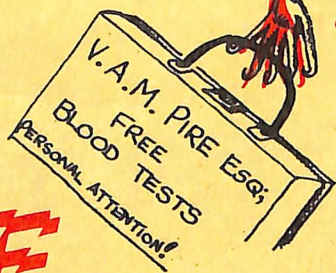




ARTIST:
Carol Measures



NATURE NOTES

VOLUME 19.....NO.6

Registered by Australia Post.....Publication no.VBH0881

.. editorial ..

Hello there,

Have you ever visited a cave? It's an exciting experience, isn't it? Apart from being beautiful and mysterious, the underground areas of our Earth provide a home or shelter for many plants and animals. Caves, of course, were the first home for our prehistoric ancestors.

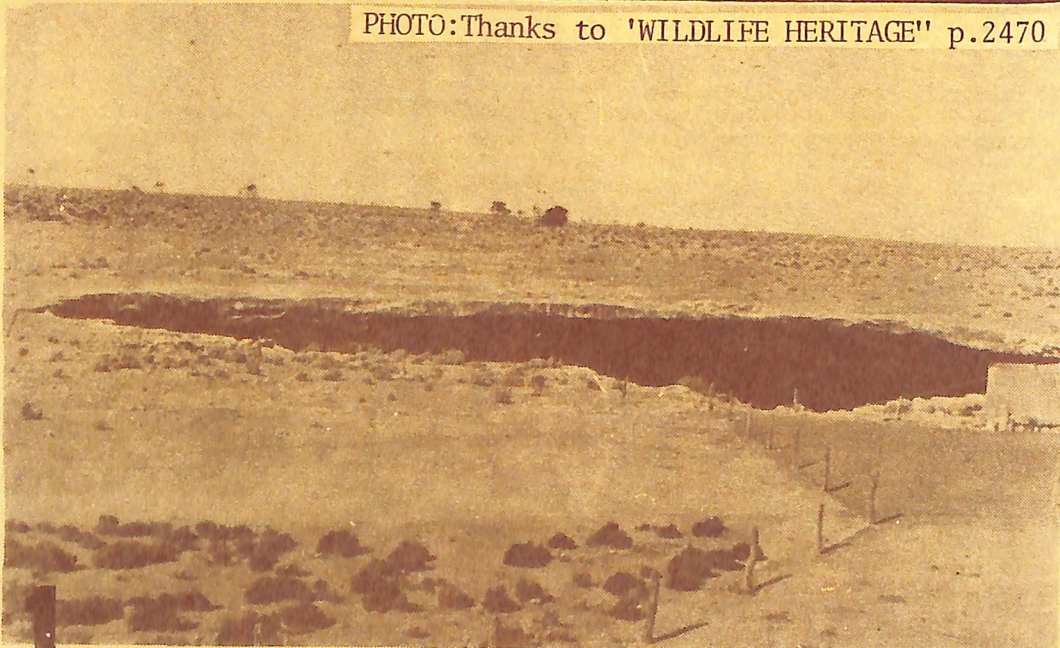
The cave in the photo below is the Koonalda Cave. This is found on the Nullabor Plain - a part of our country that is full of caves. Here, the surface rock has collapsed to provide a much larger entrance hole than usual. Perhaps you could make a list of Australia's famous caves and the reasons why each of them is special. Cheerio for now,

