

Dec 70 - Jan 71



THE
**GRANITE BELT
NATURALIST**



Monthly Newsletter of the
Stanthorpe Field Naturalist Club



THE GRANITE BELT NATURALIST

MONTHLY NEWSLETTER OF THE STANTHORPE FIELD NATURALIST CLUB

NO. 12 December 1970 January 1971 P.O. Box 154 S'tpe.

OFFICERS AND COMMITTEE 1970 - 1971

President	Mr. T. Chapman Ph. 232
Vice Presidents	J. Harslett and W. Cathcart
Secretary	E. Walker Ph. 888
Treasurer	J. Westacott
Editor	F. Tremeer Ph. 651
Assistant Editor	I. Chapman
Librarian	M. Fox
Committee	B. Dodd, I. Chapman, S. Wilmot, Z. Newman, R. McCosker
Publicity Officer	R. Tremeer
Magazine Sub-Committee	C. Van Klaveran and K. Ree

ACTIVITIES

Meetings	4th Wednesday of each month
	C.W.A. Rooms 8 p.m.
Field Outing	Sunday preceeding 4th Wednesday

ANNUAL SUBSCRIPTION

Single	\$1.00	Family	\$1.50
--------	--------	--------	--------

PROGRAMME

Field Outings

<u>Place</u>	<u>Date</u>	<u>Leader</u>
Killarney Fall's Area	31st Jan, 1971	B. Dodd
Dr. Roberts Waterhole	21st Feb. 1971	W. Cathcart & E. Walker

Meetings

<u>Subject</u>	<u>Date</u>	<u>Speaker</u>
National Parks	27th Jan. 1971	Mr. Curtis
Galls	24th Feb. 1971	Mr. P. Grant

.....

.....

REPORT OF FIELD OUTING.

The last club outing on November 22nd to the Girraween National Park via Bill McCosker's property Wyberba had a distinctly international flavour. Though the time set to leave the Park in Stanthorpe was 9.30a.m. we didn't arrive at Wyberba and start walking until about 10.30a.m. This casual start seemed to set the pace for the day and I'm sure none of the 40 or so people present exhausted themselves in the days walking.

The first stop, for those at the head of the party was an unscheduled one demanded by a four foot black snake which lay sunning itself on the track. It seemed quite unperturbed by the gathering noisy crowd of onlookers, until the clicking of camera shutters (one from just three feet away) made it slither into the undergrowth and disappear. We continued on to the falls for a short stop, and then on again through waist high wild-flower gardens until we reached the caves in plenty of time before lunch.

Most of us were able to clamber down into the caves and splash around over the slippery wet rocks, looking in fascination at the glow-worms and being occasionally buffeted by the startled bats. Being so dark inside the caves and the only sound that of gurgling water, one wonders how the bats know when it is night fall outside, and time for them to come out to feed on winged insects. Because of the volume of water rushing through the caves, any attempts to negotiate the full length of them were called off.

After lunch, we went to see the well and decided that perhaps the aboriginals hadn't thought of building the well, but that it could have been formed by a rotting tree stump whose roots had disturbed the flow of an underground stream, forcing the water up through the hollow tree trunk which has gradually been replaced by mud and grass. Another theory was that an underground fault forced the water to the surface,

depositing silt as it flowed out, which, with the aid of the natural grass formed a wall, and 'grew' to its present height about 3 feet. As a matter of interest Bill McCosker, with a forked green stick divined two streams flowing into the well.

We retraced our steps then and, upstream from the lunch-spot paused at the creek where it disappears below ground level into the blackness of the caves. Onwards again to the long granite ridge which provided views of some of the outstanding features of this National Park, the Pyramids and the Sphinx.

An hour or so later we were back at the cars with memories of a pleasant days walking, and appetites wet for the next outing.

Robin McCosker

Wild Flowers on the way to the Caves in Girraween.

Many of the plants badly affected by the drought brightened up after the recent rains and are flowering now, so we were able to see *Sarsparilla* (*Hardenbergia*), Rice flower (*Pimelea*) and *Kunzea capitata* in bloom.

Olearia gravis, stretching its sprays of large daisy flowers well above our heads in places, was a new sight to most.

"Eggs and Bacon" including *Daviesia*, *Pultenaea*, *Mirbelia* and *Dillwynia* brightened the way and *Jacksonia* (Dog wood) is at its best at present splashing the countryside with gold even brighter than wattle.

