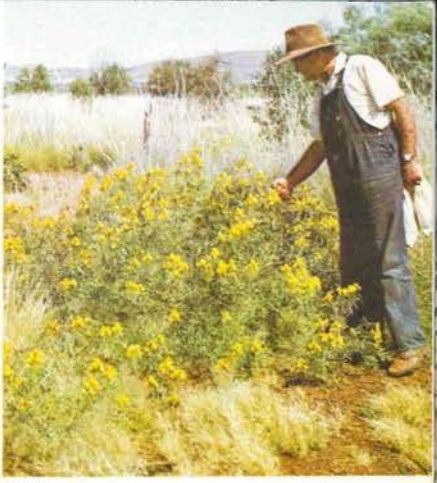
bark of ghost gums, and the hairs being a protection against hot dry winds. Other plants will be found to have a sticky covering like *Goodenia stapfiana,* or a varnish-like coating as in some *Eremophila* species, these preventing loss of water.

Mount Bruce will be sighted from ten miles off, an isolated pyramid standing alone in the middle of a wide mulga flat from which it rises some 1,500 feet. The steep sides of the mountain are mostly barren, consisting of crags and rocky screes covered thinly with spinifex and a few snappy gums. Those who are energetic enough to climb the mountain will find a quantity of cypress pines *(Callitris columellaris)* clinging to the rocks on the north side of the peak. A beautiful intense blue Lobelia, *L. heterophylla,* occurs in a gully just below. The south side of the peak is more gently sloping and there is mallee with *Eucalyptus kingsmillii.* On the summit itself there are some interesting small plants related to typical forms from the South-west of the State: *Olearia stuartii, Hibbertia glaberrima, Dampiera tomentosa, Scaevola sericophylla.*

About 30 miles to the South-west of Mt. Bruce lies Mt. Tom Price, the first of the new iron mines in the interior to come into production. At the time of writing (1966) the Hamersley Iron Company has completed a standard gauge railway 179 miles long up from the coast at the new port of Dampier on King Bay about 30 miles west of Roebourne. The construction of this line in itself was a major engineering feat as it crosses two mountain ranges and rises to 2,500 feet above sea level. 20,000 tons of iron ore per day are being transported from Mount Tom Price to the port for outward shipment to Japan. The company is planning to establish a permanent township a few miles from the mine which is to have 76 houses, a store, school, hospital, swimming pool and hotel-motel. The latter is expected to be ready in 1967 and to provide accommodation for visitors, who at present, if they wish to visit the mine, must spend the night elsewhere. The access road to the settlement follows the railway south from the Fortescue Valley passing through the escarpment of the Hamersley Range, and is a most scenic drive.

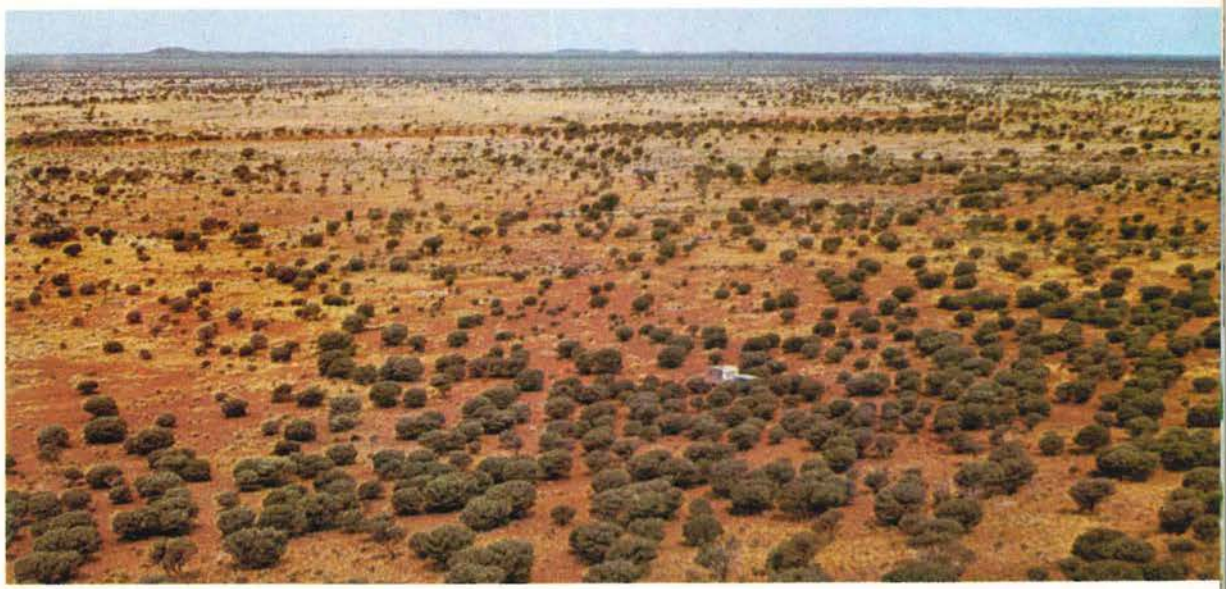
The other ore deposit to be exploited at the time of writing is at Mount Goldsworthy on the lower de Grey River and this is connected by rail to Port Hedland where a new harbour has been dredged to take ships at all states of the tide. Otherwise in the Hamersley area mining leases have been taken out but exploitation has not commenced. Discussion centres around deposits at Mt. Whaleback in the Opthalmia Range, and on the lower Robe River (see map). It is expected that both these sites will be opened up before very long.

