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PRESIDENTS REPORT.

Almost 80 members braved the cold and wet conditions to attend our July meeting.

Golda Izaac and Betty Duncan again proved what talent we have in our society as they presented an introduction to their newly released Fern Book. Its most unique aspect is the illustrated key for specific fern identification. Excellent colour photographs by the talented Bruce Fuhrer and detailed drawings make the book very good value at \$25.00 but Society members will be able to purchase it for \$20.00. I thank Golda and Betty for their presentation and also for the delightful supper which Golda assured me was all cooked by Betty.

RIPPONLEA.

Oliver Frost has notified me that the Fern House at Ripponlea is progressing very well and should be well worth a visit this Spring. Peter Goschnick has suggested that we have our December meeting as a Sunday afternoon tea at Ripponlea as we cannot use the Burnley Hall until exams are over and this would bring us very close to Christmas. This will be discussed at our next Committee meeting.

SPECIAL EFFORT WINNERS.

1.	Edna Fuhrmeister	5.	Julien Basser
2.	Dorothy Forte	6.	Gay Stagoll
3.	Darrel Wilson	7.	Ann Bryant
4.	Frank Bramwell	8.	Dot Horman

Kind Regards,

Keith Hutchinson.

SUBSCRIPTION RATES	- DUE JULY	<u>1st</u> .	
Pensioner membership	\$10-00	per	annum
Single "	\$12-00	11	u .
Family "	\$15-00	U I	. 11
Life Membership	\$400-00	Ш	11

AUGUST MEETING - THURSDAY 14TH.



At 8.00 p.m. at Burnley Horticultural College Annual General Meeting - Slide Presentation of Northern Victorian Trip- Slide Competition Results.

SPEAKER REPORT: General Meeting, 17th July, 1986.

Keith Hutchinson: A visit to Vanuata, Tanna and West Samoa.

Keith used colour slides to describe his recent visit to these colourful, interesting and unique islands.

The islands which Keith visited are among a chain of islands in the Pacific Ocean. Those in the west of the group are administered by the United States, Western Samoa is administered by New Zealand.

Keith said that despite Vanuata is only 3 hours from Melbourne Airport, the life style of the inhabitants is decidedly primitive. These people must be the happiest looking people one could possibly meet. They are almost totally vegetarian even though large numbers of pigs and poultry share their living quarters. Pigs are slaughtered and eaten according to folk lore only on very special festive occasions. Keith also said that it was heartwarming to watch large numbers of children playing happily and contentedly with just one ball.

When he arrived in Vanuato Keith enquired of a local person as to the location of places where ferns grew. He was told that "..... there are no ferns growing here at all!" Keith was able to refute this by showing his "informant" a beautiful Davallia pyxidata growing in a spouting!

Among the slides of the ferns were lovely specimens of Pteris vittata, Drynarias, various Pteris, Cyathea Cooperii and or Brownii Asplenium Nidus, Adantium peruvianum, and two others, Microsoriums, Hypolepis, Nephrolepsis, Polypodiums and Doryopteris.

On the island of Tanna, Keith visited an active volcano named Yassur where he actually photographed the eruption from the rim of the crater. He said that no lava was being discharged but that rocks heated to red hot by the inferno, were being thrown up vertically from whence they fell back into the crater. Sulphur gases had had a disasterous effect on vegetation on the leeward side of the volcano.

Keiths visit to West Samoa was highlighted by the fact that the recent television series, "Tusitala" was filmed there. The film describes the latter stages in the life of famous author Robert Louis Stevenson and we were shown photographs of hos last resting place high on a mountainside overlooking the sea. Keith said that he had earned the great respect and love of these native people.

They are a happy people, uncomplicated and friendly, living out their lives surrounded by the elements of Paradise. Not the least of these elements is the magnificent fern community.

EPIPHYTES

Epiphytes are sometimes called air-plants because they occur naturally not with their roots in soil or water but in the air as they cling to other plants. The word comes from two Greek words, epi meaning upon and phyto meaning plant. Epiphytes are found worldwide, from Alaska to the Sahara, growing on trees, vines and shrubs. Although an epiphyte may support itself on another plant, it is independent of the plant and draws its sustenance from the atmosphere or from debris in crevices where it is lodged.