Debra Brydon

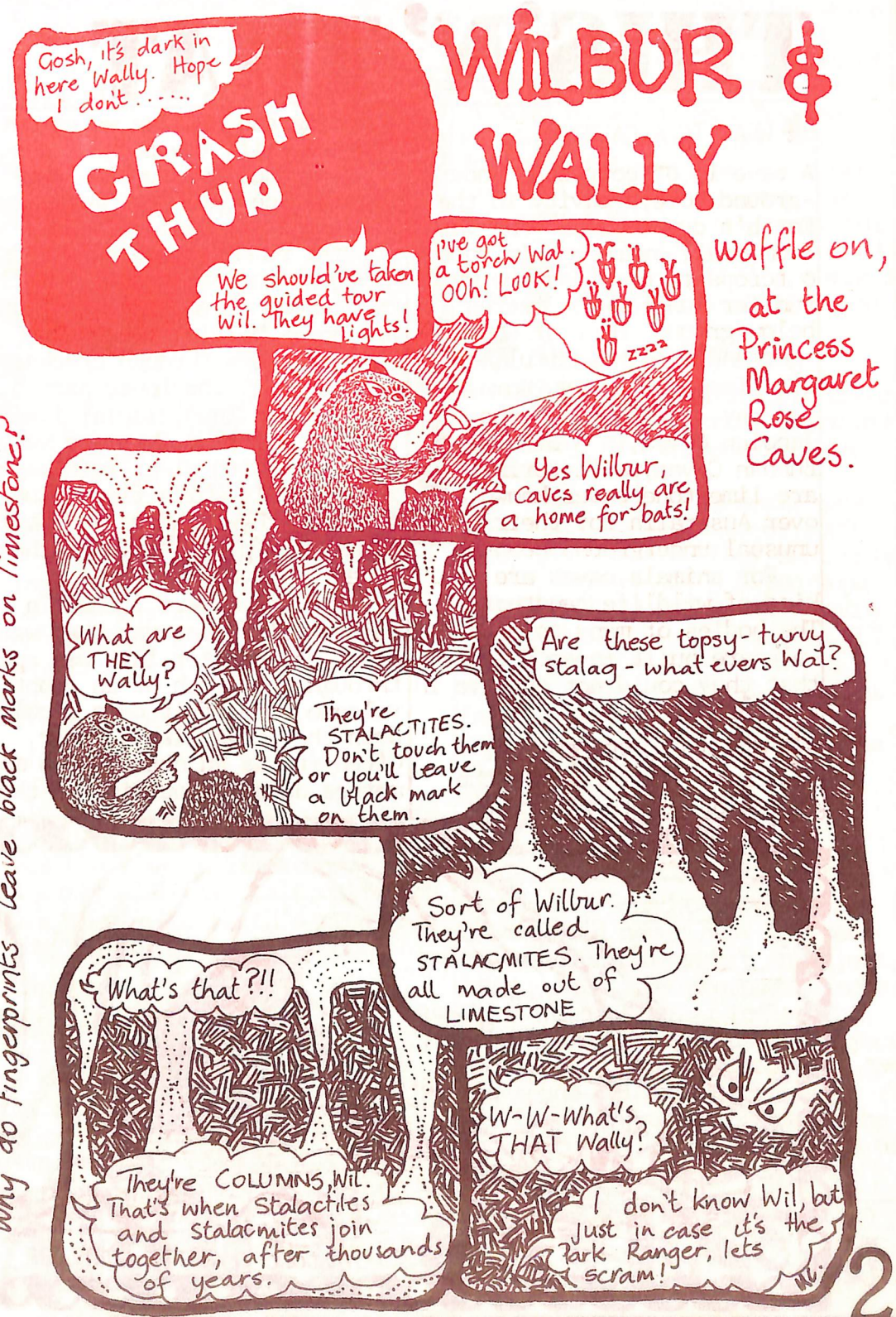
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Many thanks to Lynette Portlock, Cindy Hunnam, Cornelia Polchow, Wilma Prohasky and C. Measures	

PHOTO: Thanks to 'WILDLIFE HERITAGE' p.2470



NATURE NOTES.....A RINGWOOD INSPECTORATE PUBLICATION



THIS'N' THAT

BY D. BRYDON

* WHAT IS A CAVE?

A cave is, of course, an underground hole, a cavity in the Earth's crust. Caves can vary from small overhangs in rocky outcrops to deep caverns which run for hundreds of metres below ground. Most of the larger and more beautiful caves are limestone caves. Some of you may have visited the Jenolan Caves, in N.S.W. or the Buchan Caves, in Victoria. These are limestone caves known all over Australia for their most unusual underground beauty.

For animals, caves are a kind of wildlife sanctuary. The bodies of many cave animals are built in such a way that they could not survive in the outside world.

* HOW ARE CAVES FORMED?