Ptilotus rotundifolius



Cassia pleurocarpa.

Below: The endless mulga-covered plains of the Australian interior, with distant ranges on the horizon.



THE GREAT NORTHERN HIGHWAY

The alternative route through Meekatharra via the Great Northern Highway will now be described, beginning again in the south and working northwards. This road leaves the agricultural area at Wubin, 173 miles from Perth, the last cultivation being passed 22 miles out from Wubin. Here the road skirts a very large salt lake, Lake Monger. To begin with, the vegetation is very mixed and in a state of transition, patches of Salmon Gum, York Gum, mallee and wodjil thicket. The mallee includes *Eucalyptus leptophylla* with a mixture of

Everlastings in the mulga, south of Mount Magnet.

wattles, *Hakea multilineata, Callitris* and *Casuarina*. The wodjil is basically a thicket of dense shrubs of "broombush" habit, that is they bear very numerous erect branches arising from the base and forming a domed crown. Numerous species of Acacia, Casuarina and Melaleuca are involved.

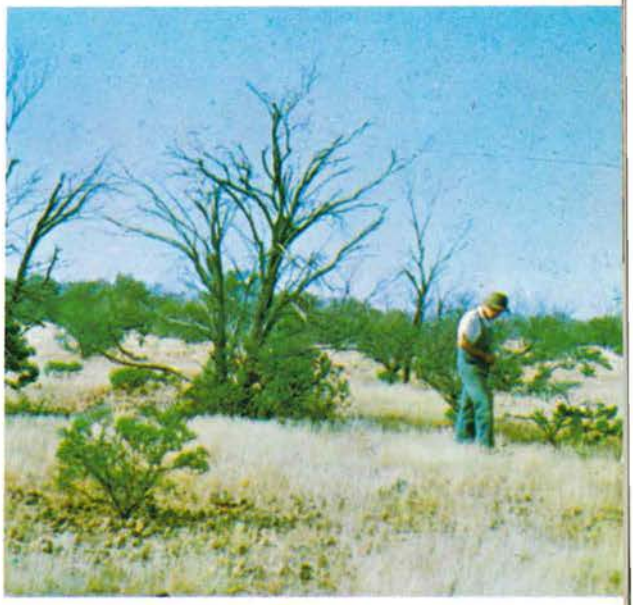
Skirting Mount Singleton at about the 230 m.p. the wodjil gives way to wattle scrub, an open growth of bushes 8–12 feet tall with rounded crowns, and including a few species of Eremophila, Hakea and Grevillea. This country is carpeted beneath with everlastings, making the most glorious show. The various species tend to occur in large pure patches rather than mixed, giving a patterned carpet effect. These include *Cephalipterum drummondii* which has spherical compound heads and has two colour forms, white and yellow occurring mainly in separate patches; *Helipterum splendidum,* a large white everlasting; *Helipterum strictum* (white) and *H. venustum* (yellow), two smaller species; *Helichrysum roseum* a pink everlasting type; *Myriocephalus guerinae,* a yellow species with compound heads; *Brachycome sp.* a mauve daisy with golden centre; and *Schoenia cassiniana,* a handsome pink species.

