



NATURE NOTES

RINGWOOD INSPECTORATE...

Vol. 3 No 3

APRIL -

- 30 -



DEAR BOYS AND GIRLS,

~~Forward~~ It is indeed a great privilege to write this forward for the No. 3 edition of 'Nature Notes'. First of all, I wish to extend my congratulations to the authors of this wonderful series on topics about the natural world around us. Then, I desire to thank you, our readers, for the magnificent support you have given to the whole project, and trust that you will tell your friends about it so they may enjoy what it contains.

I know that boys and girls the world over are keenly interested in science and more particularly in natural science. What you have to do is to be on the alert to notice what nature has to show no matter what part of Melbourne, Victoria or Australia you visit. I suggest you have some pen friends overseas with whom you may exchange 'Nature Notes' for some notes about their home surroundings. Are you looking forward to the next issue of 'Nature Notes'? I am.

Yours sincerely,

R.J. Chapman, District Inspector.



WHAT TO LOOK FOR IN MAY

++BIRDS IN WINTER++

Watch for new arrivals in your area.

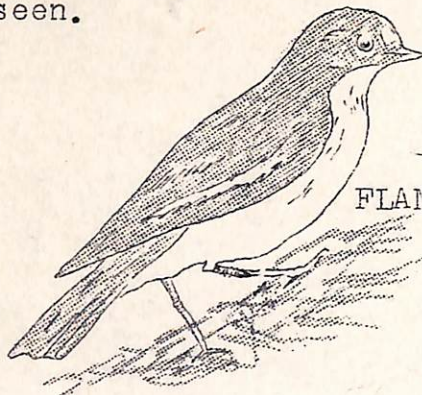
Where do these winter birds spend the summer? (Check in 'What Bird is That?')

Keep a record of other birds seen.

PIED CURRAWONG



FLAME-BREASTED ROBIN



CREATURES OF THE NIGHT

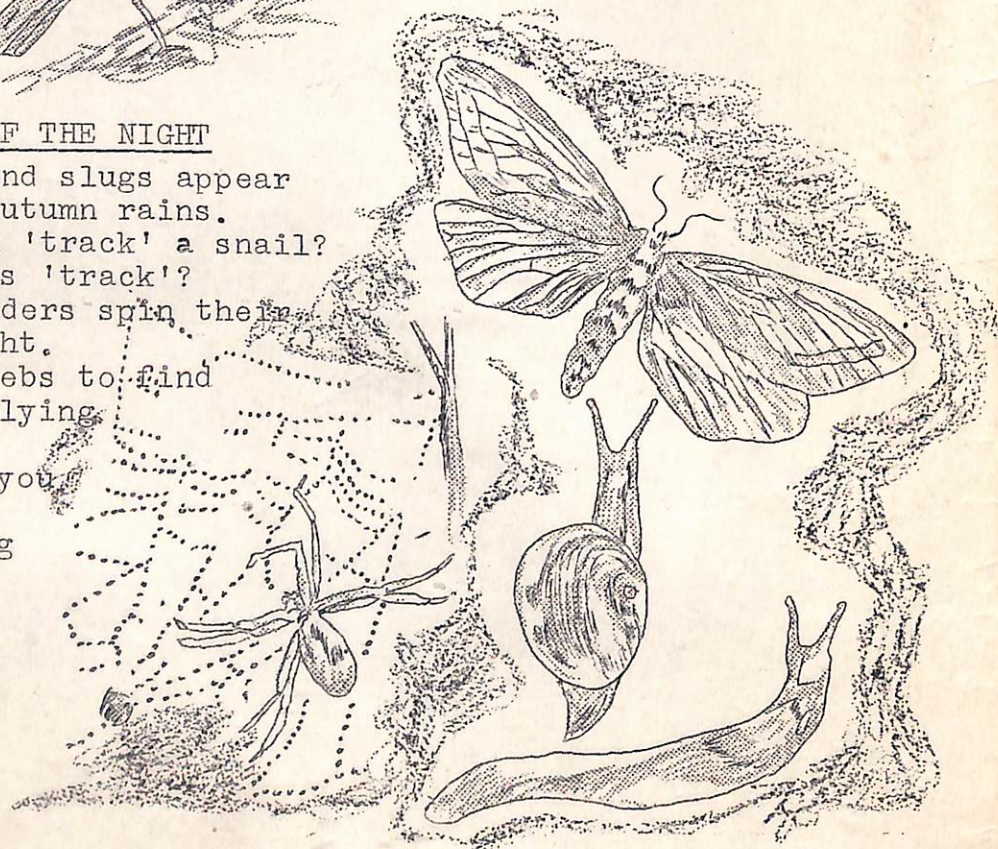
+++Snails and slugs appear after the Autumn rains.

How can you 'track' a snail? What is this 'track'?

+++Many spiders spin their webs at night.

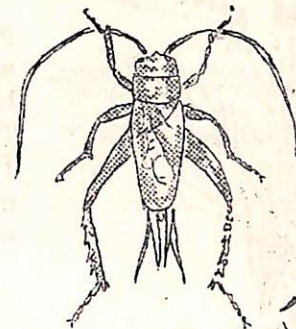
Check the webs to find any night-flying insects.

+++How can you catch night-flying insects?

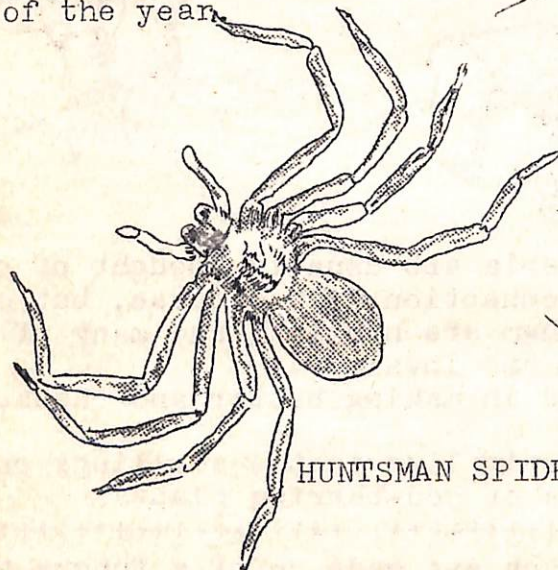
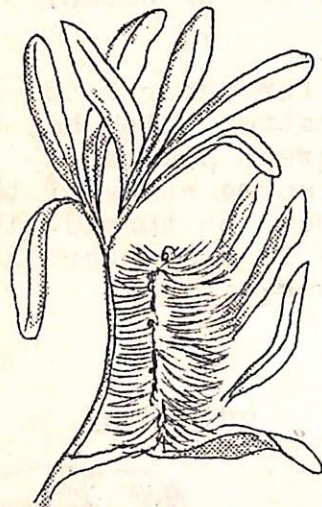


