



**FERN SOCIETY  
OF VICTORIA**

**NEWSLETTER**

DATE June '81  
VOLUME 3  
NUMBER 5

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PRESIDENT'S MESSAGE:

Albert Jenkins and I have just spent a most enjoyable day. We have been planting tree ferns (56, in fact) in my new fernery. I have just finished building a large enclosure - 3,600 sq.ft., 15 ft. high - for my hardy ferns. I have been working on it since last November - and unfortunately, it is not large enough.

As I mentioned in our May Newsletter, Albert will be presiding at the June meeting, as I will be in New Zealand.

At our last meeting, copies of our Constitution were made available for your examination and comment. If you did not receive a copy and wish to examine one, please see Irene Bolster at the June meeting, and remember, you will be asked to vote on it at our coming Annual General Meeting.

The Annual General Meeting will take place in August. Nominations for Office-Bearers must be received in July. A nomination and membership renewal slip will be enclosed in next month's Newsletter.

The results of last month's competition were as follows:

<u>Open</u>	<u>Novice</u>
1st: Mavis Bryant	1st: Rod McConchie
2nd: Albert Jenkins	2nd: Marilyn White
3rd: Mavis Bryant	

The fern for next month's competition is a Polystichum (Shield Fern).

The National Parks and Wild Life Service of Victoria and New South Wales has produced a set of beautiful colour posters, which have been available for some time now.

Several of these posters feature rainforest scenes containing many ferns - one, in particular, is most attractive.

These posters are being sold to raise money for a fund set up to oppose the Wood Chip industry. They are available from the National Parks and Wildlife Service at a cost of \$2.00 each.

CHRIS GOUDEY  
President

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SECRETARY'S REPORT:

Members who attended the last meeting all appreciated the talk given by Kevin Heinze. We all went home the happier for having information served with a pinch of humour.

Kevin's love of children comes through, and he reminded us that teaching children to love plants is a good investment for the future.

The "List of Members" we compiled has proved very popular - we have had our work cut out keeping up the supplies. Since the list was issued we have gained more than fifty new members. If you would like a copy of this supplementary list I have drawn up, please let me know.

One more request:

Mrs. A. O'Connell, from 215 North Road, Caulfield (between Hawthorn and Kooyong Roads) is looking for a lift into meetings - can anyone help in this regard, please?

IRENE BOLSTER  
Secretary

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We are delighted to have the following contribution from one of our members.

*What is it, that's green,  
So tender, yet tough,  
Can be handled with caution,  
Or ever so rough!*

*It grows near the sea,  
It's found in the mountains  
And it always graces  
The best of our fountains.*

*This wonder of beauty  
Of which I'm quite fond  
Has delicate grandeur  
In each separate frond.*

*The answer I'm certain  
Won't cause a concern,  
For you've already guessed it  
It's simply a Fern.*

TIM LAWRANCE  
19.11.80

'57 WAYS' (VARIETIES) OF IMPROVING FERNS - FROM KEVIN HEINZE

Our May speaker, Kevin Heinze (no relation to the Soup-man) kept the large audience bubbling and interested with his presentation on growing ferns, the Heinze way.

An interesting statistic was presented to the audience that 28% of people recently surveyed regarded gardening as their major recreation. The next highest percentage for any pastime was 12% for walking and jogging.

Kevin encouraged the meeting to look upon gardening as a recreation and to develop a garden around what you like yourself. "When you are growing something it is a living thing and it does need attention", he said. He reminded us that, like animals, plants continually need to be looked after.

During his talk, Kevin outlined his experience with ferns, which has been growing them for specific reasons. The main thing to look for in ferns is that they grow in well drained situations. Moist conditions are usually suitable, but it is essential that the area is well drained.

"This needs to be stressed", he emphasised.

Winter time is an excellent occasion for gathering leaves, and, in Kevin Heinze's opinion, everybody should have piles of leaves all over the place to make their own leaf mould for their ferns. He is appalled at the amount of leaves that are burned or got rid of instead of being used for organic fertilisers.

In using ferns outdoors, we were reminded that the common fishbone ferns for example, grow well in rocks. However, we should consider when growing ferns where the ferns will actually be located. If grown amongst rocks, care should be taken not to cement the rocks.