This type of country continues through Payne's Find, an abandoned mining settlement, as far as Wydgee station 32 miles further on where the mixed wattle gives way to mulga. *Acacia aneura,* the mulga tree, grows taller than the previous wattles, up to about 20 feet, and is noticeably silver-grey in foliage. The rather narrow leaves will be seen to be held erect, pointing at the sky, so that sunlight does not

fall too directly on them. The mulga country will now continue along the road for the next 450 miles. It is characteristic of vast areas of the southern half of the interior of Australia right across the continent and indicates a rainfall of about 8 inches per annum received mainly in winter, with a heavy soil. Mulga does not grow in sand. The landscape in the mulga is quite typical. The road comes over a low rocky ridge to reveal in front a bush-clad plain, perfectly flat and perhaps 20 miles wide, on the far side of which another low range of rocky hills is faintly discernible. On reaching the latter the same prospect is repeated, and so for the next range and the next. The soil of the plains is a compact red loam underlain by a siliceous hardpan. The mulga trees, although they are wattles, will not be seen in flower in winter as they flower during summer and that sparingly. It is rare even to find any seed on a mulga.

However there are plenty of other colourful elements in this country. The everlastings continue for some 200 miles, not in such dense carpets as in the wattle scrub of Payne's Find, but abundant enough. To the north they gradually give way to the mullamullas, species of *Ptilotus* mostly with mauve flowers arranged in dense spikes. These are no less colourful than the everlastings throughout the northern mulga. The predominant species is *P. exaltatus,* an annual herb, but most are subshrubs growing up each season from an underground rootstock. In addition to the herbaceous layer, there is usually a layer of small shrubs some 3–4 feet tall which seem to prefer to grow beneath mulga trees. Typical of these are the *Eremophilas* or Poverty Bushes, (see illustrations), which belong to the Australian family Myoporaceae, but are much more showy than Myoporum. There are about 150 species of Eremophila in Western Australia and their variety is amazing. The unequal-sided, long-tubed flowers with protruding stamens may be of any imaginable colour, self or spotted, and in many species the calyx is also brightly coloured, enlarging after the corolla has been shed and persisting while the fruit is ripening. Some Eremophilas have silver-tomentose leaves, and others have a handsome varnish-like

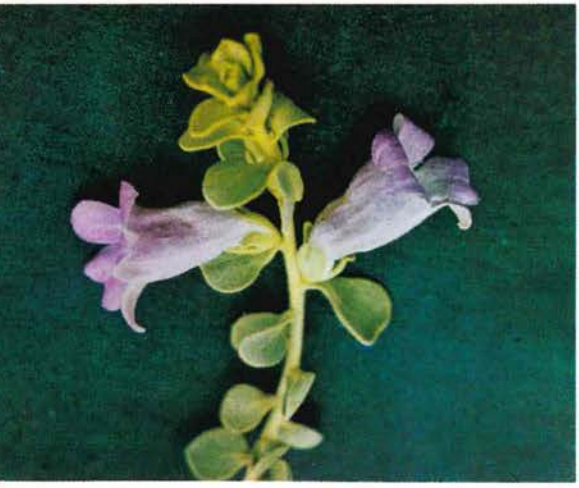
A mullamulla, *Ptilotus exaltatus*



Dead mulga with surviving poverty bushes.

Eremophila fraseri.

Eremophila spectabilis.



Eremophila mackinlayi.

Eremophila duttonii.

Eremophila macmillaniana.

Eremophila georgei.

Salt country, Lake Austin, with Plagianthus.

covering. The Eremophilas as a group deserve to be more widely known in cultivation and there is evidence that they can be grown readily from seed if good mature seed is collected. They derive their common name "poverty bushes" from their ability to survive after the death of mulga, when the station has been eaten out and little else remains. This is a condition, unfortunately, which will be seen only too often along the route. Eating off the herbage by stock exposes the soil to the action of rain which causes the surface to cake. Rain then can no longer penetrate but runs off or evaporates, and the mulga trees gradually die of drought.