There are other "phytes" in the plant world and it may aid in understanding epiphytes to define some of these. Terraphytes, of course, are the ordinary plants that have roots in the soil, while saprophytes must have decaying organic material (either animal or vegetable) to live upon. In contrast to the latter, parasites draw their food directly from the host plant which is alive, at least at the start. Xerophytes are dry land plants which have adapted to scanty water sources, usually where the atmosphere is dry and windy. Among the xerophytes are mesquite, cactuses and some succulents. Xerophytes have a capacity to store water in their leaves, stems and roots, and some may form caudexes under the ground for water storage. Epiphytes, in some cases, mimic xerophytes with these succulent portion of their tissues.

Most epiphytes are found in the moist tropics. Much of the crowded appearance of tropical rain forests is created by ferns, orchids and bromeliads growing on the trunks and branches of trees. Fence posts and telephone poles erected in the tropics soon become thickly matted with epiphytes. Ferns that do not form nests are more likely to be found near the forest floor where they have a better source of water. Aglaomorphas and Platyceriums grow at a much higher level in the trees and it is not uncommon to find Asplenium nidus, with fronds eight feet long, perilously perched on a lofty tree branch. Nephrolepis exaltata may completely engulf a tree trunk as its creeping stolons produce new fern clusters. How do these plants find such out-of-the-way places in which to grow? The seeds and spores of most species are very light and are distributed by the wind and by birds.

The Platyceriums illustrate a common way for collecting and storing a food supply for the epiphyte. The back shield fronds act as a trap for falling debris and as this decays it becomes food for the plant. Thus dead leaves, twigs, bird droppings and dead insects all form nourishment as they disintegrate. Aglaomorpha coranans is similar in habit, as its erect fronds form a nest for collecting nutrients.

In general, members of the following genera of ferns are epiphytic: Polypodium, Davallia, Platycerium, Aglaomorphas, Drynaria, Pyrrosia, Elaphoglossum and Drymoglossum. There are quite a few more, mostly less well-known. In general, ferns with scaly rhizomes, the so-called footed ferns, and the nesting ferns are epiphytic. There are some ferns that exist on rocky surfaces and are really terrestrials, but will respond to the same care as the epiphytes.

Baskets are ideal containers for growing epiphytic ferns, particularly those with creeping rhizomes. Baskets allow good air circulation over the rhizomes and roots and this is the secret to having good specimen plants. You may see footed ferns growing in pots, but this is not consistent with the natural habit of the plants. For instance, a Polypodium may be purchased in a container of clay or plastic. After a period of time, the fern will stop growing. It is removed from the pot, the rhizome may be seen to be pushed against the side of the pot with no room left for expansion. At this time it is desirable to replant the Polypodium in a moss-lined basket. Understanding the natural habits of the epiphyte aids in maintaining them successfully in the garden and greenhouse.

QUOTABLE QUOTES.

Dame Phyllis Frost in opening the 8th annual summer school for home gardeners at the university of Melbourne in Fabruary 1986 "I believe home gardeners to be one of the top echelon of God's people - they are much nicer than anyone else - I know, because 45 years ago, I married one, so I can speak from experience." Head gardener 'Ripponlea Estate' (in a recent issue with trust news- the publication of the National Trust) when reporting on the restoration of the great fernery included this snippet "it is worth noting here the outstanding contribution made by the Fern Society of Victoria, without whose help the acquisition of the fern plants would have been exceedingly difficult and expensive."

Howard J. Mitchell in April/May 1986 "Gardening News" "Gardening clubs and societies could be bulging at the seams as available leisure time increases."

S.G.A.P. Fern study group in an older issue of their newsletter

Did you know? "One teaspoon of Lysol, mixed together with two cups of water - if dabbed or sprayed around your boots will stop leaches."

Les Taylor of the S.G.A.P. Fern study group reminding members of the simple meaning of terms used in the literature of ferns

RHIZOME	Main shoot or root system which can be long creeping as in		
	Adiantum aethiopicum or short creeping as in A. hispidulum.		
SCALES	A dry papery flattened structure borne on various parts of		
	a fern.		
STIPES	Stem or leaf stalk from the Rhizome to the Lamina.		
LAMINA	The expanded part of the frond.		
RHACHIS	The main axis of the Lamina or its divisions.		
PINNA - PINNAE(Plural)			
PINNULES	Leaves.		
MEMBRANOUS	Thin.		
GLABROUS	Smooth without hairs.		
HAIRY	Bearing hairs.		
HIRSUTE	Bearing coarse stiff hairs.		
HISPID	Bearing rigid hairs or bristles.		

Examples of some common types of fronds.

The line drawings were reprinted from the newsletter published by the South Australian Fern Society.



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Shapes of Pinnule apex and base



Ovate





Long Creeping



Rhizomes

Short Creeping



Medium Creeping

DRYNARIA RIGIDULA (Sw) BEDD. "WHITEI" HORT.