WHAT TO WATCH FOR

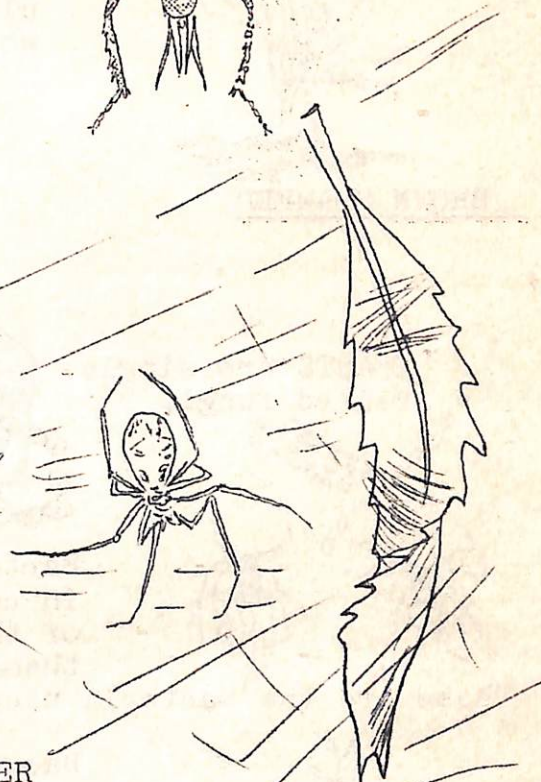
BLACK FIELD CRICKET



BANKSIAS bloom at this time of the year.



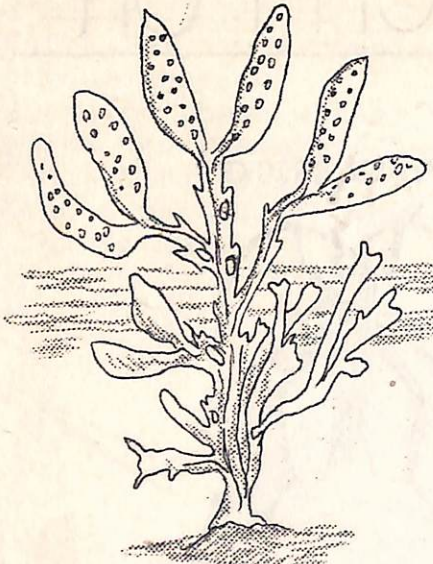
HUNTSMAN SPIDER



LEAF-CURLING SPIDER

You may colour in these drawings. Check to see that you use the correct colours. Try to observe a live specimen.

PLANTS WITHOUT SEEDS

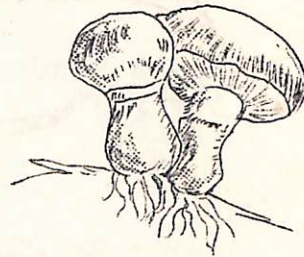


BROWN SEAWEED

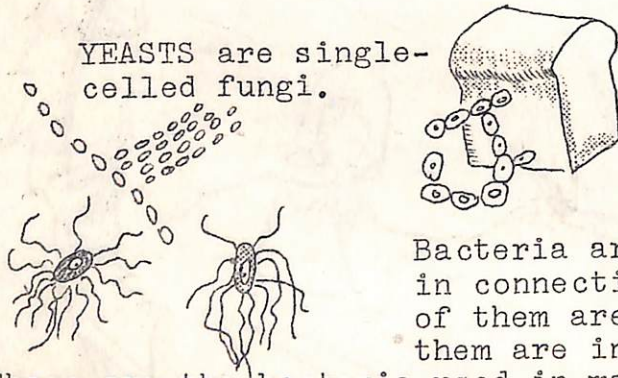
Algae and seaweed are simple plants with no true roots, stems or leaves. They all contain chlorophyll even though some are red or brown.

Fungi depend for their food, like animals, on matter which has been built up by green plants. The fruit or spore cases of the fungi rise from the thread-like plants buried in the materials on which they feed.

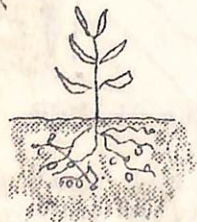
MUSHROOMS



YEASTS are single-celled fungi.



These are the bacteria used in making butter and cheese.

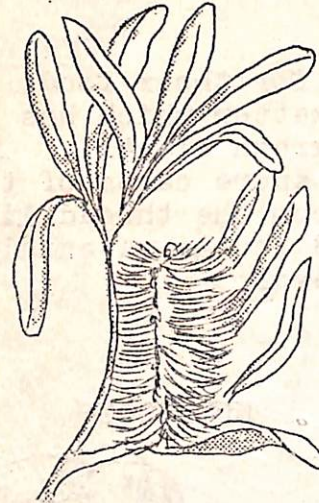


Bacteria live in the swellings on the roots of pod-bearing plants.

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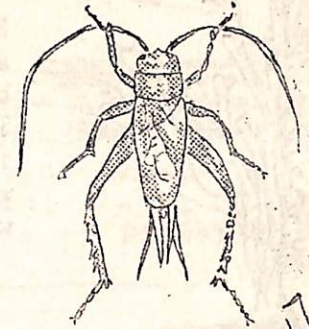
Lichens are made up of a fungus and an algae living together in close partnership. The alga contains the chlorophyll and makes most of the food for its partner and itself.