Other shrubs, often common, include many species of golden-flowered Cassia, and red-fruited Dodonaea (hopbushes).

A directory of Eremophilas:—

216 m.p. *E. clarkei,* corolla large, mauve, shrub 4 ft.

E. augustifolia corolla red, small tree 10 ft.

E. oppositifolia corolla pale pink and white, small tree 10 ft.

275 m.p. *E. clarkei*

E. leucophylla corolla pink. Shrub 4–5 ft. leaves tomentose.

E. punicea corolla deep pink, small shrub.

308–312 *E. georgei* corolla mauve, shrub 4–5 ft.

E. pantonii, corolla mauve, small tree 10 ft., leaves silver-tomentose.

Swainsona occidentalis (red form).

355 m.p. *E. gibsonii,* fl. v. pale mauve, shrub 4 ft. leaves very narrow.

343 m.p. in swampy flat—*E. maculata,* fl. red, low shrub.
E. fraseri, fl. pink-spotted.

362 m.p. *E. latrobei,* fl. brilliant red, shrub 3 ft.
E. punicea, fl. pink, shrub 2 ft., leaves silver tomentose.
E. gilesii, fl. mauve, shrub 3 ft., narrow leaves.

370–374 *E. platycalyx,* fl. large, corolla white, calyx red. Shrub 6–8 ft.
E. exilifolia, fl. mauve. Shrub 4 ft.
E. augustifolia, fl. scarlet. Tree 8 ft.
E. macmillaniana, fl. pink spotted. Shrub 5 ft., leaves silver tomentose.
Also *E. maculata, E. fraseri, E. clarkei.*

394 m.p. *E. latrobei.*

410 m.p. *E. georgei, E. oppositifolia.*

495 m.p. *E. spathulata,* fl. mauve. Shrub 2 ft., leaves silvery, whorled.

505 m.p. *E. spectabilis,* fl. mauve, large. Shrub 4–5 ft.

Mundiwindi *E. cuneifolia,* corolla blue, calyx mauve. Shrub 3 ft.
E. platycalyx.

352 miles from Perth the road passes through Mount Magnet, a goldmining town which has seen better days. The country is extremely denuded around the town. Beyond here the everlastings become less conspicuous. Between Mt. Magnet and Cue, another formerly prosperous mining town, there is an extensive salt lake system around Lake Austin. In August after winter rains the lake should contain water, but it is dry in summer when salt crystals are blown out of the lake and deposited on the surrounding country which is

Below: a salt pan full of purple vetch, *Swainsona occidentalis.*

Petalostyles millefolium.

Cassia pruinosa.

white with salt for five miles around the lake and grows little but samphire and saltbush. An interesting plant is *Plagianthus helmsii,* apparently leafless and resembling green candelabra. On close examination the thick stems will be seen to be densely covered with clusters of minute leaves. This plant is of the Hibiscus family and its seedlings begin by producing a number of normal, Hibiscus-like leaves. Later ones are reduced more and more in size till the typical adult plant takes shape.

Further on between Cue and Meekatharra another salt lake system embodies a number of samphire flats thickly grown over with red-and-purple flowering Swainsona. The permanent vegetation of these salt flats is the samphire, small succulents; their flowers are inconspicuous but the foliage is frequently coloured. During winter the Swainsona, which is an annual and a trailing vine, invests the samphire area and its flowers form striking carpets of colour. A single vine of Swainsona has been found to carry 5,000 flowers. *S. occidentalis* is the principal species on salt flats, but there are other Swainsonas such as *S. stipularis* and *S. villosa* which do not necessarily inhabit salt country.

Another feature here, near Nannine, is the Kopi dunes. These have been formed of gypsum crystals blown out of the lake bed and will be seen as dunes of a whitish material carrying a few sparse trees of *Eucalyptus striaticalyx,* some *Plagianthus* and salt bushes.