Turning to growing ferns in pots, Kevin suggested that this is an ideal way of creating outdoor displays because pots can be moved around from location to location which enhances displays at various times of the year. "Don't use ferns merely to fill up a space such as a dark and dingy spot", he said. "Ferns should not be put in locations which you do not visit, because there is nothing better than sitting around in an environment where ferns are a major feature", he added.

Growing ferns indoors can be very exciting and, in his opinion, bedrooms are a very good location. They are usually good for humidity and bathrooms are also good locations. However, the lounge may not necessarily be an ideal site, particularly in winter, when heating will dry out the atmosphere. One method that he uses is to stand the potted ferns in a dish of wet sand or peat moss and keep it moist so that a good humid atmosphere is created.

Another way to create humidity in heated rooms is to use a misting spray with water.

Watering ferns can be a science by using measuring devices, but Kevin Heinze prefers the finger test. He rubs the finger in the top of the soil and, if it comes out moist, the plant does not need any water; if it comes out dry, he waters it. "Root systems vary a lot and that means that plants require different amounts of water" he said. "Remember to water the pot to the brim every time - even in winter."

'57 WAYS' . . . . . (Cont'd.)

Repotting of ferns should be done at least once a year according to Kevin. "When ferns produce a good fibre root it is usually ready to be repotted. All plants produce foliage first and roots second", he said.

The feeding of ferns is very important. They do not need a great deal of feed and three feeds per year are usually sufficient. Plants feed from the root system, and Kevin does not see much value in using aerosol packs to spray over the foliage.

Returning to outdoors, Kevin said that it is essential that the soil is moist before putting any food on the soil.

More has been written about soil mixture than anything else in gardening, according to Kevin Heinze, and he feels it is a personal matter of what constitutes soil mixture. However, one thing which is most important is that the mixture is open. He uses charcoal to keep the mixture in an open condition. On the subject of compost, he made the observation that old compost has no food value but new compost does. Again, however, one should experiment, fiddle with the mixture and try things out to find the most suitable mixture for the application.

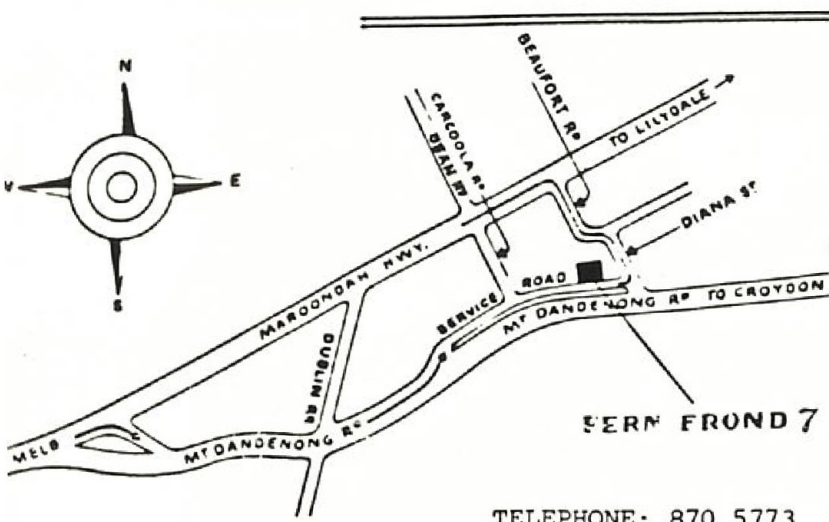
Potting and repotting was dealt with at length during the talk. "Clean and dry pots are essential when repotting" we were told. "It is important that dirty pots are not used, as they do not allow plants to be removed cleanly as the old soil will cling to the pots, thus breaking up the soil as it is removed," Kevin said. August is a good time, in his opinion, to repot ferns and, in Kevin's experience, the dividing of ferns is best done in a natural division. He strongly recommends against using a knife, which will damage a plant.

The meeting was reminded of the responsibility when one grows ferns. Whilst it is easy to start, it is harder to keep going and to have the motivation required to be successful. Kevin reminded us that we need to make decisions on how much time we can spend on growing ferns and then plan our time accordingly. "The first 3 - 6 months of the plant in the ground or pot is so important to the plant's progress," he said.