In the massed rock gardens on top of the ridges borders of *Calythrix*, snowy in bloom and also in its bright summer colours, surround *Hakeas*, *Boronia amabilis*, golden heads of *Helichrysum obcaudatum*, cyclamen-pink *Comesperma*, *Westringia* blue and white and *Prostanthera* (mint bush) blue and the delicately scented white which, like *Kunzea*, is an asset to any home garden.

The Trigger plants, *Stylidium*, refused to "trigger - off" for us.

Dianella, *Stypantra* and *Hybanthus* (lady's slipper) provided bright blue contrast. Along the track we noted patches of *Grevillea* displaying its small creamy yellow flowers and also three different *Leptospermum* in bloom - the very common white, a large flowered variety with attractive pink buds and a dainty white with soft neat foliage.

Native broom (*Choretrum candollei*) makes an attractive shrub but resembles the garden broom only in the fact that very numerous tiny flowers bloom along apparently leafless stems.

As we watched for "bull ants" we could not help niticing the golden stars of *Goodenia*, some narrow petalled everlasting daisies and small shrubs of *Zieria* covered with delicate pink blooms growing at our feet.

The golden guinea flowers of the various *Hibbertias* always demand special admiration. Tongue orchids, King orchids and staghorns could be seen on boulders along the creek and festoons of the ever popular *Clematis* hung above them.

These are only some of the flowers to be seen at present and I never cease to wonder at the number and variety of flowering plants that thrive in the seemingly inhospitable conditions among the granite boulders.

Dore McCosker.

BIRD NOTES etc.

Bird observing provided a very rewarding occupation on our last field outing as many of the birds were nesting. Several of our members were fortunate enough to see birds at their nests. The nests varied from those of unseen hawks (two large untidy stick platforms perched high in tall *Eucalypts*) to the tiny, fragile, exquisitely fashioned cup of the yellow Robin which contained two beautifully marked green eggs; this nest was placed about three feet from the ground and afforded us a

Bird Notes cont'd

wonderful chance to thoroughly study both nest and eggs. We also observed the large mud nest of the White-winged Chough again high on the branch of a tall tree. Choughs are gregarious birds and several may help in the construction of the nest and feeding of the nestlings which may belong to different mothers.

Black-faced Cuckoo Shrikes were seen building their nest and a Jacky Winter (Brown Flycatcher) was observed feeding young. One member found a fallen nest thought to be that of a White-naped Honeyeater.

The bird list for the day included the following:-

Nankeen Kestrel	Black-backed Magpie
Kookaburra	Crow
Brown Flycatcher	Happy Jack
Crimson Rosella	Rufous Whistler
Mistletoe Bird	Wattle Bird
Yellow-faced Honeyeater	Grey Thrush
Eastern Spinebill	Yellow-tufted Honeyeater
Grey Fantail	Yellow Robin
Dollar Bird	White-bearded Honeyeater
Pied Butcherbird	Scrub Wren
Wonga Pigeon (heard calling throughout the day)	

Turning over large flat stones also provided some interesting moments. Apart from the usual crop of ants and rather angry scorpions, we found several geckoes of various sizes. One was identified by Mrs. Harslett as *Oedura eusurii* and the other seemed to vary only in size, all having the characteristic markings on their backs and thick fleshy tails. Extreme care should be taken when picking up these harmless little creatures as they have the disconcerting habit of dropping their tails. This is a defence against predators who are left with a squirming tail whilst the intended victim makes good his escape and lives to fight another day. The tail can be grown again but is usually a somewhat deformed appendage.

Another interesting find was a largish flattened grey spider and a circular flattened eggsac which was fastened to the rock floor. I know very little about spiders but from the description in a reference book I think it must have been a member of the Drassidae family of night hunting spiders. This one possibly was a species of *Hemicloea* which shelters under large rocks during the day. It would have been a female as the male is a very small spider.

REPORT OF MONTHLY MEETING.

There were 38 people present at our monthly meeting held in the C.W.A. rooms at 8 p.m. on 25th November.

After the usual business the treasurer's report was discussed when it was realised that our bank balance was only \$12.87. This depleted state of finance was caused by the

Report of Monthly Meeting cont'd

purchase of a large stock of paper for the magazine. Some useful suggestions for supplementing the funds were made by members and these will be discussed at our next committee meeting.