Meekatharra is 475 miles from Perth. Originally established as a gold mining centre, it has managed to remain viable by serving the pastoral interests of the surrounding country. The next stretch of road, 237 miles to Mundiwindi, ranks as the longest and loneliest in the whole Commonwealth, as there is not a sign of human habitation visible in the entire distance. It crosses plains and ranges, all covered with mulga, much of it dead or in poor condition but with the Eremophilas, Cassias and Ptilotus all flourishing. Sturt's desert pea (*Clianthus formosus)* should be seen occasionally by the roadside. Since the mulla mullas *(Ptilotus)* now replace everlastings, a note on those which occur along this route may be of interest:—

P. exaltatus. Annual herb, 3 ft., fl. mauve.

P. obovatus. Low woody shrub, leaves silver-tomentose, fl. mauve.

P. alopecuroideus. Straggly herb, 2 ft., fl. white in slender heads.

P. macrocephalus. Straggly herb, 2 ft., fl. white in massive heads.

P. aervoides. Trailing herb, fl. heads whitish, small erect.

P. helipteroides. Erect herb, 12 in. to 15 in., fl. mauve.

P. rotundifolius. Woody shrub 2½ ft., leaves silvery, fl. mauve.

P. divaricatus. Scandent semi-woody plant, fl. heads v. small, whitish.

P. drummondii. Woody perennial 18 in., fl. mauve.

About 40 miles north of Meekatharra the 26th Parallel is crossed and the North-West is officially entered. Numerous small grassy openings begin to appear in the mulga. It is possible that the treelessness of these is due to frost. 75 miles out the road passes through low hills of the Robinson Range, the mulga becoming drier and more open, with bare patches covered with stones called gibber. The sources of the Gascoyne are hereabouts and there are numerous creeks lined with river gums, paperbarks and minnieritchie wattle *(Acacia grasbyi)*. The bark of the latter peels in little curling strips. At 125 miles out, there is a patch of mallee *(Eucalyptus oleosa)* and spinifex *(Triodia basedowii)* growing in red sand at the foot of a range. As noted above, mulga does not grow in sand and sandy patches carry some other vegetation. From this point on, termite mounds occur and become common, 3–4 feet high, built of bare, red earth. They are inhabited by what are called "harvester termites", not the wood-eating variety. These cut small pieces of grass which they carry into their nests and deposit in chambers called fungus gardens where fungus grows on the material in the damp conditions of the nest, and the termites live on the fruit bodies of the fungus. It is surprising to find such an agricultural practice in the insect kingdom.

In the mulga after leaving Meekatharra some quite large trees known as "gidgee" will be seen. This is an Acacia or wattle, but owing to rarity in producing flowers and fruits, it remains botanically unidentified as to species.

After passing the turn-off to Kumarina mine some 160 miles north of Meekatharra the road climbs over the Collier Range with some striking red bluffs and breakaways. This represents the divide between the Gascoyne and the Ashburton and is over 2,000 feet above sea level, the highest point on the Great Northern Highway. The road has in fact climbed imperceptibly all the way from Wubin at 1,100 ft. through Payne's Find 1,400 ft., Mt. Magnet 1,500 ft. and Meekatharra 1,650 ft. North of the Collier Range the route falls again gradually to the north coast. On top of the range there is a sandy plateau popularly known as a spinifex plain as it is covered with "spinifex" or porcupine grass, a foretaste of the vegetation to come further north. The spinifex is well wooded with large shrubs, of which the orange-flowered *Grevillea juncifolia* should be out, the red-flowered *Eremophila latrobei* and a yellow Cassia. Small plants include *Brachysema chambersii,* a spiny subshrub with red pea-

Above: *Brachysema chambersii* **(uprooted plant).**
Left: *Grevillea juncifolia.*

flowers borne around the base. There are also mallees *(Euc. oleosa, Euc. gamophylla)* and mulga.

For a description of spinifex vegetation please turn to page 5.