Kevin Heinze summed up his talk by saying "The health of the plant is very important, so watch it for insects. Do not let it get too far out of control. Visit them, and have a look at them on a regular basis."

"I think one of the nicest things about growing any plant is the effort which you put in to seeing it and being involved in it; by handling it and seeing what kind of attention is required and then you give this to the plant yourself", he concluded.

Although the talk was liberally laced with humorous asides and the typical Kevin Heinze wit, we were impressed at the sincerity and determination of this man, who has become a successful public speaker both in the media and at functions such as our meeting. The Society was indeed fortunate to have Kevin Heinze as its guest speaker.



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HOW TO DETERMINE THE CORRECT LIGHTING FOR YOUR FERNS

By Chris Goudey

Most ferns grow best in shade or filtered light, which would be between 200 and 600 foot-candles. This would be equivalent to the optimum light from the sun on an overcast day. Foot-candles are units of measuring light intensity.

You can determine the correct lighting for your ferns by using an exposure meter, either an independant meter or the meter on your camera, if you have a semi-automatic camera. The light intensity is generally measured at the top of the plant.

1. Set the film speed indicator on A.S.A. 100.
2. Point the photo electric cell window towards the light source.
3. Set the meter to obtain a reading of 1/25th of a second, and note the 'f' value at this speed.
4. Determine the illumination from the following table.

Foot-Candle Conversion Table

Setting	Illumination	Setting	Illumination
F1	16 foot-candles	F8	500 foot-candles
F2	32 foot-candles	F11	1000 foot-candles
F2.8	64 foot-candles	F16	2000 foot-candles
F4	128 foot-candles	F22	4000 foot-candles
F5.6	250 foot-candles		

Setting the exposure meter at A.S.A.50 or A.S.A.25 will give illumination two or four times larger, respectively, than those in the above table.  
e.g.: At A.S.A.50 at 1/25th of a second, a reading of F11 indicates an illumination of 2000 foot-candles.

MESSAGE TO MEMBERS OF THE FERN SOCIETY :

Hello - I'm Judy Bielicki. I've had the pleasure of preparing the Fern Society Newsletter since the December, 1979, issue, and watching the Society grow to its present strong membership level.

I'd like to share two pieces of news with you -

1. I have just bought the business which I've managed for the last three years - Ivanhoe Typing & Duplicating Service, so the name which appears on the back page of the Newsletter each month will be different from July onwards.
2. We are adding extra services ... as well as typing, photocopying, duplicating, report, proposal and manuscript typing, we will also be able to offer
  - . three different types of binding - plastic coil, Thermobind and Wire-o-bind,
  - . telephone answering, and
  - . a special service to clubs, associations and societies.

Whatever the size of a group or club, and wherever their interest lies - sports, horticulture, food and wine, youth - a regular communication with members

- . keeps members informed,
- . encourages active participation, and
- . attracts new members.

This communication can take the form of

- . a single news-sheet,
- . a comprehensive newsletter, or
- . a booklet with photos, cartoons, etc.

If you belong to a group, club, association or society, we would like to discuss ways of promoting growth and interest. Our advisory service is absolutely free and without obligation. Just ring 497 1913, and ask for Judy. \*\* Keep this page for reference - if you present it to us with your first order, you will be given a 10% discount!

Best regards,

P.S. I hope I'm not letting the cat out of the bag, but I think you will be delighted with the 'new look' August Newsletter.



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### EDITOR'S NOTE:

After an exchange of correspondence with the Editor of the Los Angeles International Fern Society, we are delighted to be able to reprint an article from the September, 1980, issue of that Society's Journal.

The article is under Copyright 1980 by Los Angeles International Fern Society, and can only be used with its permission.

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### SICK FERNS - NEW NEPHROLEPIS And Vice Versa

L.A.I.F. Program by James Downer  
Report by LaVerne Hanell

It may seem strange to start a presentation about plant diseases with a display and discussion about *Nephrolepis* ferns, but that is what Jim Downer did. Jim said he likes to grow the *Nephrolepis*, but is limited for space and so concentrates on collecting miniature and terrarium ferns. In keeping with our program chairman's request Jim researched this group of ferns and then related it to his own specialty of plant disease for his presentation.