Sea caves are formed by the action of water on rock. By

pounding and beating water onto the sea cliff, the rock of the sea cliff gradually crumbles away. Glacial ice caves are made in a different way again. Glaciers, as you may remember, are huge sheets of mountain ice. Streams sometimes run beneath them, tunnelling out big holes. Melting ice on the surface seeps through cracks, wearing away the inner part of the glacier. Thus, glacial ice caves are formed. They are very beautiful, with clear icicles and ice crystals which flash blue and green in the light. Of course, few animals or plants live in these types of cave.

Lava caves were formed in quite a different way than were other caves. After lava was spat through the mouth of an erupting volcano, some of it came flowing down the sides like a river. Often it was an oozing mass many metres deep. The outside of the



oozing mass cooled quickly, forming a hard shell. Inside the shell the rock was still boiling hot and kept flowing along. When it drained away, it left a long hollow tunnel.

* HOW THE RAIN MADE CAVES

Raindrops take carbon dioxide gas) from air and soil, making rain into a weak acid called carbonic acid. Carbonic acid dissolves the lime in limestone just as water dissolves salt, only much more slowly. Our Earth's crust has many big chunks of limestone in it.

For millions of years, rain sank into the soil. Every so often a trickle or drop found a crack in the rock (limestone) beneath the soil. For many years, the acid water ate at the soft limestone, dissolving it ever so slowly. As the water seeped in, it carried

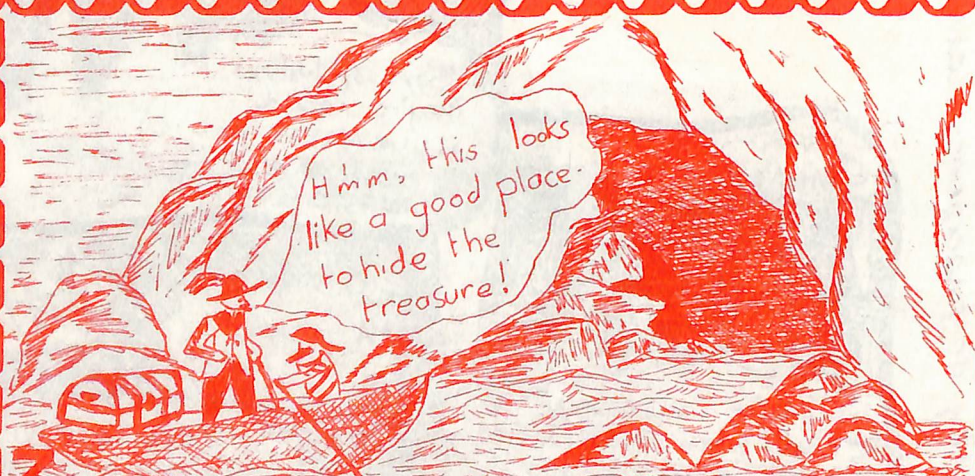
grains of sand and pebbles which tore at the rock, breaking it down. Underground, the trickles of water became streams and the streams became rivers. Tearing, gouging, dissolving, they went deeper and deeper. They left behind the pits and caverns they had carved. Finally the beautiful caves we visit today were formed. It just goes to show that there's more to rain than meets the eye!

* THE COO-EE EXPERTS

No...this is not an article about Australian bushwalkers! There are far better coo-ee experts than them, I'm afraid.

A full meal for a small cave bat is around 66 moths or 5000 midges or gnats. As they hunt only in the darkness, it's often wondered how bats can catch so many insects when they can't even SEE them. The secret of the bat is that he doesn't use his eyesight for seeing that much at all. He uses what scientists describe as an echo-location system. As he cruises about the cave, looking for his dinner, he puts out a burst of sound at the rate of about 25 pulses per second. It's ultrasonic sound, of course, so a human would never hear it. When these sound pulses hit an object, like a moth, they produce an echo. The bat then 'homes in' on this echo and heads towards the object he cannot see. He has to speed up his sound pulses to actually get so close to his prey that he can catch it. In the last tenth of a second before he catches his

ABOUT CAVES (CONT.)