North of the Collier Range the plains remain covered with mulga, in places with spinifex beneath it. Six miles before Mundiwindi a belt of red sandhills is crossed, which is spinifex country with odd trees, *Eucalyptus gamophylla* (a white-barked tree with opposite leaves), the Corkwood *Hakea lorea,* Grevillea and mulga. Mundiwindi is a P.M.G. communications centre and consists of a few buildings and houses occupied by the personnel. North of Mundiwindi mulga country resumes for another

series of stony ridges marking the divide between the Ashburton and the Fortescue and covered with small spinifex hummocks and a species of wattle with a weeping habit, *Acacia salicina.* From here to the eastward can be seen the Opthalmia Range, a picturesque name recalling the hardships of early Australian exploration. It is a continuation of the iron-bearing Hamersley Range still further to the eastwards and the Mount Newman mine is located in it. From here to Roy Hill station the road traverses a series of level spinifex plains, gradually descending in altitude. Mulga is still seen along creeks. A sparse tree growth occurs in the spinifex, of various Eucalypts, Grevilleas and Hakeas. Eremophila and Cassia are not

Goodenia stapfiana

33 miles at which point, approximately, the Tropic of Capricorn is crossed and there is an abrupt change to predominantly spinifex country. That this change from mulga to spinifex takes place almost exactly at the Tropic of Capricorn on both the coastal and inland roads to the North-west is a coincidence, as the boundary by no means depends entirely on latitude, in fact it is determined by the relative proportions of the rainfall received in winter and summer. Within the essentially winter rainfall area mulga is predominant except on sand: within the summer rainfall area spinifex is predominant except on some alluvial plains.

33 miles north of Mundiwindi there begins a

prominent in these plains, but the following interesting plants may be encountered—*Trachymene glaucifolia,* a white form of "Rottnest Daisy", *Ptilotus calostachyus,* a very slender graceful mullamulla with mauve heads, also *Ptilotus axillaris,* a trailing species; *Kennedya prorepens,* a woody trailing plant with purple pea-flowers, and *Newcastlia hexarrhena,* one of the "lamb's tail" type with white woolly inflorescences.

90 miles from Mundiwindi comes a fork in the road at which to go left will bring one in 120 miles to Wittenoom by way of the Fortescue valley, and to go right leads to Port Hedland in 250 miles via Nullagine and Marble Bar. We will take the right fork, arriving in a few miles

Scene in the Chichester Range with tree of Snappy Gum (*Eucalyptus brevi olia*) at left.

at Roy Hill Station on the Fortescue River. The river flats have some nice stands of Coolabah trees, *Eucalyptus microtheca,* a "ghost gum" with white bark, mixed with some Whitewood, *Atalaya hemiglauca.* River gums *(Eucalyptus camaldulensis)* occur on the main river channel. The ground may be found carpeted with the prostrate mulla mulla, *Ptilotus gomphrenoides,* or the "lamb's tail" type shrub *Aerua tomentosa.* The wild orange may also be found, *Capparis lasiantha,* a shrub 5–6 ft., flowers cream, fragrant, with very long stamens.

Beyond the Fortescue there is a reappearance of mulga country for the first 11 miles. 6 miles beyond the crossing there is a typical iron-ore deposit in a knoll on the right-hand side of the road. Among spinifex and mulga will be found *Cassia pruinosa* (yellow fl.), a broad-leaved wattle *Acacia tumida* and the holly Grevillea, *G. wickhamii,* with red flowers. Beyond here the road passes through the Chichester Range. This is a scenic section as the range is a dissected basalt plateau with residuals capped with 20 ft. of laterite, forming imposing breakaways. The country is very bare, covered thinly with spinifex, a few mulga and eucalypts. As the country opens out beyond the passage of the Range it becomes a prospect of barren hills and valleys, a stony desert with spinifex and scattered small trees of three species typical of the Pilbara: *Acacia pyrifolia,* a wattle with broad, prickly leaves; *Grevillea pyramidalis* with white flowers; and *Hakea lorea,* the Corkwood, with yellow flowers and thick bark. Cassias become very common—there are half a dozen different species. Creek beds are the best places to look for interesting plants such as the Hibiscus-relative *Gossypium australe, Eremophila longifolia* (pink fl.), *Tephrosia purpurea,* a small purple pea, and a *Psoralea,* a spindly plant with white flowers. Along the roadside *Goodenia stapfiana* should be conspicuous, a large sticky herb with brilliant blue flowers.