Jim is a senior student in ornamental horticulture and botany at California Polytechnic State University at Pomona. He brought a number of plants from the conservatory at Cal Poly to illustrate the discussion of plant pathology. He included a number of cultivars and species of *Nephrolepis*, and was able to bring some fronds that showed symptoms of diseases.

Most species of *Nephrolepis* are considered epiphytic. They grow in trees, on tree trunks, on posts or poles, and in the ground in some cases. The cultivars, or cultivated varieties, however, are seldom epiphytic in habit. The first cultivar of *Nephrolepis exaltata* in the trade was sent from Florida to Boston in 1894. It soon became 'Bostoniensis', one of the most popular house-plants ever sold. Other cultivars soon followed. The cultivars are accustomed to tender care as house or greenhouse plants and are always grown in artificial potting mixes and require constant care. The naturally occurring species are most often handled as epiphytes.

Downer displayed a very unusual *Nephrolepis*, an unknown species, from his own plant collection. It is a very slow growing fern that occurs in the Philippine Islands. The pliant fronds may attain a length of seven feet. The leaflets are succulent when young, a typical characteristic of epiphytic plants. They are covered with a rich brown fuzz or tomentum similar to that of the *Elaphoglossums*. As they grow longer, the fronds lose their succulent quality and become more thin-textured. They produce sori along the very edge of the leaflets - the spores seem to burst from the edges. This species is slow growing, needs lots of water, a very loose mix, high light, and high humidity. It also needs to dry out between waterings.



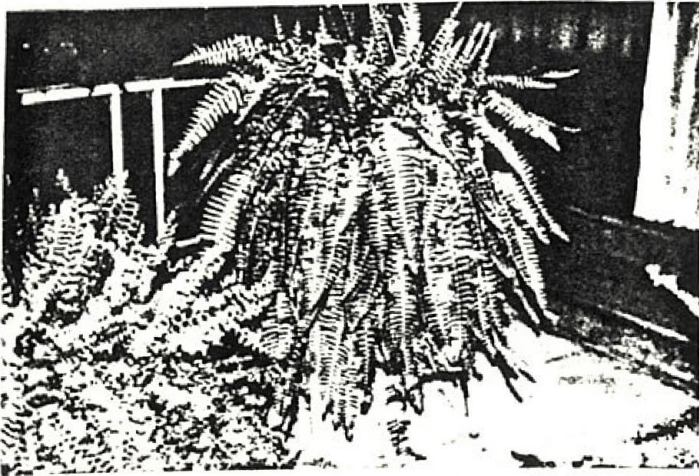
## SICK FERNS - NEW NEPHROLEPIS (Cont'd.)

Propagating the *Nephrolepis* was a long process. He made several attempts to divide it. This was a disappointment to Jim, whose philosophy in collecting ferns is not to have a plant just for himself but also to share it with others. He collected spores and experimented with sowings on several different media. Once the sporing was successful, he did not try meristem culture nor propagating from stolons although these would be other possible methods to try.

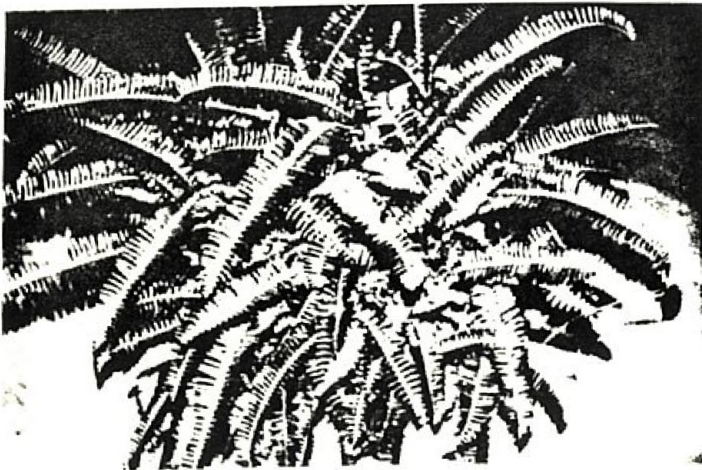
He found that spores grown on hapuu bark would germinate. He speculated that since the fern originally came from the Philippines and grew on tree-fern fibers, there might be some special chemical affinity that aided in the development of the spores. It took six months to get little plants after the first signs of germination. At one point, a gray mold threatened to destroy all the cultures. He was able to save some of them from the disease.