Artist: LYNETTE PORTLOCK

THIS'N'THAT ABOUT CAVES (cont.)

meal, a bat produces sound pulses at the rate of 200 to 300 per second.

BABY BAT COOKERS...

...are a good name for the caves in which baby bats are born. When they are about to give birth, female bats make their way to special maternity caves, where they all gather to wait for their babies. Soon after the young are born, the

the coldest cave they can find. Here, they become torpid by allowing their body temperature to fall to almost as low as the surrounding air. This allows them to keep their stores of body fat at a time when insects are very hard to find.

BLIND FISH

This sounds like a sad story but in fact it's a story of animal cleverness. When the gudgeon's ancestors found



new mothers and their babies pack together in thick clusters, forming a living carpet on the cave wall. Because there are so many bodies in each cluster, the temperature within the cave begins to rise. In some cases, it has been known to reach 37 C. This makes sure that the babies do not freeze and die while their mothers are out at night, hunting for food.

...AND BAT FREEZERS

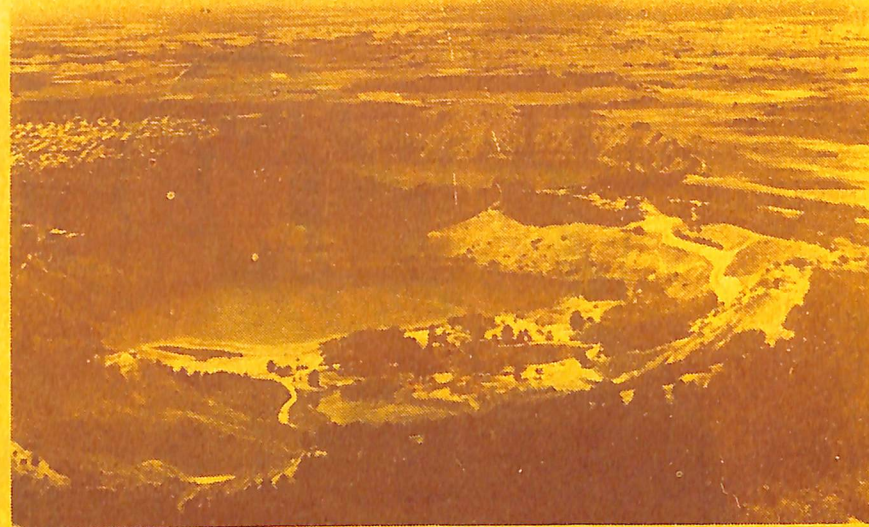
It sounds dreadful for a human, but in winter, bats head for

themselves in a safe cave, they decided to stay. Since eyesight was no longer useful in the darkness of a cave, their bodies began to develop other senses. Over many, many years, the gudgeons' eyes just disappeared. They also became white in color, as a protective camouflage was no longer needed. To make up for this, the fish had developed their nerves so they could pick up vibrations a long way off. Why do you think that this would be more important than eyesight to a cave dweller? 5

MT. GAMBIER

by
A. Gibson

PHOTO: The Mt. Gambier area.



Do you know that Australia is the only land mass in the world which has no active volcanoes? Our last volcanoes finished erupting about 5½ thousand years ago. There were no white men around then but because aboriginal tools have been found at places beneath the volcanic ash (eg. Tower Hill), we know that they must have been living in the area at the time.

Mt. Gambier is the site of one of the volcanic cones and craters to be found in S.E. Australia. It is the largest and most perfectly preserved of any of the eight extinct volcanoes which developed along a fissure (or crack) in the Earth's crust. This crack stretched north, in a line from the sea, through Mt. Schank to Mt. Graham.

Find this line in your atlas. How many kilometres would it cover?

Beds of volcanic ash lying in layers parallel to the slope of the hill form the uneven, unbroken of Mt. Gambier's circular crater, which rises about 200 metres above the surrounding plains. A number of lakes lie within this crater, including Leg of Mutton and the most famous - Blue Lake. No-one knows why the Blue Lake changes from its normal dull grey colour to a brilliant blue in November of each year but it may be connected with limestone particles in the water. For many years, the hot ash and molten lava spewed out by the volcano left the surrounding area barren of vegetation. However, now that the surface has broken down, it is an area well known for its lush vegetation.