60 miles from Roy Hill the country breaks away and descends to Nullagine. The little basalt hills here are splendid for wildflowers and will yield *Eremophila latrobei* (red fl.), the tall blue-flowered herb *Trichodesma zeylanicum,* two mullamullas *P. auriculifolius* (12 in.–15 in., fl. white) and *P. clementii* (3 ft. flowers green and white), a purple-flowered vetch *Swainsona decurrens,* and a couple of little Kallstroemias, small, spreading plants with spherical, 5–ribbed fruits.

Between Nullagine and Marble Bar the country up to half-way is as before, broken and among little hills. Many Cassias will be seen flowering in the spinifex, including the showy

and magnificent *Cassia venusta*. There are several decorative wattles with the splendid *Acacia holosericea* with broad silver leaves and long catkins. Sturt pea will be seen in patches and mullamullas among the rocks. About half-way to Marble Bar the road emerges from the little hills onto a desolate granite plain with spinifex, Acacia, Grevillea and Hakea, but no longer many flowers.

The township of Marble Bar enjoys an unenviable reputation as the hottest place in Australia. During the summer months the temperature has been known to exceed 100 degrees daily for as long as 160 days consecutively. The "Marble Bar" itself is a dyke of red, white and black banded jasper crossing the creek about three miles upstream and is worth a visit. Resuming the road to Port Hedland (122 m.) for the first 20 miles the desolate granite plain continues, to be succeeded by a scenic section winding through the gorges of a little hilly range of red bouldery hills covered with spinifex and often capped with dykes of a very dark rock on which no spinifex grows, making black patches in the landscape. On emerging from the gorges one enters a very flat plain sloping almost imperceptibly to the north, set about at first with little hilly ranges and becoming more and more open till near the coast there are only occasional granite outcrops, often capped with a thick layer of laterite standing up as a "mesa". Spinifex cover continues right to the coast, in general scattered with the three small gnarled trees *Acacia pyrifolia, Grevillea pyramidalis* and *Hakea lorea,* sometimes totally treeless and sometimes more thickly wooded with other wattles, *Eucalyptus dichromophloia* and other gums, and rather rarely the desert walnut, *Owenia reticulata*. Near the coast a very low spreading wattle, *Acacia translucens,* becomes very common. Flowers on this coastal plain are disappointing.

The coast of Port Hedland is unexciting, the flat plain merging into the sea with lagoons and inlets of samphire and mangrove, the shoreline bordered with some low limestome ridges representing old fossil dunes. The spinifex continues often to the water's edge. Port Hedland itself is almost 1,100 miles from Perth, but in a good season every mile of it will have been florally worth while to the visitor.

Port Hedland today is becoming a busy ore port with the completion of the railway from the iron mines at Mt. Goldsworthy and the creation of a deep-water port at Finucane Island. Smaller quantities of manganese ore from the Oakover Valley are also exported.

To complete our itinerary as far as the Wittenoom Gorge, there is a direct road from Port Hedland, the distance being 174 miles. For more than half of the journey the road crosses the flat coastal spinifex plain, broken only by occasional granite outcrops or by views of distant rocky ranges. However,

Sturt's Pea, *Clianthus formosus,* **among the spinifex.**

Mullamullas near Nullagine. *P. exaltatus, P. auriculifolius, P. clementii.*

the spinifex is diversified by the usual three small trees of Acacia, Grevillea and Hakea, the dwarf wattle Acacia translucens, many Cassias, Petalostyles, Sturt's pea, *Ptilotus calostachyus* and *Goodenia stapfiana*.

Fifty miles from Port Hedland the road skirts a granite outcrop clad with a few small trees growing in crevices. These include a grey-leafed tree resembling mulga which is actually *Terminalia circumalata*, a tropical tree common in the Kimberley. Others are wild fig trees (*Ficus*).

A dyke of banded jasper.

At 130 miles the road reaches the basalt plateau of the Chichester Range and winds up through it for six miles, emerging onto a grassy plain at the top where one can find many colourful mullamullas and the yellow pea-flowered *Crotalaria dissitiflora*. After 5 miles the road winds through another escarpment and then slopes gently down into the mulga-clad Fortescue Valley with the Hamersley Range on the far side and Wittenoom township at its foot.

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BACK COVER:
Sturt's Desert Pea (*Clianthus formosus*)

The Marble Bar.

Cassia venusta **near Marble Bar.**