

Castlemaine Field Naturalists Club

THE CASTLEMAINE NATURALIST MAY 1976 NUMBER 2

President: Mr R. Bradfield
Secretary: Mrs R. Mills
Treasurer: Mr L. Bransgrove

General meetings on the third Wednesday of the month in the Castlemaine Education Centre (21 Mostyn St) at 8.00 pm.

May Meeting May 19th.

Members' night - members are asked to contribute (e.g a short talk, or up to about a dozen slides etc). The short BHP film "Wanderer Butterfly" will be screened.

May Excursion Sunday 23 May
Mineral springs tour. Leave the Education Centre at 10.30 am.
Leader: Mr Broadway.

Committee Members

Vice Presidents: Mr G. Broadway and Mr G. Sitch.
Mr and Mrs M Winterbottom, Miss J. Chapman, Mr F. Myer and Mr E. Perkins (news-sheet)

Subscription

Family: \$5
Single: \$3
Junior/student: \$1

ITEMS FROM THE COMMITTEE MEETING

Financial: Receipts \$79, expenses to date \$17.48.

Records Mr Winterbottom will obtain quotes for printing of record cards.

Castlemaine Goldfields Information booklet A sub-committee will be formed at the May meeting to investigate the preparation and publication of a booklet giving information about the Castlemaine area. Similar booklets are available for the Maryborough area, Mt Cole, the Whipstick etc.

Club Letter-Head

A small quantity can be printed at low cost on the Education Centre copier.

Books for Library

The club will prepare a list of Natural History books for consideration by the Education Centre when adding to the library. A sheet

will be available at the next few meetings to enable members to make suggestions.

Coming Meetings

June: Guest speaker to be arranged
July: Film evening -BHP nature films. (Australian marsupials, Dry Australia, Reef of Steel, Australia plague locust)
Oct: Forest Commission-"Living Forest"

Coming Excursions

June 20 ; Salters Ck. 10.30 start.
Aug 8th ; Porcupine Ridge, with Ballarat FNC.
Sept 12th; Elphinstone Ridge, Muck- leford, Maldon (with Geelong SGAP etc)

Addition to Committee Mr F. Myer has been co-opted to the committee

FURTHER ITEMS FROM THE COMMITTEE .

Arts Council We have received a letter asking for support

News-sheet Support from members has been very good-hence the double issue this month. All members are asked to provide items. As is usual, views expressed are those of the contributors.

Excursion Times It is hoped that all excursions will depart promptly at the stated time, with a maximum delay of five minutes.

Visitors are welcome at excursions (and meetings)

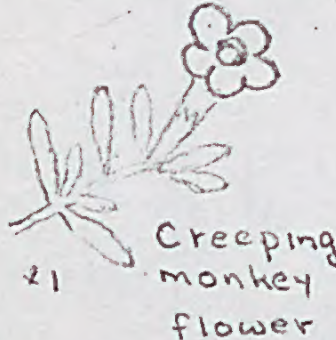
EXCURSION REPORT BELLS SWAMP April 25th, 1976

Despite the very dry conditions, wild-life was abundant. Frogs were numerous, hopping away on approach, rather reminiscent of a grasshopper plague.

On the swamp, little pied-cormorants were plentiful, with a few of the larger pied cormorants. Two herons were identified, the white faced heron (blue crane) and some white-necked heron. Other large water birds seen were white ibis, straw-necked ibis and yellow spoonbill. Two birds of the waters edge were noted, the spur-wing plover and the smaller black-fronted dotterel. The little grebe was in its usual place - on the water, swimming away as we approached. Other birds seen were white-fronted tree creepers, white-naped honey-eaters, restless flycatcher, willie wagtail, raven, mudlark, magpie, red-back parrot and galah, and swallow.

We were a few weeks too late to see the swamp plants at their best, but a few swamp lily (*Ottelia ovalifolia*), creeping monkey-flower, (*Mimulus repens*), swamp isotome (*Isotoma fluviatilis*) and sneeze-weed (*Centipeda cunninghamii*) were still in flower.

Other plants noted were red gum (*Eucalyptus camaldulensis*), tangled lignum bush (*Muehlenbeckia cunninghamii*) and two water milfoils, the common water-milfoil (*Myriophyllum propinquum*) and red water-milfoil (*M. verrucosum*)



JAPANESE NEWTS = AN ENVIRONMENTAL DISASTER?