The secretary reported that Dr. R. Dark has offered the use of his property for a field outing in the future. This was noted with much appreciation and will be considered when our next programme is being compiled.

The president reminded members that the Chinchilla Nats. Club will be in the Granite Belt on 5th & 6th December and will welcome our company. They are visiting the Mt. Norman area.

Appreciation to the McCosker family was made by the President for the way the last field outing was led and conducted. Mrs. W. McCosker had a large variety of wildflowers obtained from her property at the meeting, and much interest was shown by members.

It was noted that a combined Dec/Jan. magazine would be issued in Dec. so more articles were requested. At 8.30 p.m. Mr. E. M. McCulloch introduced Mr. G. Brown and Mr. J. Hendly from Warwick who provided the main attraction for the evening. A telescope was set up in Stanthorpe park and all members were able to see very clearly a gas cloud where stars were forming. An interesting view of Saturn was also seen. After this diversion everyone returned to the C.W.A. rooms where slides of Australian astronomical installations and photos of planets through different powered telescopes were shown. The talk was also illustrated with black and white prints and models of the American moon probe vehicles. A most fascinating and instructive evening for which we are much indebted to our Warwick visitors. X

ADDITIONS TO LIST OF FINANCIAL MEMBERS.

Mrs. Halloran Box 7, P.O. Thulimbah
B. & L. Bonetto P.O. Stanthorpe

Note

Any errors or omissions to this or previous lists please inform editor or treasurer.

CONTRIBUTIONS

The Processes of Local Mineral Deposits

Stanthorpe was built on tin, hence its name, and it was not until these deposits started to decline that serious efforts were made to establish some other industry. Undoubtedly many people have spent long hours looking for such deposits, and members are not excluded from their ranks. So it would appear that some knowledge of how these deposits are formed could be of value, not from the point of view of knowing where to look, but of defining many places where it is just worth looking.

The Granite Belt is part of what is called the Texas High and this large underground intrusion came at the end of the X

The Processes of Local Mineral Deposits cont'd

Permian, some 220,000,000 years ago. The size of the crystals within the granite indicates that it must have cooled slowly, and was, therefore, deep within the earth. This overburden has since been eroded away to expose the granite as it is today.

There were four major intrusions of granitic magma, and there is still controversy as to the way such magmas are formed. This question, so hotly debated, appears to be associated with the remelting of existing rocks during mountain building i.e. orogenesis. The process, however, does not worry us when considering mineral formation, as we must start with the magma and then consider its cooling.

The first minerals to crystallise out are Biotite (the black mica) and orthoclase feldspar (pink crystals with flat surfaces) and when these have been formed there remains a residuum of liquid containing quartz, potassium - feldspar, muscovite and secondary minerals, which then begin to crystallise. It becomes apparent then, that the percentage of the secondary minerals is rather small (in the 0.1-0.2% range) but it is from these that the economic deposits form. Considering these we have:

1. Volatiles such as water, HCl, CO₂ and H₂S, which are either gases, or if the pressure is high enough liquids.
2. The secondary elements tin, tungsten, arsenic, copper lead zinc, uranium etc.

These elements may become dispersed into the crystalline formations as impurities within these crystals. This is deuteric alteration and there is no concentration, only alteration. The other possibility is that these elements become concentrated into a pegmatitic phase, and thus become injected into the rocks via cracks, joins, etc. which are commonly all called veins but are really dykes, sills, plugs etc as well as veins.

If the water content is low a fine grained aplite is produced such as is to be seen very prominently on the Bald Rock. There is no possibility of secondary mineral concentration within aplites. However, if water is present in sufficient quantity upon relief of pressure it boils (the phenomenon of second boiling which occurs when the pressure is released from a pressure cooker.) The steam forms spaces within the pegmatitic magma, (still fluid) and provides the space in which crystals may form. These are pegmatites, and can be seen in Stanthorpe where the new by-pass road crosses the Inglewood road and leading to the Britannia.

Thus aplites are fine grained pegmatites, and are mainly quartz and alkali feldspar, with a little mica (muscovite). In 90% of the case, this is all that is to be found.

Cassiterite, wolframite, and other such minerals, however, may be sufficient quantities to form deposits within the pegmatites. Such are the Sugarloaf deposits. At the stage when this is occurring the rocks are still hot - 4-500 deg. C.-

cont'd over.