WHAT TO WATCH FOR

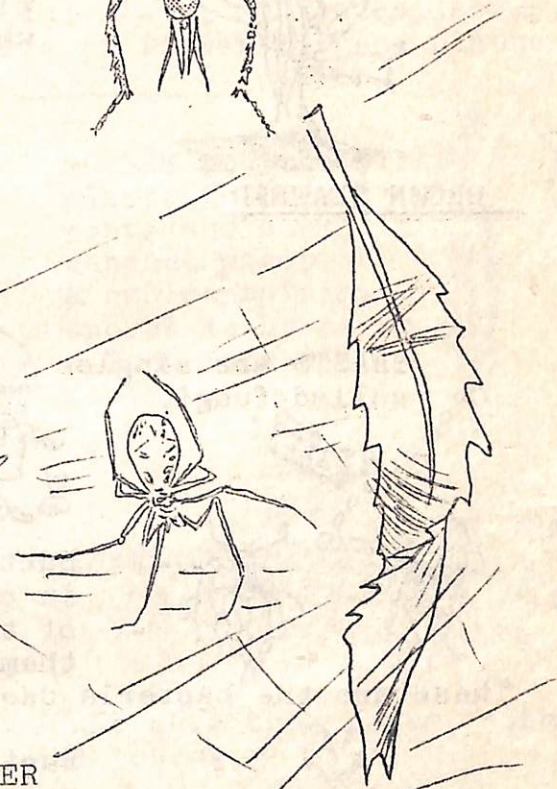


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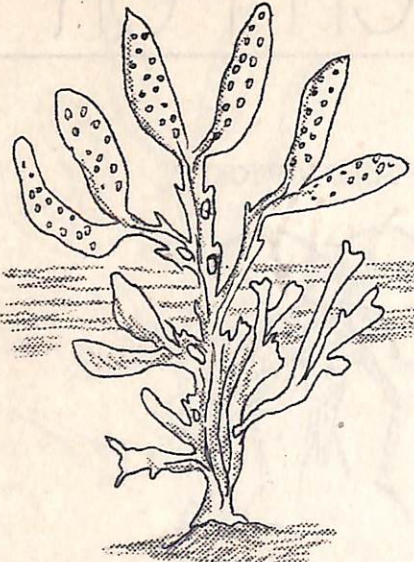
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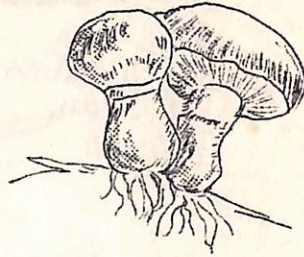


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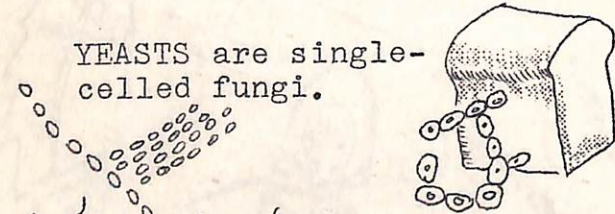
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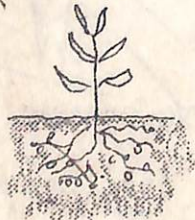
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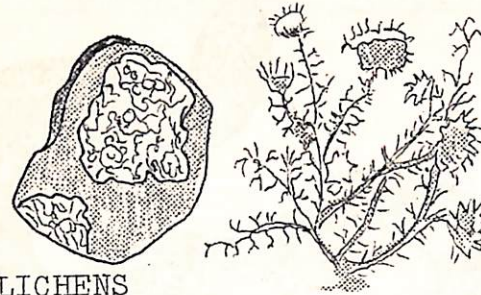


Bacteria are usually thought of only in connection with disease, but most of them are harmless and many of them are invaluable.

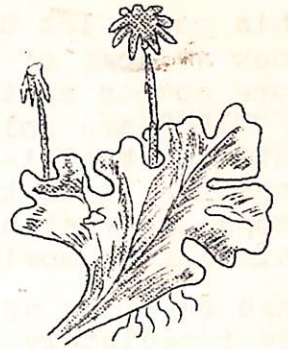
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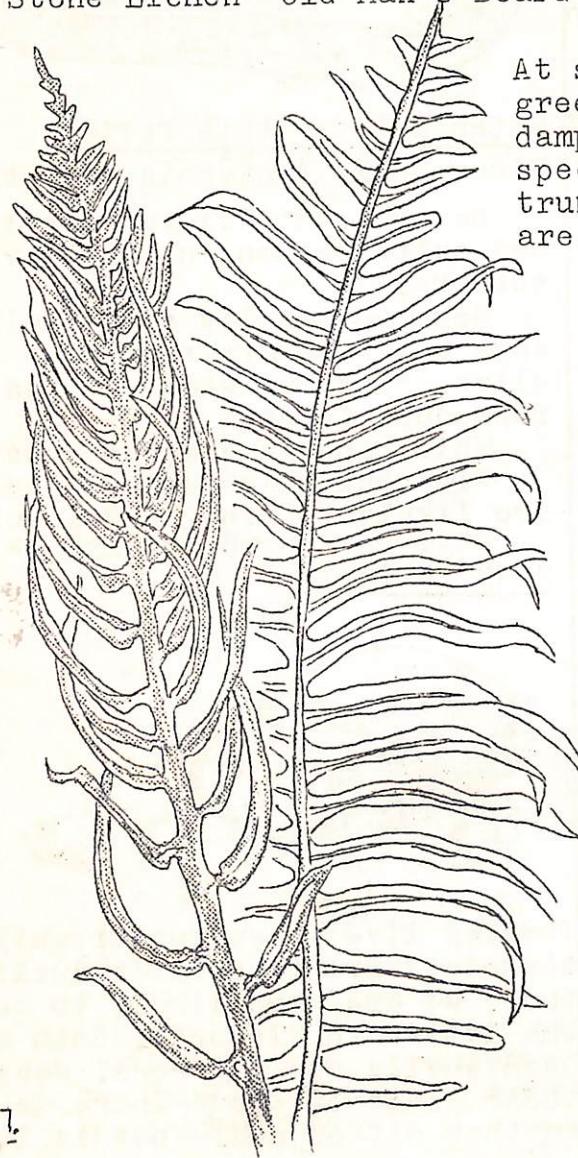
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LICHENS
Stone Lichen Old Man's Beard



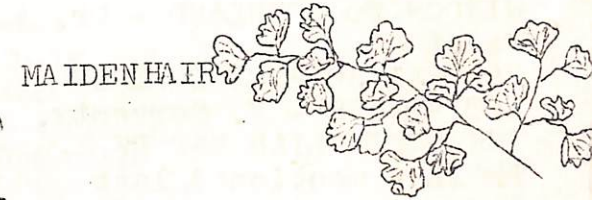
At some time we must have seen a green, scaly object that grows in damp, shaded ground. There is no special shape, no leaves, stems, trunks or flowers. These plants are LIVERWORTS.



MOSSES are the first plants to have simple roots and stems to conduct water. A cup containing spores is borne on a long thread or stalk.



HAIR MOSS



MAIDENHAIR

FERNS have true roots, stems and leaves.

This fern has two types of leaves - the green ones for making food and the brown ones for making spores.

This month let us take a look at some of Australia's more common reptiles.

REPTILES are cold-blooded animals, that is, on cold days the blood temperature drops, preventing the animal from moving rapidly.