AGE Sat May 1, 1976

Japanese newts are reported to be on sale in Melbourne pet shops. Newts resemble small lizards in shape, but are actually amphibians, related to the frogs. Newts can spawn 300 eggs at a time, and if they find their way into Victorian rivers, could clear them of fish by starving them of food.

Imported wildlife, like the rabbit and the European carp, have been an ecological disaster in Australia, and the newt poses just as great a threat.

MINERAL SPRINGS

Geological Setting

The following summary of the geology of the area in which local mineral springs are found is adapted from Lawrence (1969).

Age		Description
Period	Epoch	
Quaternary	Recent	Poorly sorted alluvium derived from lower Ordovician sediments & basalt.
	Pleistocene	Poorly sorted alluvium similar to the Recent alluvium. Forms paired terraces along most streams (largely destroyed by mining operations and subsequent erosion)
	Upper pliocene to Pleistocene	Newer Volcanics; basaltic lavas, tuffs, agglomerates.
Tertiary	Pliocene	Sub-basaltic (largely) colluvial and alluvial clays and gravels.
	Eocene or Oligocene	Lamprophyre and monochiquite dykes.
Upper Devonian(?)		Quartz veins
Lower Ordovician	Chewtonian Castlemainian Bendigonian	Folded and faulted sandstones, shales and slates.

Source of the Springs

There are three possible sources for the mineral water.

(a) The mineral water is entirely "new" water from within the earth, associated with the newer volcanics (juvenile water)

(b) The mineral water is entirely "normal" groundwater i.e. water which has fallen as rain and percolated down through the soil and rocks. (meteoric water)

(c) A combination of both meteoric and juvenile water.

An entirely or even largely juvenile origin can be refuted on several grounds:-

(i) The springs are only found at the base of valleys and not along major faults, thus suggesting that the water is derived from local infiltration of rainwater.

(ii) Lacarno Spring dried up temporarily in 1870 and 1911-13 due to mining operations uphill on Frenchmans Reef.

(iii) The temperature of the mineral water is constant at the surface

annual temperature for the region and can therefore be classified as non-thermal.

(iv) The composition of the mineral water differs from that expected for juvenile water in its comparatively low salinity and insignificant amounts of fluoride and boron.

The above discussion does not account for the high content of free carbon dioxide which characterises the springs as this is usually not present in groundwater of meteoric origin.

Two hypotheses can be given:-

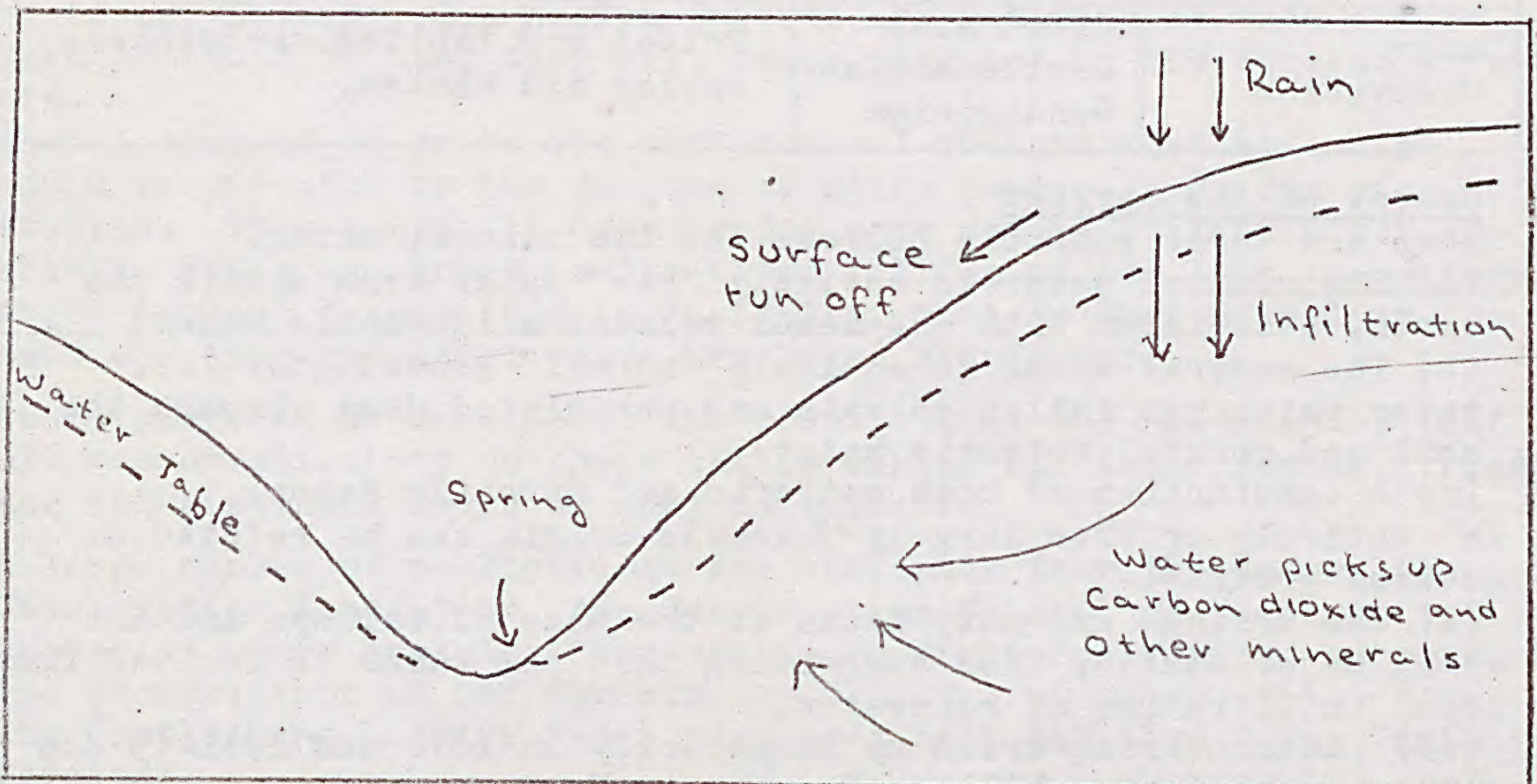
(a) The carbon dioxide is formed from the decomposition of the lower Ordovician carbon-rich shales and slates.