He then launched the subject of plant diseases with a simple definition that says "a disease is any deviation from the normal condition". This quickly introduces a controversy as to whether a variegated plant is a variety. Citing as an example the *Dieffenbachias* that have large, plain green leaves in their natural state, he mentioned that the spotted, veined, and variously color-graded patterns on the leaves of so many developed specimens is a plant virus. It is interesting to note that the plants with plain leaves live longer. Nonetheless, the plants with beautiful foliage are considered desirable and have become a million dollar business.

Another definition of plant disease is "anything that lowers the value of a plant". This is a very broad definition that covers a wide range of conditions, from salt toxicity to mealy bugs, that cause economic concern.



Boston fern  
*N. exaltata*  
'Bostoniensis'



*N. cordifolia*  
Tuberous sword fern



*N. exaltata*  
'Fluffy Ruffles'

SICK FERNS - NEW NEPHROLEPIS (Cont'd.)

A modern and somewhat more precise definition of plant disease is the one quoted in Cynthia Westcott's *Plant Disease Handbook*: "Disease in plants is an injurious physiological process, caused by the *continued* irritation of a primary causal factor, exhibited through abnormal cellular activity and expressed in characteristic pathological conditions called symptoms." She continues, "The causal factor may be a living organism or an environmental condition. Injury differs from disease in being due to the *transient* irritation ... as the wound of an insect, sudden death from freezing or burning, application of a poison."

Plant disease may result in cell death or in dwarfing, stunting, or overgrowth of plant tissue. All plant tissue is subject to plant disease. In order for the disease to occur, three factors must be present. There must be a host that is susceptible, there must be an appropriate environmental condition, and there must be a pathogen or disease present. All three forces must be at work for disease to occur. These can be thought of as points of a triangle. If any one of the points can be cut off, that is, if any one of the factors can be interrupted, the disease can be controlled. Thus it is possible to halt the plant disease by removing the infected plant from others, or by changing the environmental conditions, or by going after the causal agents.

What are the pathogens, i.e., the specific causes of plant disease? Biotic or living causal agents include bacteria, fungi, viruses, nematodes, and microplasmids, which are like viruses, a very low or primitive form of plant life. Nematodes are the only animals that are considered a causal agent of plant disease. Infestations of insects are not considered diseases. Abiotic factors include salt burn, micronutrient deficiencies, overfertilisation, gas leaking from heaters, air pollution, excess water, low or high temperature extremes.

Foliar problems are the most prevalent ones for ferns. Both sun burn and fungus can cause leaf spots on fern foliage. When the spots are diffused and spread at random over the fronds, the pathogen is a fungus, but if the spots form a consistent pattern or are very localised, the pathogen is the action of the sun. The treatment in the latter case would be a simple matter of providing better protection. Fortunately the most prevalent problem of foliage spots is not the most economically damaging condition. For ferns the most damaging pathogens are *Pythium*, *Phytophthora*, and *Rhizoctonia*, all of which invade the soil and the root areas to cause root rot. The easiest way to prevent these diseases from invading your plants is to follow good housekeeping procedures: keep pots, benches, and flooring clean; keep plants free of dead foliage; pick up tools, clean them, and store properly; keep hoses rolled and off the ground when watering is finished; keep hands clean when handling plants. These fungal diseases are spread by spores, which can be transmitted by the hose nozzle that has been left on the ground. *Nephrolepis* ferns should not be watered from overhead since this practice can spread fungi.

Yellowing foliage is one of the first signs of root rot. If the fern does not have a lush, healthy appearance, or if there is dead foliage and bad root growth, soil pathogens are at work. Healthy roots are white or "clear". Roots affected by *Rhizoctonia* are dark and mushy. Heavy soil with little or no air spaces is an ideal host for root rot. A plant that is water-logged and soggy at the root level is a susceptible host.