When reptiles are mentioned one immediately pictures a danderous snake, but also included in this family are many useful lizards, the saltwater turtles, the freshwater tortoise, the largest lizard called the goanna and the crocodile of the northern waters.

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We have set many questions for you to answer. These reference books could help you.....

SCIENCE TODAY (Bk.2) - we mentioned Bk. 1 in the Feb. issue of N.N.

WINDOW TO RUSHLAND - Dr. A. Yeast

NATURAL SCIENCE THROUGH ACTIVITIES - V. Serventy.
THE AUSTRALIAN NATURE TRAIL - mentioned last issue.

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Watch out for this fellow!

Tiger Snake (*Notechis scutatis*)

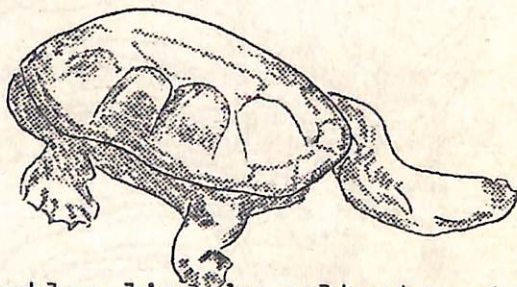
He is beautiful but deadly, and quite common in the city and suburbs.

Some snakes lay soft-shelled eggs while others reproduce alive. Find out which snakes reproduce in each way.

Which snakes are venomous?

Find out which snakes you are likely to find in Melbourne.

WHAT DO YOU DO IN CASE OF SNAKE BITE?



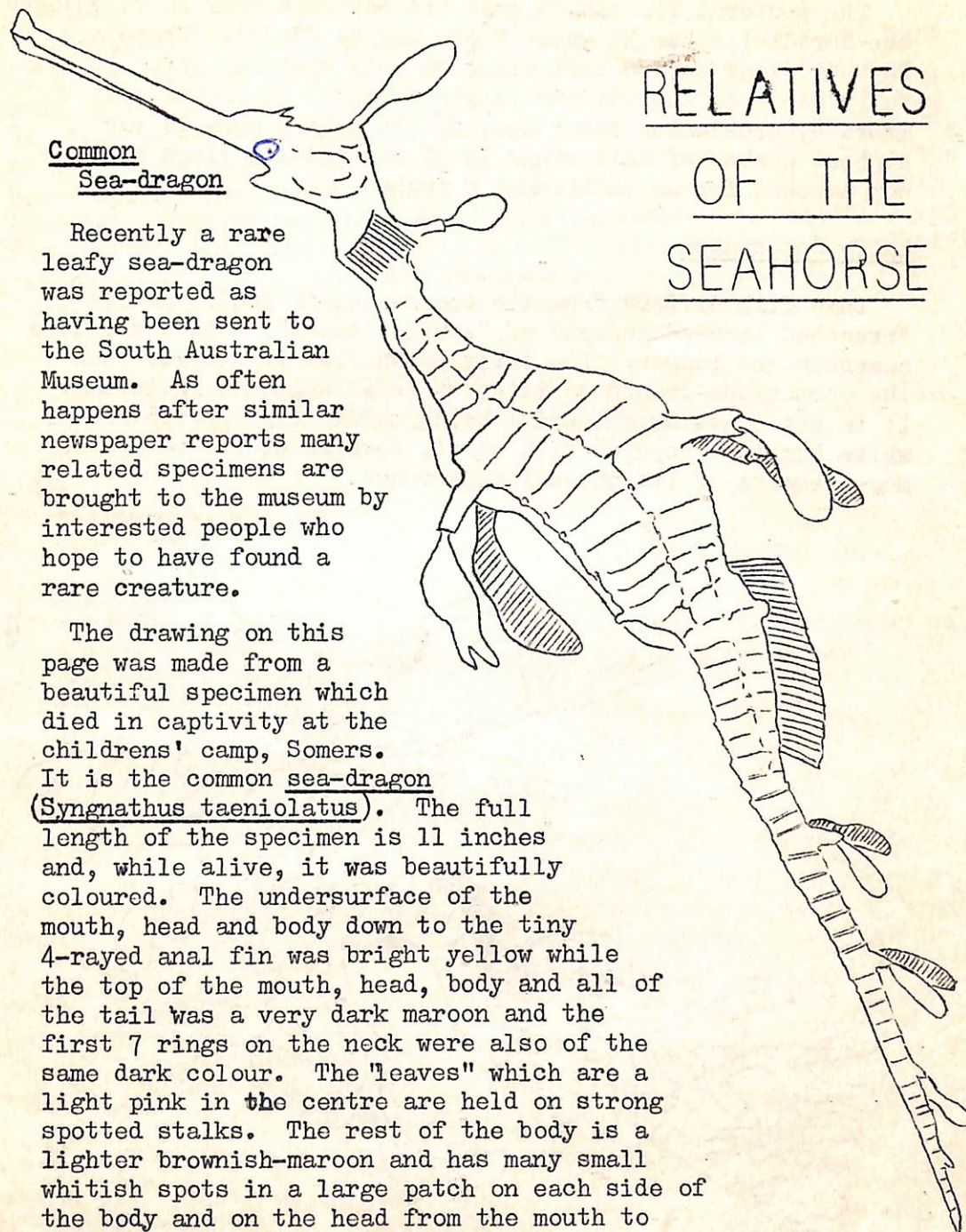
Turtles live in saltwater while tortoises are freshwater dwellers, thus, we are more likely to meet the latter in Victoria. Both have hard shells and lay eggs. Besides their place of abode there is another difference. What is it?

RELATIVES OF THE SEAHORSE

Common Sea-dragon

Recently a rare leafy sea-dragon was reported as having been sent to the South Australian Museum. As often happens after similar newspaper reports many related specimens are brought to the museum by interested people who hope to have found a rare creature.