Trogloxenes, Troglaphiles & Troglobites.....



There are many life forms that live in caves. Here are a few of them. What can you find out about each one, and what it feeds on?

Things to think about-

- * Why can mould grow in caves?
- * What are harvestmen-insects or spiders?
- * Why do "blind" fish live in caves?
- * What do these plants and animals feed on?
- * Can you make up a food chain out of them?
- * What COLOR do you think most of the animals that live in darkness would be? WHY?

TROGLOXENES

Cave visitors, like bats owls and bees that only use the cave part of their time. (Mainly for living quarters)

TROGLOPHILES

Animals that live in the cave MOST of the time, but that CAN live away from it if they have to. This group includes slaters, glow worms, and crickets.

TROGLOBITES

These animals live in the cave, ALL their lives. They are very SPECIALIZED animals, like the cave fish and spiders.

Earthworms

....UNDERGROUND EXPERTS

Earthworms, along with bacteria and some insects are very important animals: they are soil conditioners. By eating and digesting plant material, the earthworm returns important nutrients to the soil. Do you know the names of some of these different types of soil food? Copper is only one of many.

Like all underground animals the worm is well adapted to life down under. Being cylindrical and flexible, it can eat its way through the soil quite easily. It has no hard parts - rather it softens the soil and then swallows it. The soil is then ground up in the

"Theory of Evolution" last century, wrote an important book on earthworms. He found that they have definite food preferences and seek out tasty pieces of food. Worms are, in

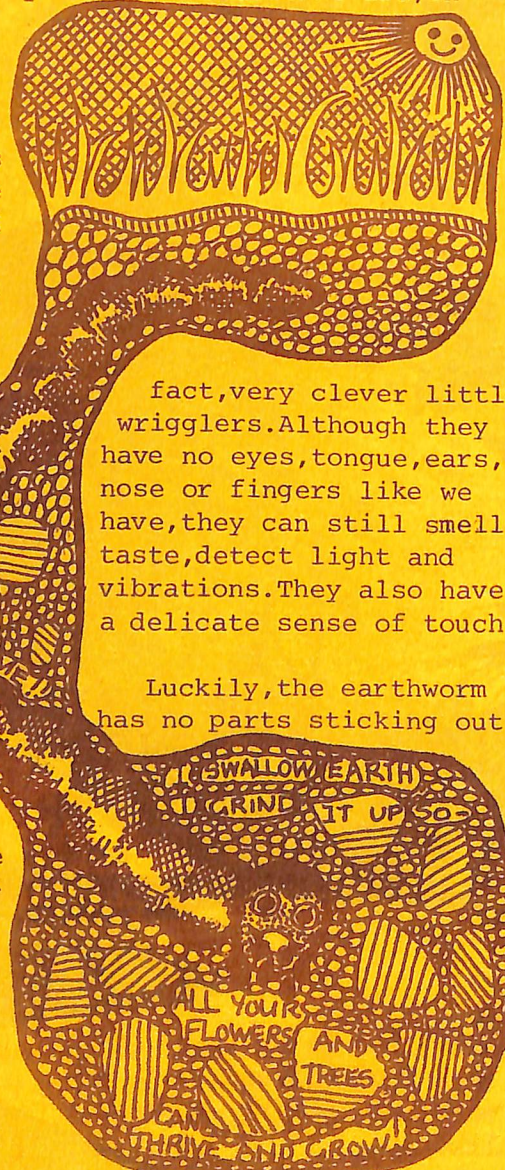
fact, very clever little wrigglers. Although they have no eyes, tongue, ears, nose or fingers like we have, they can still smell, taste, detect light and vibrations. They also have a delicate sense of touch.

Luckily, the earthworm has no parts sticking out

worm's gizzard, digested and excreted (as worm casts). Because the earthworm is mainly a vegetarian, all this swallowing and digesting is for the purpose of finding small pieces of dead plant material (humus) in the soil. Sounds delicious, doesn't it?