SICK FERNS - NEW NEPHROLEPIS (Cont'd.)

Rhizoctonia is easily seen on small ferns or other plants. Small webs cover the foliage. Misting the plant will show fine outlines of the webs. There are no webs associated with Pythium and Phytophthora. These organisms invade the root ball or crown of the plant. Both are encouraged by overwatering.

To positively identify a plant pathogen is a lot of work, so it must be economically necessary before much research is devoted to the process. A sample of the soil must be taken into the laboratory and cultured. Then the culture must be re-inoculated onto a similar host to see if the fungus that was cultured actually infects the plant. Little work has been done on ferns because of the long complicated procedures and expense involved. Most disease work has been done on crops like corn or wheat because of the high economic impact.

Downer noted that conditions for Rhizoctonia are those in which many ferns flourish - warm, humid environment, with night temperatures of about 65 degrees and temperatures going up to perhaps 95 degrees during the day. Changing the environmental conditions would not help much in this case, so other ways of controlling the disease are needed, and proper control of watering is the best and easiest. A product called Truban applied as a drench every thirty days can be used. This is a technique particularly for nurserymen who must care for a large number of plants. The hobbyist can usually manage to avoid diseases by good growing practices. Stressed plants are susceptible to diseases. Plants that have been overfertilised or fertilised when dry are stressed. The roots cannot assimilate the food, the tissues become damaged, and the fungus invades the roots. Leaching accumulated salts from pots occasionally is a good idea. It is also a simple matter to check to see that the pot has sufficient holes in it for good drainage. Use a soil mix that is loose and well aerated.

EDITOR'S NOTE: We will be publishing the rest of this article in our next Newsletter.

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## NORTH BALWYN FERNERY

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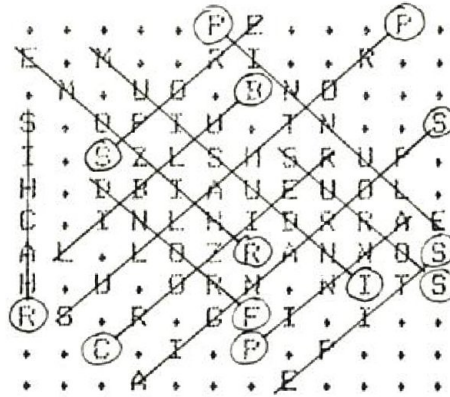
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### SOME UNUSUAL STOCK AT THE MOMENT

Dryandria rigidula, Qld.	Dryopteris carthusiana, U.K.
Gleichenia microphylla, Vic.	Doodia media, Vic.
Sticherus lobatus, Vic.	Dryopteris filix-mas, U.K.
Gonophlebium subauriculatum var. knightii, Qld.	

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HERE'S THE ANSWER TO LAST MONTH'S PUZZLE .....



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- ✓CROZIER
- ✓FROND
- ✓INDUSIUM
- ✓PINNA
- ✓PINNULE
- ✓PROTHALLUS
- ✓RHACHIS
- ✓RHIZOME
- ✓SORUS
- ✓SPORANGIA
- ✓SPORE
- ✓STIPE

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- DIARY DATES -

JUNE 11TH	David Beardsley, speaking on growing media
JULY 9TH	Dr. J. H. Willis
AUGUST 13TH	Annual General Meeting
SEPTEMBER 10TH	Open Night - talks by members of the Society
OCTOBER 8TH	Noel Fitts, speaking on sprinkler installations, general nursery equipment, including greenhouses and watering
NOVEMBER 12TH	Harry Jackson
DECEMBER 10TH	Christmas Break-up

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VENUE OF MEETINGS	Burnley Horticultural School Hall, Burnley
TIME OF MEETINGS	8 p.m.

NOTE: In the event of a power strike on the evening of any meeting, we regret that the meeting must be cancelled.

S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S. - S.O.S.

**REQUIRED URGENTLY - SPORE CONTAINERS FOR OUR SPORE BANK:**

Any member who can supply Rod with used 35mm slide containers or other small rigid boxes is asked to bring them along to the next meeting.