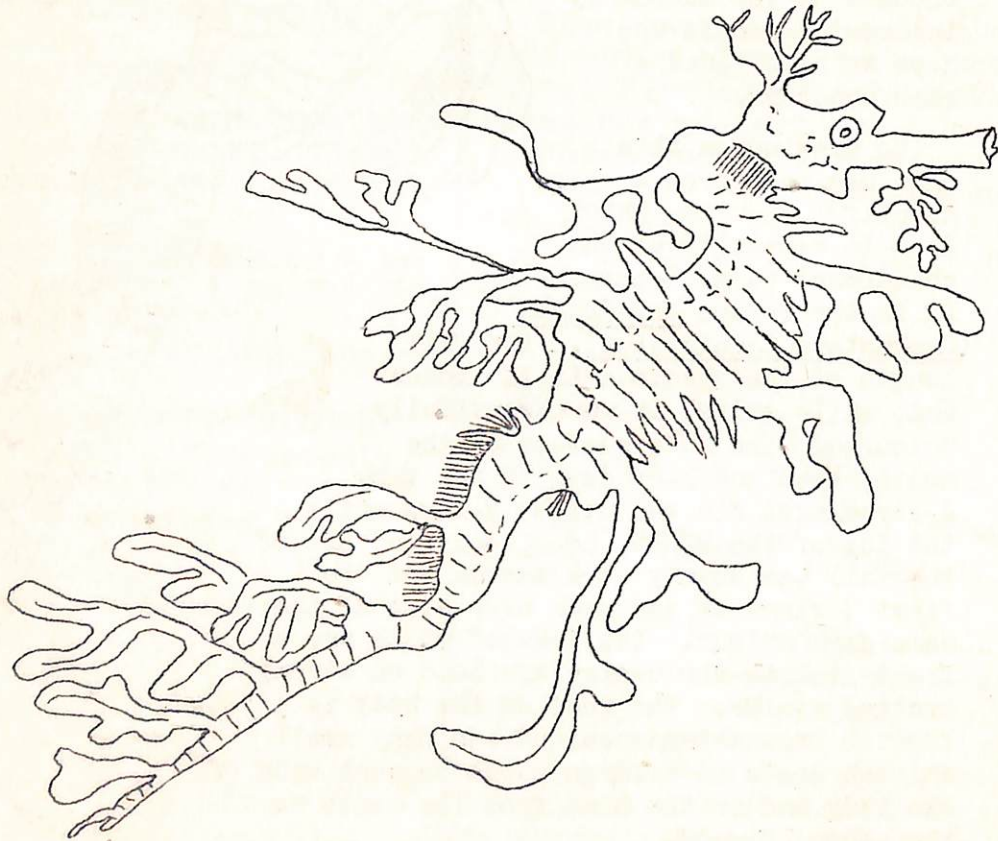
The drawing on this page was made from a beautiful specimen which died in captivity at the childrens' camp, Somers. It is the common sea-dragon (*Syngnathus taeniolatus*). The full length of the specimen is 11 inches and, while alive, it was beautifully coloured. The undersurface of the mouth, head and body down to the tiny 4-rayed anal fin was bright yellow while the top of the mouth, head, body and all of the tail was a very dark maroon and the first 7 rings on the neck were also of the same dark colour. The "leaves" which are a light pink in the centre are held on strong spotted stalks. The rest of the body is a lighter brownish-maroon and has many small whitish spots in a large patch on each side of the body and on the head from the mouth to the second "leaf".



The pectoral fin has 23 rays (it may have from 20 to 23) and the dorsal fin has 31 rays (there may be 27-36). There are 18 body rings and 34 tail rings on this specimen which is not fully grown as the maximum length is about 18 inches. It grows by broadening its rings, not by adding more as the highest number of tail rings is 37 and these 3 rings could not account for an additional 9 inches.

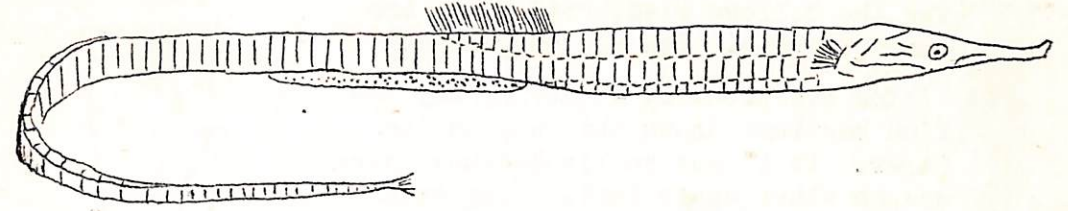
Leafy Sea-dragon

This fish differs from the common sea-dragon in having "branched leaves" instead of "simple leaves". These are more numerous and longer. The fully grown fish is smaller than the common sea-dragon as it grows to a length of 12 inches. It is not quite as colourful being mainly light brown and white but is a popular fish partly because of its rarity and more because of its unusual appearance.



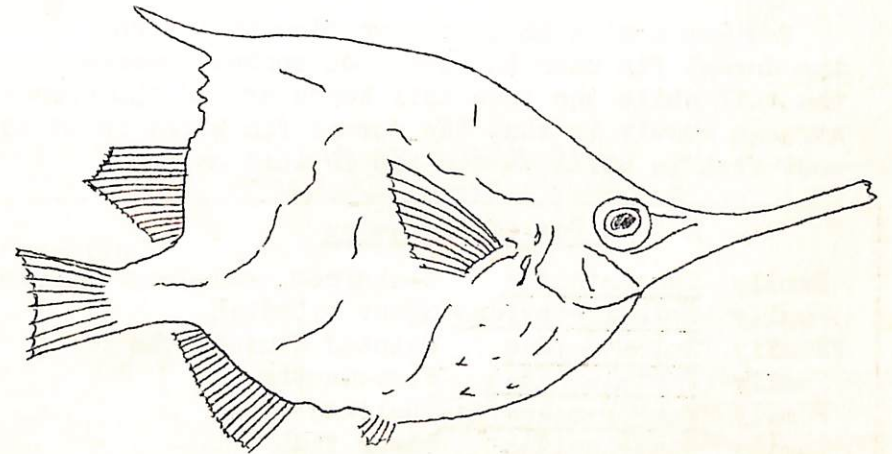
Pipefish

The head of the seahorse is on a sharp angle to the body, that of the sea-dragon is on a more open angle to the body while the head of the pipefish is in line with the body. The body of the pipefish is long and thin, in some it is straight and in others the tail may be curved. Many have a long, tubular snout like the seahorse while others have a short thick snout. It is still tubular however. This is important as it distinguishes the seahorse group from other fish. The tip of the pipefish tail may have a small fin called a caudal fin, the seahorse does not have this. Like the seahorse, the male pipefish has a brood pouch.



Bellows Fish

The bellows fish is a more distant relative. The one shown here is also called bugler. Can you suggest why both names are suitable?



Razor Fish

Razor fishes are found in the warm waters of northern Australia where there are 3 species. These distant relatives of the seahorse are so odd that I could not resist including them here.

They are small fish with bodies so thin that they look as if they have been pressed, by mistake, for a flower collection. While the family common name is razor fish the one drawn here is the wafer fish. As for the bellows fish, both names are very suitable. Can you suggest why?