The Processes of Local Mineral Deposits cont'd

and hot fluids can still be circulating around. These "super critical fluids" have great powers of solution, and may attack the pegamatites to produce the medium to coarse grained greisens.

A greisen is a quartz-muscovite (white mica) rock, which frequently contains topaz, fluorite, and cassiterite.

Hot fluids still exist in the 50-500 deg. C. range, as cooling proceeds. Such fluids contain SiO_2 , which subsequently cools as quartz and quartz-sulphide veins. Being liquid these are more mobile than the now consolidated crystals, and move about via cracks etc. and by reactions with the rock pick up, and concentrate, various sulphides e.g. Pyrite FeS_2 .

Final deposition products depend upon the temperature at which these hydrothermal veins consolidate. In the Stanthorpe area this occurred in the 300-500 deg. C. range, and so associated with the quartz gangue are cassiterite, wolframite, molybdenite, arsenopyrite, pyrite (Sundown-Nundubbermere) and uraninite. Further west, towards Texas, the temperatures were lower (in the 200-300 deg. C. range) and a different mineral assemblage is associated with the quartz, being chalcopyrite (copper, iron pyrite) galena, (lead) calcite (not the Texas limestones which are coral deposits) and sphalerite (zinc) with the possibility of complex bismuth, antimony and silver ores. These are the deposits on which the Silver Spur mine is based.

The final cooling products in the 50-200 deg. C. range are stibnite, (antimony) cinnabar, (mercury) calcite, dolomite, native silver, bismuth and gold. Any gas remaining at that stage escaped to the surface.

Other factors beside those referred to occur, so that the process will be seen to be very complex, but several pointers can be recognised. It is first necessary to find some form of intruded dykes, or veins, and if these are fine grained, deposits are unlikely. Better possibilities exist with the coarse pegamatites and greisens. Should you find tin, then the only "gold" will be in the bank account. Sore feet and stiff backs come at no extra charge, and topaz are still where you find them, but remember there is a reason why they are there.

Feldspar = Felspar optional spelling
Feldspar favoured by Deer (Prof. of Min Cambridge)
Howie (Reader in Geol London) Zussman (Prof Geol Manchester)
authorities on mineralogy.

M. PASSMORE.

CHRISTMAS WITH A DIFFERENCE.

As I look back along the line of years, each with its memories of Christmas, I find that the memories of some have faded right away, but others are outstanding. One of these was one spent with a merry party of campers on a lovely little island of the Barrier Reef. It was a coral cay, about 600 acres in area, 70 miles from the coast and well timbered with pisonia trees, pandanus palms and casuarinas, none of which was of use for firewood, much less a Yule log, and all our firewood was brought from the mainland.

No bells were heard in the early morning, but the friendly little muttonbirds wakened us at day break, rushing through tents on their way to the beach, as they are unable to become airborne from their nests. After taking some out of my suitcase, I joined the turtle riding party on the sands. Turtles move clumsily on land, but with a piece of rope around their front flippers and enthusiastic backers in swimming costume urging them along from behind, quite a respectable speed can be obtained, and after some hilarious races we took our steeds into the swimming pool. Easy enough on sand, turtle riding is quite a different matter in the sea. As if they once get their heads down the rider enters the water with more speed than dignity. Such thrills and spills!

After our romp in the warm tropical water, we ate a hearty breakfast of turtle steak and coral trout and mackerel, which we had drawn from the sea on the previous evening. Before the meal was ended we were interrupted by a cry of "Shark oh" and all dashed off to view the cruel gray 12 foot monster, and the carpet-marked sea snake which it had disgorged in a vain attempt to get rid of the hook. After it had been photographed a post mortem was held. Inside were several young sharks of an average length of 32 inches, complete with vicious looking teeth.

As we were resting on the sands, we were startled by a brood of about 100 newly hatched turtles, running over our feet on their way to the sea. The mother turtle never sees her eggs after she has laid them. The sun's warmth hatches the brood which with unerring instinct dash for the sea, try as you will to turn them, and they lose no time as all sorts of predators are watching for them.

It was not hot to enjoy a real Christmas dinner, with crackers and merriment, and afterwards we lolled in the shade watching the birds. December is their nesting season, and whitecapped noddies were thick in the pisonia trees. All day these kindly little birds were busy and the noise was like that of a gigantic swarm of locusts. Fluffy heads appeared over the edges of nests. Some still contained eggs, and the parents prettily changed guard at intervals. Occasionally a youngster would fall out of its nest, and it was a puzzle to decide from which, among the hundreds of nests, it had fallen.