Charles Darwin, the scientist who became famous for his

by David Dobson
ARTIST: Cornelia Polchow



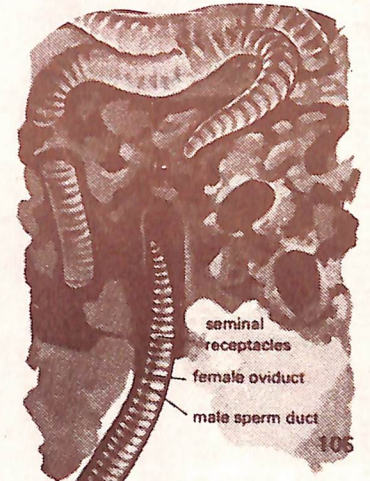
from' its body to interfere with its smooth movement underground. Its skin is smooth and slippery. This serves not only to lubricate the burrow but to moisten the skin as well, the skin being the worm's breathing organ as well. How the worm actually breathes is much simpler than how we humans do. Oxygen passes into blood vessels which line the area just beneath the skin. Carbon dioxide passes out here, too.

Each rung of the common earthworm has four pairs of bristles. The actual number of these is important, you know, because scientists are able to identify different worm species by the different number of bristles they have. The purpose of these bristles is to help the worm move through its burrows.

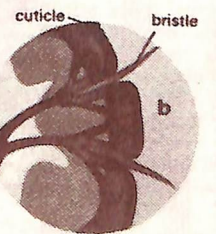
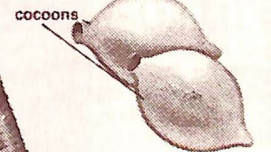
The smooth ring you find on some worms is part of the reproductive system. What does this mean? Well, it means those parts of the body that have to do with producing new, baby worms. Many worms have, for this purpose, a girdle or saddle. This secretes a cylinder of slime, or mucus. Like a contortionist, the earthworm draws itself backwards through the cylinder of slime, laying its eggs, finally leaving an egg-cocoon in the soil.

The earthworm is a simply built animal, divided into rings. The common earthworm you see in your gardens only grow up to 20 cm. long but has 150 rings! However, Australia's giant

earthworm can grow up to a massive 2½ metres long and 2½ centimetres in diameter. He has hundreds of rings. Although named as the Giant Gippsland Earthworm, this fellow lives in moist forest areas as close to us as Sherbrooke Forest.



clitellum or saddle



PICTURE:

Thanks to "THE ANIMAL KINGDOM",
by S. Money, page 55

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COLLINGWOOD supporters have a group of new friends at Melbourne Zoo. This black and white Abyssinian Colobus monkey was one of five on show at the zoo yesterday for the first time.

Yesterday they were out exploring their new home and getting to know some of the zoo's visitors.

THE NEWS

EDIT.:D.Brydon



THE AGE, Thursday 10 June 1982 - 15

A giant green tree frog with offspring. The frogs recently became the first of their kind to breed in captivity, at the Melbourne Zoo.

Stowaways, with a ticket to breed

Shopping in Melbourne is full of pleasant surprises . . . and the occasional frog.

Three giant green tree frogs, which sneaked into Victorian supermarkets, have become the first of their kind to breed in captivity.

The keeper of reptiles at Melbourne zoo, Mr Chris Banks, said the North Queensland frogs came to Melbourne after climb-

ing into hands of bananas on plantations in the far north.

The bananas were picked and shipped south with the stow-away frogs inside.

"When opening the boxes in supermarkets, people jumped back in horror and rang customs and quarantine," Mr Banks said. The amphibians then did a bureaucratic leapfrog from the Department of Agriculture into the zoo.

The frogs' offspring — several months and 200 tadpoles later — are well on their way to their full size of 16 centimetres, feeding on house flies bred at the zoo.

But the baby frogs will not be on show at the zoo for some months, and most of 160 frogs will be sent to other reptile collections around the world.

Mr Banks did not discount the possibility of more frogs turning up on supermarket shelves.

.....FOR THE INVESTIGATOR.....