(b) The carbon dioxide is derived from gases associated with the newer volcanics.

There is abundant evidence both in the form of laboratory experiments and field examples to show that carbon dioxide is released by carbonaceous material in the presence of water but in all cases the concentration of carbon dioxide is small compared to the local mineral waters.

Taking all the mineral springs in Victoria, there is no strict association of the mineral water with carbon-rich shales and slates. However, basalt of either the older or Newer Volcanics is always within several miles of the springs except for one spring at Krambuk where the nearest volcanic rocks are 30 miles away.

It is therefore possible that the carbon dioxide in the mineral waters throughout Victoria has a common volcanic origin- an explanation which is also given for the carbon dioxide present in mineral waters elsewhere in the world.



Geochemistry of Mineral Water

Obviously the most significant components of the mineral water are the abnormal concentration of free carbon-dioxide and the resultant high concentration of bicarbonate and carbonic acid which exist in equilibrium. In response to the carbonic acid there has been solution of minerals comprising the Lower Ordovician sediments resulting in sodium, magnesium, calcium, iron, potassium, and lithium in decreasing concentration, being held in solution as bicarbonates.

The following table compares the composition of 'normal' groundwater in Ordovician rocks, mineral water in Ordovician rocks, 'normal' groundwater in basaltic rocks, and surface water, all for the Daylesford region.

	Normal groundwater (ordovician)	Mineral water (Ordovician)	Normal groundwater (Basalt)	Surface water.
Total dissolved solids	286	2740	160	68
Carbon dioxide	51	2310		130
Chloride	72	50	15	13
Bicarbonate	101	1797	40	26
Nitrate	-	-	50	-
Sulphate	11	33	2	7
Calcium	22	120	4	4
Magnesium	18	110	6	3
Sodium	NT	350	NT	NT
Potassium	NT	21	NT	NT
Lithium	NT	Trace	NT	NT
Iron	NT	23	-	-
pH (acidity)	6.2	6.3	5.6	5.4
Hardness	130	850	30	23

(N.T. : not determined)

References

Mineral Springs of Victoria, J. Rulikowska, 1969 (Department of Mineral Hydrogeology of the Daylesford District with Special Reference to the Mineral Springs, C.R. Lawrence, 1969 (Department of Mines) Report of the State Development Committee on the Mineral Spa Water Resources of Victoria, 1970.

J. Anderson.

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SYMPOSIUM ON FOREST- PINES OR NATIVE A report on the symposium
held in Ballarat on May 1 and 2.

About 120 people from Ballarat, Melbourne, Geelong, Gippsland, Portland, Bendigo and Castlemaine attended. It was very well organised and every opportunity was given for all to take part.