Later in the evening when the tide was low, and tiger sharks absent, we all went to the reef which surrounds the island, wading through the shallow lagoon, where there were shoals of rainbow tinted parrot fish, & queer shaped boxfish. An occasional harmless little carpet sea anemone passed us, to say nothing of huge blue sea stars and black slug-like beche de mer. We came to the

Christmas with a Difference cont'd

coral gardens. These are wonderful beyond description and in the deep pools we could see a threepence 12 feet below on the bottom. Some of us donned goggles and dived into pools to see them from the fishes viewpoint, and found ourselves in fairy gardens, with the surface of the water a quivering blue sky above. By letting our breath out slowly we were able to stay down quite a respectable time and the gaily coloured little fishes would swim quite close to inspect us and give us an occasional nip.

The best laugh of the afternoon was when two of us were squirted with black fluid by an octopus. We two "niggers" clung to our prize which measured 5 feet across. It was bottled for the Sydney museum. We had no trouble getting the ink off our skins, but it never came out of our clothing. However nobody worries about trifles on the reef where old clothes are the mode.

After tea we lounged on the warm sands. The moon cast a shining pathway of silver on the sea, while the nightbirds flying across the moonlit skies looked like a witches frolic and the breeze in the casuarinas and the lapping waves murmurs a soft accompaniment as we sang the dear old Christmas carols, and thought of far off friends. I will close by wishing one and all of the Nats a very pleasant Christmas, and all the best in 1971.

D. WISEMAN.

A TRIP TO AYERS ROCK - cont'd

You will remember in last months journal we were about to begin our climb. The route was rather steeper than I had anticipated, it dismayed quite a number, who decided against climbing but as the surface was pitted a good foothold could be obtained so with many "rests" I was able to ascend the first steep portion of the climb. Here a chain on pipe supports had been thoughtfully provided, but I found it about a foot or more too low for my comfort, however it was most acceptable on this dangerous section.

During each "rest" I took a snap or two and such was the tourist interest in "The Rock" that people were coming up or others coming down in a continuous stream. As I left the chain behind the thought occurred to me that I would have to slide down this part of the rock as it seemed steeper than where the chain was, however I need not have worried because what with all the practise I had before I eventually returned to it I was able to walk down without qualm.

The 'bigness' of the Rock impresses all over again as one progresses along the track which has been slapped with a paint brush (and paint) every few feet. One walks on and on and up and down and on and on ad infinitum almost. Big 'corrugations' are excavated, some about ten feet or so deep and fifteen feet across, these traverse the Rock and one has to be careful negotiating them as the sides are almost vertical holes, some about seven feet deep can also be seen and from the staining of the lower levels one can see that they hold water in ordinary times

A Trip to Ayers Rock cont'd

though they were completely dry now.

A goodly number of climbers appeared and disappeared regularly as they went along the track and eventually I arrived at a Cairn of stones where a book could be signed. This I did and after a good look around and marvelling still again at the immensity of this rock I began to retrace my steps.

About 100 yards along the way, cramps started in both thighs, a very worrying set of circumstances. Cramps, miles from our bus, a steep descent to accomplish and I pictured being a complete nuisance to some good Samaritan, being helped all the way back, however by judiciously walking backwards and forwards as I progressed slowly along and going very gently when Mr. Cramp signalled his presence I was able to continue and eventually arrived at the starting point, thrilled no end at having climbed Ayers Rock! I had read of, and over the years seen many pictures of this wonder and here I was so far from home, and my signature could be read in the book at the Cairn on the top.

The bus took us back to the Kiosk where we ordered lunch and here I received another shock. You will remember I said earlier one goes on and on etc., well there was a diagram on the wall near our table and the Cairn was barely one third of the way across the expanse of 'Ulura' from the distance we hiked I thought we had gone almost right across and it was a let-down to see we hadn't even reached the centre.

While lunch was being prepared a few quick snaps of the rock which had changed colour again, and after lunch a guided tour of some caves and a waterhole was on the agenda. Our guide, having spent about two years with bush natives had the greatest respect for them, but what he had to say about those in town I will not repeat.