- * The Abyssinian Colobus monkey on the left spent the past month in QUARANTINE. What does this mean?
- * In what way is the body shape of a TREE frog different to that of any other frog?
- * What is the difference between an AMPHIBIAN and a REPTILE?

12

Hairy Bunter and the Lowland Sisters

BY D. BRYDON. . . . ARTIST: Cindy Humnam

TREKKING ACROSS THE COUNTRY SIDE, OUR FAMOUS AUSTRALIAN NATURALIST **HAIRY BUNTLER** IS JOINED BY THOSE OTHER FAMOUS NATURALISTS, THE **LOWLAND SISTERS** IN AN UN-ENDING QUEST TO SOLVE THE MANY MYSTERIES OF NATURE... AFTER SAVING THE BLOWFLY PRIME MINISTER, M. AGGOT, FROM THE STICKY CLUTCHES OF THE DEADLY PITCHER PLANT, THE TRIO DECIDE TO RELAX BY GOING TO THE CRICKET...

... BUT THEIR PLANS ARE DASHED BY A SIGN AT THE **M.C.G.** ENTRANCE GATE...



AUSTRALIA ISN'T GOING TO GIVE UP CRICKET THAT EASILY! GIRLS, I MANY YEARS AGO BEFORE I BECAME FAMOUS, I LIVED IN THE BUSH. SOMEHOW, I REMEMBER A LOT OF TALK ABOUT HUNDREDS OF **BATS!**



... DETERMINED TO SAVE THE CAREERS OF THOSE GREAT AUSTRALIANS, DENNIS LILLIE, GRAHAM YALLOP AND RODNEY MARSH, THE TRIO JUMP IN THEIR TRUSTY LANDROVER



THE SEARCH FOR CRICKET BATS BEGINS...

... ER, EXCUSE ME - CAN YOU TELL ME WHERE I CAN FIND SOME BATS?

HE'S POINTING TO THAT CAVE OVER THERE



AND.. LEADS TO A CAVE DEEP IN THE CLIFF WALL..

IT LOOKS VERY DARK IN THERE GULP!!

ANY OF YOU GUYS SEEN ANY CRICKET BATS AROUND HERE?

NO MATE, WE'RE MASTIFF BATS.... PERHAPS YOU COULD TRY THOSE OTHER FELLAS DOWN THE TUNNEL

HAIRY TRIES AGAIN BUT MEETS UP WITH TROUBLE

HOW DARE YOU DISTURB ME! A TUBE-NOSED BAT NEEDS ALL THE SLEEP HE CAN GET!

... BUT THIS DOESN'T DETER THE BRAVE HAIRY..

ARE YOU A CRICKET BAT?

NO - CAN'T YOU TELL? I'M A GHOST BAT!



.. FINALLY, THE LOWLANDS STUMBLE ACROSS A GROUP OF BENT-WING BATS FINISHING OFF A TASTY SNACK...



... WITHOUT WASTING ANY TIME TALKING, THE LOWLANDS HAVE THE BATS SIGNING UP ON THE DOTTED LINE, READY TO HEAD FOR THE M.C.G.

We, the undersigned, being genuine cricket bats, are willing to work at the M.C.G. for an annual salary of... **\$20,000**
MABEL BAT X JOE BAT X
FRED BAT X HARRY BAT X

... ONLY TO BE FACED BY A VERY ANGRY GREG CHAPPELL...

WHAT A LOT OF **DING BATS!**

HEY GUYS, YOU CAN'T SLEEP HERE!



USE YOUR LIBRARY TO FIND OUT MORE ABOUT BATS. DO THEY REALLY DRINK BLOOD?



read on to see how you
can make a little seed like me
grow!

Fill a well drained container with soil. Use a kitchen sieve to sift a layer of soil over the top. Place seeds on the surface and gently press them in. Sift more soil to cover the seeds.



It's nice and warm in here but I wish they'd cut out the showers.

The soil is kept warm and moist.



In time, the root (radicle) and the shoot (plumule) burst through the skin of the seed.

The leaves turn green and begin making food for the plant (photosynthesis).