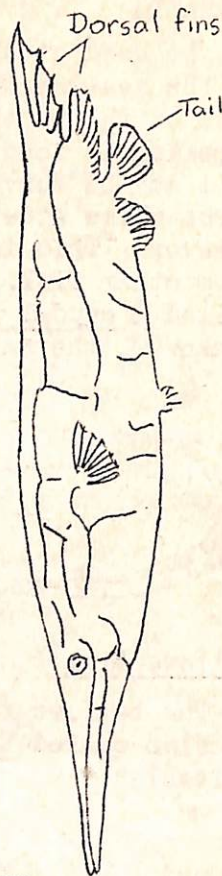
You are probably wondering why the fish has been drawn this way on the paper. It is not really because there was no other space left. They swim this way!

Everyone for what he likes!
We like to be
Heads down, tails up,
Swimming in the sea.
(With apologies to
Kenneth Grahame)

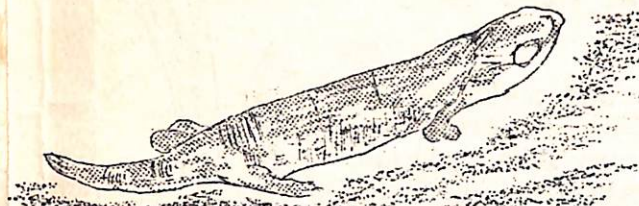
You may notice that the two fins that form the dorsal fin seem to have been pushed towards the tail while the true tail bends around the corner. The strange result is that the dorsal fin which is at the top of most fish is still at the top in this case.

A Box of Big Names

Family	<u>Syngnathidae</u>	Seahorses, sea-dragons, pipefish
Family	<u>Solenichthyidae</u>	Ghost pipefish
Family	<u>Aulostomidae</u>	Painted flutemouths
Family	<u>Fistulariidae</u>	Flutemouths
Family	<u>Macroramphosidae</u>	Bellows fish
Family	<u>Centriscidae</u>	Razor fish



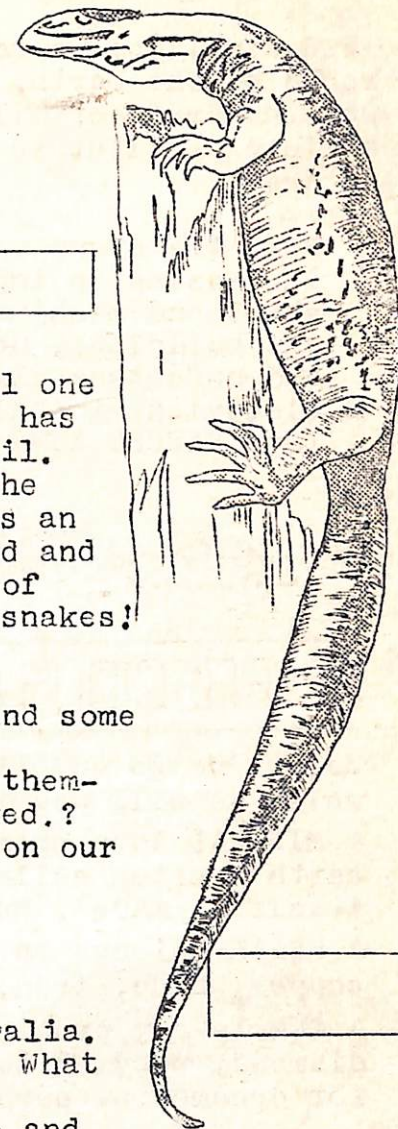
'RIGGLING REPTILES



Here are two very common lizards. The small one may be found in most parts of Victoria and has a very close relative called the Stumpy Tail. The large and usually friendly fellow on the stump is found in most country areas and is an excellent climber. He is our largest lizard and is very useful for his main diet consists of rats, mice, rabbits and snakes - yes even snakes! (READ: the poem 'Johnson's Antidote' by A.B. Patterson.)

Find the names of these two lizards and find some interesting facts about them.

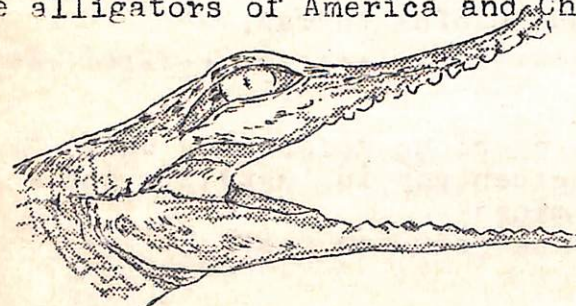
Did you know that some lizards protect themselves by shedding their tails when attacked? Which are these? Which lizard is honoured on our new decimal currency?



CROCODILES

There are two kinds of crocodiles in Australia. They are both found in the tropical areas. What are they called?

What is the difference between a crocodile and the alligators of America and China?

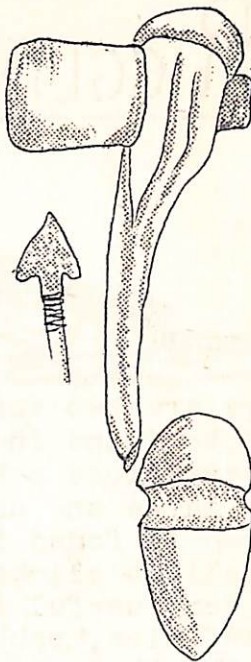
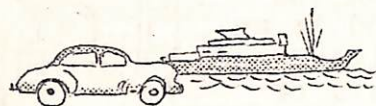


SOME MORE PROBLEMS!!!!

How are different groups of reptiles used by man?
Find out the differences between snakes and lizards.
How do you keep lizards and tortoises as pets?
Make a study of all reptiles

FOR a million years man has used the rocks of the Earth. Early aborigines would walk hundreds of miles to trade a shell for a piece of flint to make a spear head or an axe.

Now, the stone axe has gone but metals are increasing in importance to man - iron for ships and machinery, aluminium for 'planes and buildings, uranium for atomic power, and unfortunately, bombs, and copper for electrical installations.
(See NATURE NEWS of this issue.)



PRECIOUS GEMS AND VALUABLE ORES

Before we go on, let us learn the meanings of some words which we will use in connection with this study.

A MINERAL is a chemical substance found naturally in the earth - often called 'the bricks of which the earth itself is made'. Most rocks consist of minerals.

A METAL belongs to a group of substances like gold, silver, copper, zinc, iron, lead, and others.

A GEM is any precious or semi-precious stone like a diamond, ruby or topaz. When cut and polished it is used for ornamental purposes such as a brooch or pendant.