The first speaker was Dr Peter Rawlinson, Lecturer in Zoology, Latrobe University. He illustrated with slides the way a native forest never regenerates when replaced with pines. He said it was a

Dr Routley of the Australian National University, Canberra (joint author with his wife of the book "Fight for the Forest") said the softwood demand predicted by foresters for the year 2000 was quite unrealistic. He said the anticipated demand was based on a population of 22 million whereas the National Inquiry predicted a maximum of 17 million. Instead of reducing plantings to allow for this they actually plan to greatly increase pine forests to a point where people will have to use something like five times as much paper and board than they did in 1960.

Other values such as water quality, prevention of soil erosion and public recreation are not fully considered.

Dr French of the CSIRO said nobody knew the intricate relationship between insects and trees in Australia. Only a very few of the insects which live in our forests have been studied. Overseas in Sweden it is known that two insects account for 5% of the loss on timber. Single species in a forest such as pine are highly susceptible to the sirex wasp and pine-needle fungi.

All the speakers made strong points on the need for thorough research and investigation into the effects of whatever activity is carried on in our forests. Our native forests are receding at such a rate that it could be that they will cease to exist in the foreseeable future.

When I decided to go to the conference I thought most attention would be directed to the dangers of using public lands for pine cultivation. This certainly came in for some severe criticism but an equally dangerous trend is the clear felling of the last large temperate lowland forest left in Australia, that in East Gippsland for wood chipping and local paper and board manufacture.

As to what can be done about the position, it was recommended that all conservationists do their bit in making all their family, friends and acquaintances aware of what is going on

A large number of publications are available from the Australian Conservation Foundation, the Conservation Council of Victoria and a number of other organisations set up to fight for various aspects on the preservation of our forests.

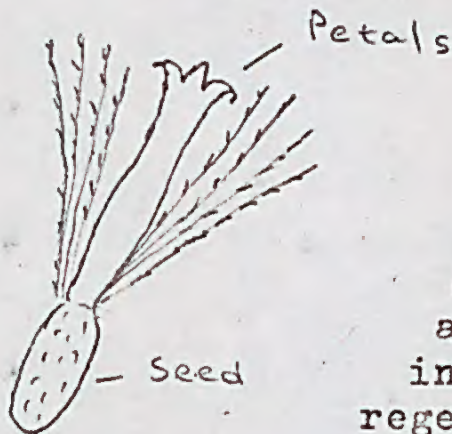
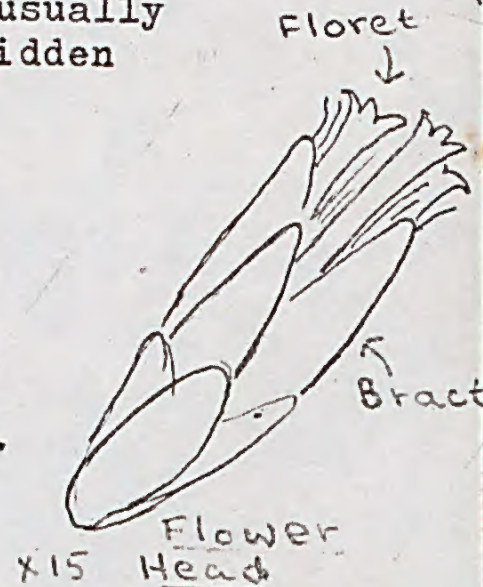
The Castlemaine Library has a very good book entitled "The Vanishing Forests"

In Defence of the Coffee Bush or Drooping Cassinia (Cassinia arcuata)

The drooping cassinia is perhaps the commonest shrub in the district, growing thickly on disturbed and cleared areas. It is less common in the forest, but even here gives a distinctive appearance to the goldfields forests.

The cassinias are members of the daisy family and closely related to the everlasting daisies (*Helichrysum*). Daisies are distinguished by having a flower head made up of a number of individual flowers (called florets); in *Cassinia* there are usually only about three florets in a head. These are hidden by coffee colored flower-leaves, called bracts, hence the local name "coffee bush". It is necessary to pull these bracts away (a lens is needed) to see the actual flowers.

The very numerous flower-heads form arching sprays- "arcuata" means arching, and hence the common name of "Drooping Cassinia".