(Dry nar' ee ah rih jih' dyoo lah why' tee eye). The genus name Drynaria is derived from the Greek word for "oak" and refers to the oak-leaf-shaped shield fronds produced by plants in this genus. The species name rigidula is from the Latin root for "stiff" or "harsh", qualities which refer to the shield fronds which dry and remain on the plant for years.

Drynaria rigidula has also been called Polypodium rigidulum Sw.

<u>COMMON NAMES</u>: Drynaria rigidula 'Whitei' is commonly called Fringed Basket Fern.

<u>COMMON SPECIES</u>: D. rigidula 'Whitei' might be confused with Polypodium (Goniophlebium) subauriculatum 'Knightiae', Knight's polypody.

DISTINGUISHING FEATURES: D. rigidula 'Whitei' is distinguished from Polypodium subauriculatum 'Knightiae' by the broader fronds and pinnae and the papery shield or nest fronds. D. rigidula 'Whitei' is distinguished from other ferns by the above and by the thick, scaly creeping rhizome, the long, pendulous, pinnate fronds and the coarsely laciniate pinnae margins.

HABITAT AND RANGE: D. rigidula 'Whitei' is a horticultural cultivar which originated in Queensland, Australia. The species from which it is derived, D. rigidula, grows naturally from Sumatra to Polynesia and tropical Australia. It is found growing as an epiphyte on old trees or lithophytically on wet rocks.

<u>GROWTH HABIT</u>: The Fringed Basket Fern produces two types of fronds, foliage fronds and nest fronds, which arise from the thick, scaly, creeping rhizome. The foliage fronds are long, broad, pendulous and pinnate. The leaflet margins are 'shredded' giving the plant a lacy appearance and their texture is such that the fronds rustle like stiff tissue paper when handled. The leaflets drop from the plant when the frond dries but the stipe and rachis remain connected to the rhizome. The next fronds are much smaller, lobed, stiff and upright. They turn brown soon after forming but remain on the plant for years. In its natural habitat, the next fronds collect falling leaves and other debris, providing humus for the plant's roots. The fronds of D. rigidula 'Whitei' never bear sori; this cultivar is sterile.

<u>DESCRIPTION</u>: Rhizome fleshy, thick, creeping, covered with scales. Rhizome scales to about 7 mm long, red-brown, acuminate from a dark, peltate base. Fronds of two types. Foliage fronds long petiolate, 1 to 2 m long, to 30+ cm wide, once-pinnate, densely covered with white, small, hairy scales or stellate hairs when young, becoming nearly glabrous in age. Pinnae jointed to the rachis, numerous, to 6 cm wide, short-stalked, the margins coarsely laciniate and crisped. Nest fronds sessile on the rhizome, to 30+ cm long, to 8+ cm wide, mostly ovate to ovate-acuminate but quite variable in shape, pinnatifid, stiff and upright with prominent main veins, emerging green but browning early. Sterile.

<u>CONTAINERS & MEDIA</u>: D. rigidula 'Whitei' is best grown in moss-lined wire baskets. In these the rhizomes may creep unstricted and the plant will eventually cover the basket with the long-lasting nest fronds. The medium must be very welldrained. Various media recommended for terrestrial orchids or bromeliads should do nicely. To make a good medium from scratch, use one part coarse peat moss, one part coarse perlite and one part ground or chopped fern fibre. The basket should be lined with sphagnum moss, about 3 to 6 cm thick when firmly packed. The basket may then be filled with one of the appropriate media.

HUMIDITY: Though this cultivar will withstand surprisingly dry air once the fronds have expanded and hardened up, it does best with a relative humidity of 50 to 75 percent or so. High humidity while the fronds are expanding will help to produce larger, more luxuriant fronds.

DRYNARIA RIGIDULA (Sw) BEDD. "WHITEI" HORT.

WATERING: D. rigidula 'Whitei' does best when the medium is allowed to become slightly dry to the touch between waterings. This is especially important during very cool weather (below 7°C) before the fronds begin to emerge in the spring. The medium may be kept quite moist while the new fronds are expanding in the spring but watering should be less frequent as the fronds begin to harden up

FERTILIZING: Fertilizing of the Fringed Basket Fern should be done while the plants are actively growing. Some growers prefer to fertilize with every watering during the growing season. In such cases, a very dilute mixture of almost any soluble garden or houseplant fertilizer high in nitrogen may be used. Other growers prefer fertilizing at intervals such as every other week while the plants are actively growing. Most soluble garden or houseplant fertilizers not stronger that 15-15-15 (%NPK) or so may be used full strength for this prupose. Stronger concentrations such as 30-10-10 (%NPK) may burn if not used at one-half to one-quarter strength.