We saw many rock paintings and he gave us the meanings of quite a few symbols and soon we found ourselves in the 'maternity cave'. "Feel the smoothness of the rock here" said our guide. We did and found the rocks around quite smooth to touch, the result we were told of countless pregnant women, patiently, day after day, gently rubbing their hands over the rock near them, willing that their unborn child would be a boy and would absorb the strength, the greatness of "Ulura" ensuring that he would be a mighty hunter, a strong man, a man to be proud of.

Each day ends, this day ended with us landing at the Alice Springs aerodrome after a most pleasant return journey, to be dwarfed, well, I mean our plane was dwarfed by a big airliner from the city, packed with, of all things, 'tourists'.

FRANK WILKINSON.

CAPER WHITE BUTTERFLIES

What are they?
Where do they come from?
Where are they going?
How many of them are there?

These were some of the questions asked as clouds of butterflies fluttered over the Granite Belt for days on end.

With Mrs Harslett's help I will attempt to answer some of these questions, that is except the last as it would take a mathematical genius to make an accurate estimate of their numbers.

The butterfly was the Caper White (*Anaphaesia java teutonia*). It is basically white with black margins on the wings. The margins on the upper side and the underside of the fore wing contain white spots while the underside of the hind wings is white with veins nearly black and orange spots near the margins.

The Caper White Butterfly breeds on various species of Caper trees hence its common name. There are several species of Caper trees in Queensland.

Capparis mitchelli :- a beautiful shapely dark-green tree that affords welcome dense shade in the western heat. When covered with large white flowers it fills the air with orange-blossom-like perfume giving it the common name of Wild Orange.

Capparis lasiantha :- a woody creeper with large oval leathery leaves.

Capparis nobilis :- somewhat like mitchelli but with large attractive fruit.

Under certain favourable seasonal conditions the Caper Whites breed in enormous numbers and the caterpillars completely defoliate the Capparis trees in the breeding area. When they emerge as white butterflies they give the impression that the tree has burst into a profusion of blossom.

During their life cycle they normally disperse to other areas but at times when there is a sudden build up of numbers they go on migratory flights of varying magnitude and immense flights of this species may occur from time to time in Eastern Australia. These flights may continue for several days, as they did on the Granite Belt this year. The migrants rest at night and continue their flight the next day. On occasions great quantities of broken wings are washed up on the beach from butterflies that ultimately fell by the way in the fruitless search for Capparis trees on which to lay their eggs.

As usual nature protects the species and some mate and lay eggs before migrating away from the food plants.

The late Dr. G.A. Waterhouse, the famous Australian lepidopterist, grew a Caper tree in his Sydney garden and after one of the migratory flights of the Caper Whites he estimated that at least $\frac{1}{4}$ million eggs were laid on the leaves.

I wonder where the butterflies eventually died and how many of them found their Utopia, a Capparis tree. This we will probably never know but we can be sure that enough eggs have been laid to preserve the species and that in future years we will see more migratory flights of the dainty Caper White Butterflies.

CHINCHILLA NATS. AT MT. NORMAN.

On Saturday 5th and Sunday 6th December a party of Chinchilla Naturalist Club members visited Mt. Norman. I spent a short time with them Saturday morning and several hours on the Sunday.

There were about 20 adults and 10 children there and I look forward to reading the report of their outing in their Newsletter.

David Hockings, his wife, sister, daughter and nephew made a rush trip up from Brisbane Sunday morning and as always David's wealth of botanical knowledge was invaluable. With his help Jean and Mary Cameron compiled a list of plants flowering in the Mt. Norman area. I hope we are able to get a copy of their list and that it will spur our club on to do similar lists for other areas on the Granite Belt.

The Chinchilla Nats. have many enthusiastic members and I enjoyed immensely the time spent with them. If we have the opportunity again to join them in an outing I strongly advise our members to do so if possible particularly anyone interested in birds. Cec. Cameron their president, is a very experienced and expert bird watcher and his son, Chris is a true chip off the old block. They have a perfect understanding and seem to have a language of their own.

The Grant family typify the spirit of their club. Their four young children stood on the top of Mt. Norman at 7.30 Sunday morning and that was a mighty good effort. When I saw them last at about 12.45 they were still bounding from rock to rock.

TOM CHAPMAN.

AMATEUR ASTRONOMY.

November Meeting - Stars.

To the casual observer, the vault of the heavens contains the Sun the Moon and a number of twinkling pinpoints of light which adorn the night sky.

Some times a streak of light, a "falling star" or meteor, crosses the star field or a comet is seen glowing close to sunrise or sunset.