AN ORE is a concentrated collection of a mineral from which a metal can be taken in amounts useful to man.

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FOR YOU TO DO

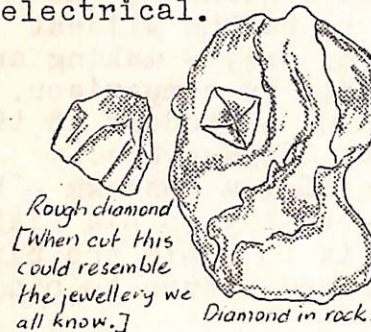
1. Find the names of any semi-precious gems. Draw them.
2. Name the main ore producing centres in Australia and what they produce. How is the ore mined?
3. Crush a piece of granite. What can you see?

COPPER ORE - is found in large quantities in Australia. In the days of King Solomon copper smelting was carried out. Today it is essential in nearly all things electrical.

Shaded areas show raw copper in rock.



A Copper crystal



Rough diamond
[When cut this could resemble the jewellery we all know.]

Diamond in rock.

DIAMONDS (A GEM)

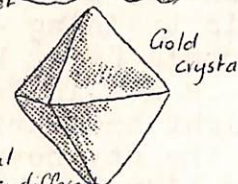
A diamond is the hardest substance known. To cut a diamond another diamond is used. They are used in industry as cutting tools when they are not of gem value.

GOLD (METAL)

Gold is an extremely malleable (that is, it can be hammered and pressed out) metal. It can be beaten to one 254,000th, of an inch in thickness for use in scientific equipment. About 25,000 tons have been found throughout the world since 1492. It can be found as an ore or as pure metal.



Gold nugget

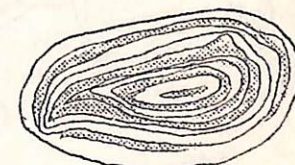


Gold crystal

ALL mineral crystals are different.

SEMI-PRECIOUS STONES

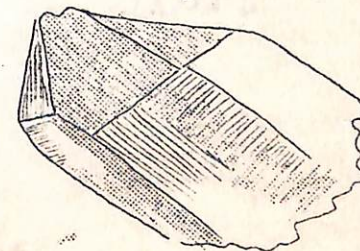
AGATE - is quartz with microscopic crystals. In the same group are jasper, flint and chert. Agate is usually colourful with straight or wavy bands. It can be found in the Otway Ranges and near Belgrave in the Dandenongs.



Banded Agate.

QUARTZ appears in many forms. This variety is a crystalline form - often the crystals are large and can be readily seen. Smokey quartz is a well known gem.

Of course, there are many other gem stones. Can you find out about them?



A BOY AND HIS HAWK



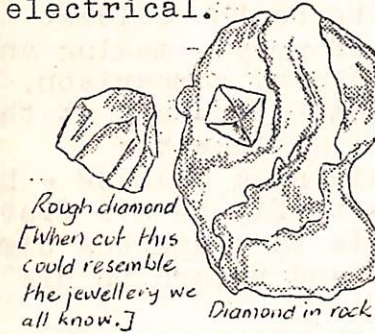
From Bendigo comes an exciting tale of a boy and a goshawk. The goshawk is said to be the wildest Australian bird of prey - making an eagle look friendly by comparison. Yet, John Robinson, a student at the Bendigo Technical College, has succeeded in training a goshawk - he calls him Huns - to fly to his fist. John's next aim is to train the bird to fly 100 yards and return to his fist.

John found the bird as a three week old chick in a 40 foot high eucalypt near Bendigo. For three weeks, John spent all his available time with Huns, talking and whistling to him, until finally Huns took a major step in his training - he stepped on to John's hand. Huns lives in a huge cage - a mew in falconry language - at night and during hot weather. During the day he perches on a half-buried bicycle wheel shaded from the sun as a goshawk's eyes are very sensitive.

John spends his spare time with the bird - he has always been interested in birds - and hopes that one day he will be able to hunt rabbits with Huns. At night Huns watches TV with the family and has even picked up a few human mannerisms such as inclining his head when puzzled or bobbing it up and down when excited. "However," says John, to me he will always remain a wild creature and for that I respect him."

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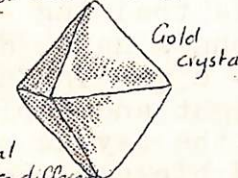


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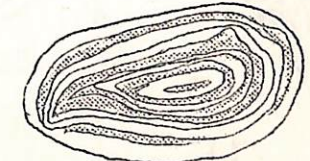


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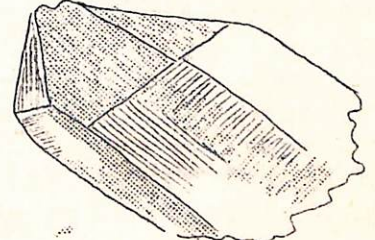
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GOULD LEAGUE NOTES

Recently I took a class of children to the vacant paddock nearby and we sat, watched and listened. We saw in a short half hour twelve different birds. "Gee! Isn't it beaut! Can we come out again?" commented some of the children. I replied, "Yes, but in the meantime it is up to you. Now you have an idea of how to watch birds you can do it by yourself."

You don't have to go out with a class. HAVE A TRY... just sit and watch. Later you will learn more techniques of bird watching.

ARE YOU PREPARING FOR THE NEXT GOULD LEAGUE COMPETITIONS?

Sections 3 & 4 (Grades V&VI)

From your personal observations write an essay entitled "The Most Useful Bird of My District"

Sections 5 & 6 (Grades V&VI)

Compose a poem with a theme of Australian Bird Life. These are the first lines, one of which you may use.

1. The dawn is filled with melody
2. You greet me on the way to school
3. There's a hollow branch on a gnarled gum-tree
4. The colours that flash through the treetops
5. Hidden in the reeds and sedge

(Section 3 & 5 are for Boys while Sections 4 & 6 are for girls. The closing date is 17th June.)

++++
NEXT ISSUE will be published a little earlier next month, because of the May Vacation. So, children have your letters in to the Editor, Nature Notes,

State School No 454, BURWOOD EAST,

Highbury Road,

GLEN WAVERLEY. ... by Tuesday, 3rd May.

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PLEASE FORGIVE!!!

Sometimes little errors appear in your 'Notes' - especially typing errors! Please excuse these, and where a mistake does appear check with your teacher for the correction. Nevertheless, we think our typing is getting better - not O.F.A. (one-fingered-artists), but T.F.A. (you work that out!).

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NATURE NEWS

Over the Easter Vacation I noticed a couple of news items which should be mentioned.