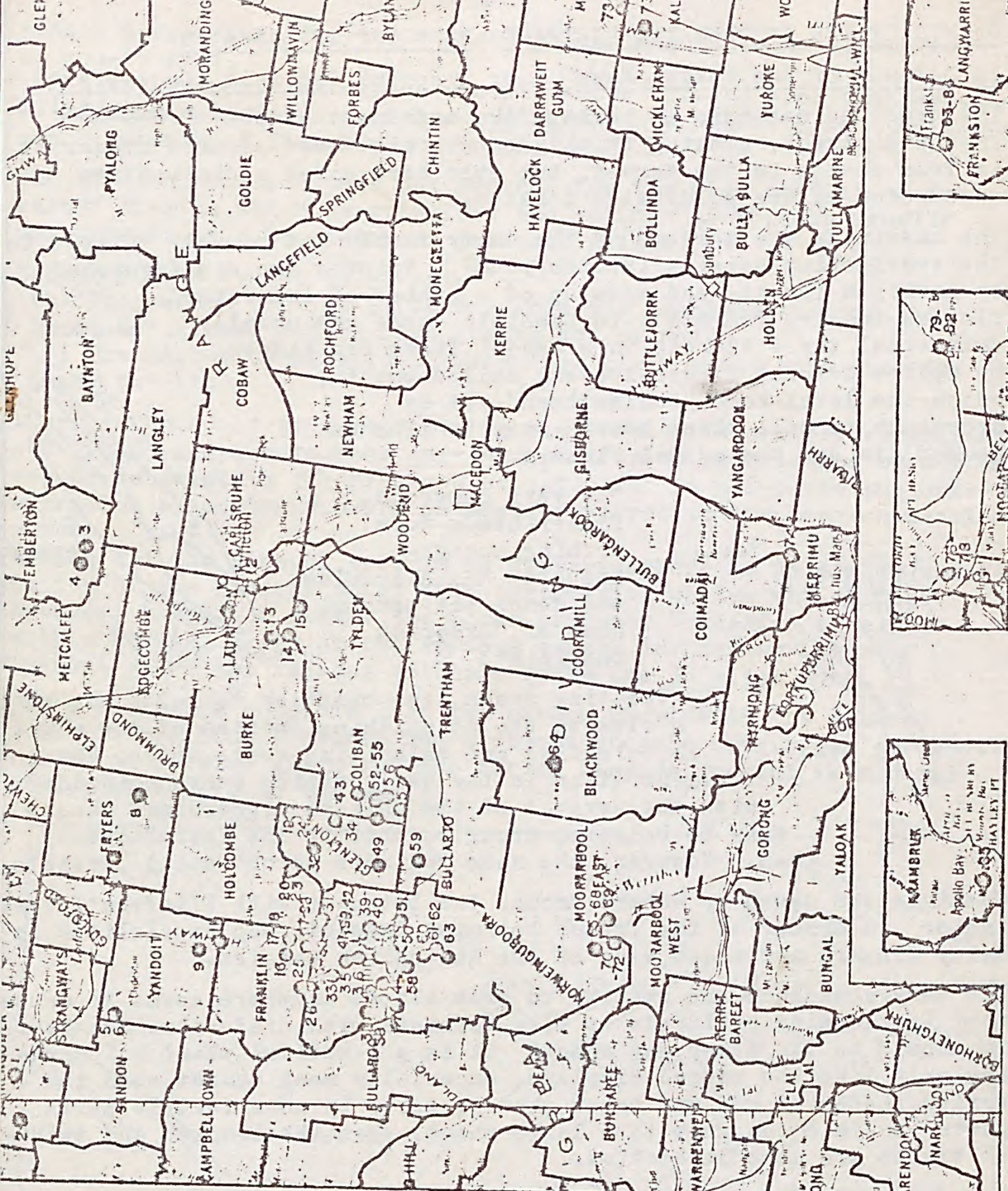
The tiny seeds have bristles to catch the wind a clue to the astonishing success of the plant in spreading and colonising waste areas. The regeneration in the early mining years coincided with the arrival of the Chinese diggers and caused many to believe, wrongly, that it was introduced by them. However, the name "Chinese scrub" still persists.

Cassinia was named by Robert Brown, the botanist with Flinders' 'Investigator' in honour of the French botanist Cassini, who specialised in Daisy flowers and named many of the Australian daisies.

Its very abundance and ability to grow almost anywhere seems to cause many Castlemaine residents to view *Cassinia* with disfavour. Surely it should be the other way about! It is a beautiful plant - I particularly like the massed displays, especially near sunset when the varied shades of red and brown show up best. In more fertile parts *Cassinia* can grow to a large shrub, when the cracked and twisted trunks are most attractive.

MINERAL SPRINGS MAP (overleaf)

The map is reprinted from Mineral Springs of Victoria, J. Rulikowski, 1969; Mines Department.



MAP I THE MINERAL SPRINGS OF VICTORIA

Scale in Miles