The Ancients noticed that some of the "stars" do not twinkle but glow steadily and observations showed them moving across the starry background. These they named planets or "travellers"

Observations with binoculars or telescope reveal a wealth of celestial phenomena, as was discovered at the November meeting. Mr. E. McCulloch introduced Messrs. John Henley and Fordon Brown, members of the Astronomers' Association of Queensland and the Astronomical Society of Queensland, who have built an observatory at their residence at Grafton St., Warwick. The East Warwick Observatory houses the Henley 10 inch Reflector telescope which is used for photographing various phenomena. On their visit, they brought Gordon Brown's 2½ inch Refractor and members viewed the planet, Saturn, which is at present displaying the spectacular rings almost fully open.

The constellation of Orion yields views of the Great Nebula, a huge gas cloud of hydrogen in which stars are born,

Amateur Astronomy cont'd

the gas being condensed by powerful magnetic fields in the cloud. This point was shown later in the evening in some spectacular slides shown by John Henley.

One of the stars in the belt of Orion was shown to be a double star. That is, 132 times magnification revealed two stars where one appeared to the unaided eye.

Most stars are doubles, some being in the same line of view and some are revolving binaries where two stars revolve around each other.

The slides also showed other nebulae such as galaxies similar to our own Milky way; expanding filaments of gas caused by novae i.e. stars that exploded scattering debris millions of miles into space, and clusters containing thousands of stars. Astronomical distances stagger the imagination.

The closest star, Proxima Centauri, is some four and a third light years away, or 26 million miles.

The Milky Way extends some 80,000 light years in length. Australian observatories are ideally situated to study the neighbouring galaxies, the Clouds of Magellan. The slide show took members on a tour of the Marrabri Stellar Interferometer, which measures stars, and the C.S.I.R.O. Solar Observatory at Culgoora with its Radioheliograph consisting of 96 dish aerials, each 45 feet across.

The Australian National University directs the Mount Stromlo Observatory, Canberra, and the Siding Spring Observatory Coonabarabran where the new 150 inch telescope will be installed in a few years time.

C.S.I.R.O. has the famous Parkes Radio Telescope which played an important part in the first moon landing; and many other installations shown make valuable contributions to the N.A.S.A. Apollo programmes and satellite communications.

In the field of radio astronomy, Australia is in the forefront of world research. The Mills Cross, with its arms a mile long is yet another unique instrument, Australian devised and designed to make important contributions to Man's knowledge of his greater environment. Amateur astronomers, such as the club's visitors, make their contributions too.

Amateurs' observations are recorded and sent to the scientists and mathematicians of organizations such as C.S.I.R.O. who then do the work for which the amateur is not equipped in training or facilities.

The visitors appreciated the interest shown by members and the enlightening discussions the evening provided. In all, the visit was a mentally stimulating experience.

G. BROWN

ST. MARY'S FALLS.

Date: The ^{24th} ~~31st~~ January 1971 which is not the Foundation Day Week-end.

Assembly Time: 9.00 a.m. at usual spot- Stanthorpe Park.

St Mary's Falls cont'd

Route: To Amosfield and then down Mt. Lindsay Highway to Legume. Some gravel on this road and tight corners, but quite a good non-bitumen road. Then turn off at Legume onto the Killarney-Warwick road. The border is crossed shortly and soon after there is a signposted turn off on the right which states either Boonah, The Head or Queen Mary's Falls - all the same road. This road follows a creek along for a while and just before a steep climb starts is the indicated Brown's Falls parking area. To reach these falls is a pleasant half mile walk along and across the creek over stones, fords and with adjacent rain forest. Ease of travel depends upon amount of water in the creek. Brown's Falls are picturesque and can be walked behind but are not very high.

After leaving Brown's Falls proceed to Queen Mary's Falls picnic area for lunch passing Dag's Falls on the way.

With lunch finished there are walks and views along the cliff face or one can take the round trip to the bottom of the falls - approximately 2 miles.

Way back to Stanthorpe under your own steam, the direct route through Killarney-Warwick or the detour through Tannymorel suggested.

Leader: Brian Dodd

With reference to article on Caper White Butterflies.

Mrs. Wiseman was also fascinated by these butterflies and we wish to acknowledge her article too.

The President and Committee wish all readers and friends a very Happy Christmas and good hiking in the New Year.