<u>TEMPERATURE</u>: D. rigidulat 'Whitei' is not frost hardy but it has survived short periods near freezing with the medium kept rather dry. This only applies, however, to large established plants. Preferably, a growing season temperature range of 21°C to 30°C during the day and 13°C minimum at night should be maintained.

<u>PROPAGATION</u>: D. rigidula 'Whitei' is sterile and cannot be propagated from spores. It is easily propagated by rhizome division early in the spring just as the new fronds are beginning to emerge. Each division should have several good growing tips on the rhizome and plenty of roots - the larger the rhizome clump the easier and faster the division will establish itself. Rhizome peices without roots will also grow when pinned to the medium surface but will take longer to establish. With either method, the cut rhizome ends should be sprayed or painted with a tree-wound-sealing compound to prevent the entrance of disease organisms. Commercially, this cultivar is often produced by meristem propagation.



ARTICLE BY J. W. DYCE

"FROM THE BRITISH PTERIDOLOGICAL SOCIETY BULLETIN VOL. 2 No. 5. 1983"

HOW MANY SPORES DOES A FERN PRODUCE ANNUALLY ? Reproduced from the writings of C T Druery by J W Dyce

Usually Druery noted in his Press Cuttings where an article was published, but the only information given about the following paper is the date of publication, 31 August 1895.

For many years I have planned to count the number of spores on a typical fern plant, but never got round to it. However, I have now come across this paper by Druery which saves me the trouble, and at the same time fills me with amazement, so much so that it is worthy of a page in the Bulletin. Druery writes –

"In the higher grades of cryptogamous plants, such as ferns, resembling, as they do in many features, the foliage of seed-bearing plants whose powers of multiplication, great as they are, can be usually reckoned in thousands, their actual fecundity is little recognised, and a careful computation of the actual crop of one of our familiar British Lady Ferns may, therefore, be of interest. Selecting a well-grown, robust specimen of

Athyrium filix-femina, var. percristatum Cousens, a fine typical form, grown in full light and bearing from a single crown twelve yard-long fronds, we recently made a careful estimate of the actual visible crop of spores, with the following astounding result.

Each of the twelve fronds bore twenty or more divisions or pinnae on each side of the rachis, i.e. forty per frond, each pinna was subdivided into thirty pinnulets, i.e. fifteen on each side. Each of these bore two rows of sori, or heaps of spore capsules, averaging twenty per pinnule, each heap contained at least fifty capsules or sporangia, and each of these quite fifty spores. These figures are, of course, average ones, as all the parts of the tapering frond vary in length; but this average has been taken well within the facts, and an immense number of spore heaps which covered the beautifully-cut tassels peculiar to this variety have been left out altogether. Nevertheless, we arrive by simple multiplication, which anyone can check for himself, at this marvellous result:

 $12 \times 40 \times 30 \times 20 \times 50 \times 50 = 720,000,000$ (seven hundred and twenty millions) spores as the annual crop of a single crown of an adult Lady Fern.

Even this, however, does not end the potentialities of reproduction, since each spore yields a number of fertilised seed cells, and although usually only one fern results, the cultivator, by severing the prothallus and isolating these, can raise several ferns instead of one, thus bringing up the hundreds of millions into thousands if he be granted only two things for his labour, and that is, the life term of Methuselah and the patience of a series of Jobs."

Druery records the results of a later count, made in 1906, species and variety not mentioned, which yielded the much greater result of 1,120,000,000 (eleven hundred and twenty million) spores!



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"ANSWER TO JULY CAN YOU NAME THIS FERN?"

ASPLENIUM BULBIFERUM.

Although it is best suited as a ground fern, in a sheltered position, it makes a very good basket fern. Specimens of this fern have been seen growing in the wild in the rainforests of Tasmania so should easily grow in shade house conditions on the mainland. It has been recorded from Southern Queensland, New South Wales, Victoria, South Australia and Tasmania. It is usually terrestial, in fern gullies, but can be found on soft tree ferns, tree branches and on rocks.

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DIARY DATES.

AUGUST MEETING - THURSDAY 14TH

ANNUAL GENERAL MEETING - SLIDE PRESENTATION OF NORTHERN VICTORIA TRIP RESULTS - SLIDE COMPETITION. Burnley Horticultural College Hall, Swan Street, Burnley, 8.00 p.m.

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

BUYERS' GUIDE TO FERN NURSERIES.

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