VANDALISM According to my dictionary a VANDAL is a 'wilful or ignorant destroyer'.

On Easter Day vandals used chain saws and axes to cut down seven 35ft. high 12 years old poplar trees in Orrong Park, Prahran. They will cost about \$140 to replace.

Boys and Girls!! -This very stupid act is hard to understand. In this case a thing of beauty has been wilfully destroyed. I hope that you, as future citizens, will act strongly to help wipe-out all such senseless acts. When it is all said and done, it is your property that you would be protecting.

RICHES FROM UNDERGROUND Australia is fast becoming a very important world source of riches from underground. Oil and natural gas have been discovered. Iron ore deposits in Western Australia are earning millions of dollars for our country.

Now a South African multi-millionaire, has announced an expensive Australian-wide search for gold and other minerals. A nickel deposit, discovered near Kalgoorlie, may mean Australia will not have to import so much of this important metal.

How many important minerals are found in large quantities in Australia? Make a list! Here is a start.... copper, iron, zinc now, you go on!

Articles in the Issue were supplied by:-

"Rigging Reptiles" .. Mr. L. Delacca, Norwood S.S.

"Plants without seeds" .. Mr. F. Rogers, Ringwood S.S.

"Precious Gems and Valuable Ores" .. Mr. G. White,
Burwood East, S.S.

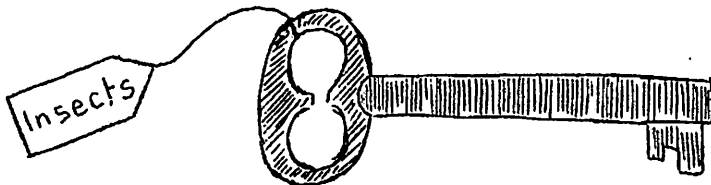
SCIENTIFIC KEYS

We all know that keys are used to unlock the door of a house, a car, or a cupboard, and that each lock has its special key. The key which opens the house door will not open the car door, the one that opens the car will not unlock the cupboard, and so on.

Scientists use keys to unlock the door of knowledge and allow them to identify animals and plants. The key which unlocks the door of insect names is useless for lizard names and so we must pick the correct key. In order to do this we often use several keys, starting with one that we know to be correct. These different keys could be put together to make one key but the "house of names" would be big and clumsy to handle. As an example, the first key might let us into the "insect house" and lead us to the room Lepidoptera which stores the butterflies and moths. The second key lets us into the room and tells which cupboard to open. This might be Saturniidae which is the emperor moth family. The third key opens the cupboard and shows the correct drawer for the name of our moth which is, perhaps, Antherea, or gum emperor moth.

How to use the key

There are 18 numbers in the left margin and each of these has two statements. Compare both of these with your specimen and decide which is the correct one. This statement indicates a number in the right-hand margin which tells you the next left margin number to go to. Sooner or later the statement leads to a name instead of a number. This is the name you want. In a way, you are a detective studying the clues which lead you to the correct name. Use the key even if you know the answer as it is practice that you really need.



1	Wingless	2
	With wings	7
2	Body distinctly divided into head, thorax and abdomen; a narrow waist with a swollen knob lies between the thorax and abdomen	<u>Hymenoptera</u> (Formicoidea)
	Body not distinctly divided into 3 parts	3
3	Antennae long; 3 long tail-stems (cerci) present on the end of the body	<u>Thysanura</u>
	Antennae short, may be hidden away	4
4	Two short tail-tubes at the rear end of the body; small insects parasitic on plants	<u>Hemiptera</u> (Aphididae)
	No tail-tubes; parasitic on animals	5
5	Small insects with body flattened sideways; back legs much longer than the other four	<u>Siphonaptera</u>
	Small insects with body flattened from above and back legs not much longer than the other four	6
6	Thorax <u>seems</u> to have 2 distinct segments. The second of these appears to be part of the abdomen	<u>Mallophaga</u>
	Thorax <u>seems</u> to be one large segment	<u>Siphunculata</u>
7	One pair of wings; each back wing is replaced by a tiny hair with a small knob on the end	<u>Diptera</u>
	Two pairs of wings	8
8	Front wings hardened or thickened at least partly; hind wings membranous	9
	Both pairs of wings membranous although they may be covered with scales or hairs	14
9	Mouth a straight sucking tube usually resting between the first pair of legs. Front wing partly membranous	<u>Hemiptera</u> (Heteroptera)
	Mouthparts of the chewing type	10
10	Front wing very hard, with no distinct veins	<u>Coleoptera</u>
	Front wing thick, but not hard; distinct veins are present	11
11	All three pairs of legs similar in shape although they may vary in length	12
	One pair of legs differs in shape from the other two pairs	13
12	The first segment of the thorax very large, almost hiding the head	<u>Dictyoptera</u> (Blattaria)
	The first segment of the thorax small; second segment very long; head easily seen; stick-like or leaf-like insects	<u>Phasmida</u>
13	Front legs differ from others; they are used for seizing prey	<u>Dictyoptera</u> (Mantodea)
	Back legs differ from others; they are used for jumping (One small group has front legs also differing. This lives underground and the front legs are used for digging.)	<u>Orthoptera</u>
14	Mouthparts a distinct sucking tube	15
	Mouth with chewing jaws	16

- 15 Sucking-tube straight and usually resting between the first pair of legs; wings all clear and membranous Hemiptera
(Homoptera)
- Sucking-tube coiled; both pair of wings covered with coloured scales which easily come off when touched Lepidoptera
- 16 Tail-stems are present and are smooth and hard usually forming a pair of pincers Dermaptera
Tail-tubes not always present. If present not hard pincers 17
- 17 Wings with few long veins or cross veins; veins often do not reach the edge of the wings; front and back wing usually joined together with small hooks Hymenoptera
Wings with several long veins and very many cross veins 18
- 18 Antennae very short; eyes very large, body very long and thin Odonata
Antennae long, eyes easily seen but not unusually large; body thin but not unusually long Neuroptera

This key will teach you how to use a scientific key as even the most advanced key works in the same way. Your main difficulty is to know the various names which describe parts of the body. This comes with practice. The key is not difficult to use but you may find the short non-sentence way of writing strange at first. This allows you to scan quickly through and soon identify your specimen without becoming lost in a lot of words. It is interesting to try and make your own key for a small group of animals or plants. Also, make a list of the scientific names used above and write beside them some common name examples (see Australian Insects by John Child). Later articles will tell you about scientific names and about the groups listed above.

R.L. Jensz, Education Officer.