

Far North Coast Bromeliad Study Group N.S.W.

Edition: September 2024

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477
Phone (02) 6683 4188

Study Group meets the third Thursday of each month

Next meeting October 17th 2024 at 11 a.m.

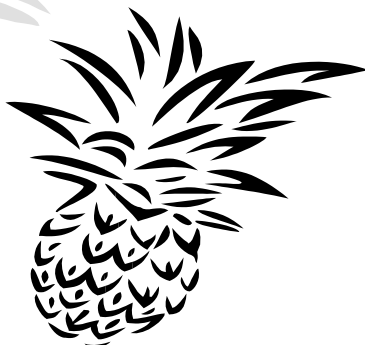
Editorial Team:

Ross Little

Helen Clewett

pinegrovebromeliads@bigpond.com

Life Members: Gary McAteer, Coral McAteer
Debbie Smith, Shirley Smith
Ross Little, Helen Clewett



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Meeting August 15th 2024

The meeting was opened at approximately 11.00 am
The 8 members were welcomed.
Six apologies were received.

General Business

It was cold, wet and had been miserable weather for a few days, however the rain stopped and we had sunshine for several hours for our August meeting.

A quick review of our Newsletter was had to answer some outstanding queries from last meeting. The *Neoregelia compacta* versus *Neo. macwilliamsii* issue was addressed to help clarify the differences, everybody seems clear on that now.

Geoff Lawn our Bromeliad Cultivar Registrar has retired and handed over the reins to Graeme Barclay. We wish Geoff all the very best in his retirement albeit he will still be assisting Graeme to some degree. Thank you Geoff for all you've done over the years it has been greatly appreciated.

An introduction to the new Registrar, Graeme Barclay is on page 5.

Show, Tell and Ask!

It's always good when a Group gets some new members because it gives us a chance to brush up on our knowledge and review what we have learnt over the years or forgotten.

I expect lots of questions from both new and longer term members which we will answer here for you which will mean recycling older articles especially about nomenclature. Yes I know, boring, but without it how do we know what plant is what and we need to teach the new guys the correct way of writing their labels.

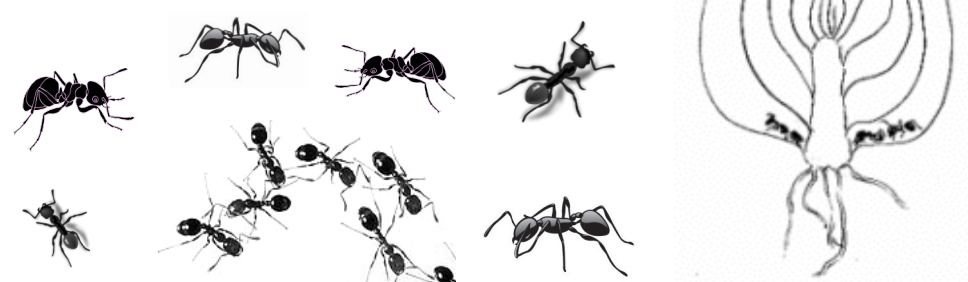
Why do Our Bromeliads Flower Once and Die?

Because they are monocots, they have a single growing point, the meristem which is the apex of the growing point until flowering is initiated. This is when an inflorescence begins to develop instead of leaves. Very few bromeliads flower laterally which allows the central growing point to continue growth after each flowering season e.g. *Tillandsia complanata* flowers from its leaf axils and Dyckias have lateral inflorescences which originate from axillary rather than terminal buds.

Ants, Friend or Foe

I read a discussion recently regarding the issue of ants and Bromeliads hence I felt it prudent to reprint some articles here for some of our newer members regarding the symbiotic relationship ants have with many of our Bromeliads. All indications are that ants living in Bromeliads are helpful with their refuse aiding in feeding the plant (Friend!).

However lets us not forget that ants move mealy bugs from plant to plant which has been reported on, in articles written by Les Higgins in previous issues of our Newsletter. This is when we need to be concerned about ants and Bromeliads and control their spreading of pests (Foe!).



Bromeliads and Their Fauna

by Bernard F. Stoner

And how about ants? Are they useful, harmful, or just neutral? There are species of bromeliads, notably *Aechmea mertensii* which are said to need an association with ant nests for successful growth. Obviously it is not the insects themselves which are beneficial but the material contained in the nests. It is quite common to find a flourishing colony of ants in the tube of a plant which has been kept rather dry. There does not seem to be any damage to the plant in these cases, unless the presence of the ants prevents the plant from developing a flower. It might be interesting to conduct a few experiments with ants to see just what effect, if any, they do have. The ants referred to here are a small black species which is abundant in Western Australia, but does not poison or sting, thank goodness. Plants growing in their natural surroundings are said to contain an assortment of livestock, including many ants, but I have never seen any suggestion that these ants are in any way harmful to the plants.

Reprinted in part from: BSI Journal - 1981 V31(5)

Ants In Your Plants by Ian Maxwell 2008 (taken in part from DG web site)

Ants are not a bad thing to have around the garden. They are tireless foragers, cleaning up organic material and hunting pests like slugs and caterpillars. Like bees, they can help plants reproduce as they wander in search of food and in turn, they represent a meal to other garden fauna such as birds and lizards.

A nice way of giving ants a chance is growing myrmecophytic plants. The term myrmecophyte refers to a plant that lives in a symbiotic relationship with ants. This type of behaviour is exhibited by species from a number of different plant families, many of which are also epiphytes or lithophytes. In other words, many myrmecophytes live in the nooks of trees or on rocks and rely partly or wholly on ants for their nutritional intake. Such plants include certain bromeliads, some orchids and ferns, members of the Hoya family and Ant Plants. At least three bromeliad genera include myrmecophytic species. Some of these house ants and others form part of a larger ant colony and garden complex. One is also carnivorous, trapping insects with its leaves in similar fashion to pitcher plants.

The genus *Tillandsia* features a number myrmecophytes. These are all arboreal epiphytes or 'air plants'. Whilst the leaves of many bromeliads have evolved to collect water and nutrient matter, a characteristic shared by ant-housing species such as *Till. bulbosa*, is pointed leaves that protect ants from rain. This can be seen in other 'air plants' like *Till. butzii* and *Till. pseudobaileyi*.

The *Brocchinia* family is closely related to *Tillandsia*. It includes two South American myrmecophytes, one of which is carnivorous. The pure myrmecophyte is *Broc. acuminata*, an obscure bromeliad with no common name. In terms of bulbous leaf structure, it is similar to the myrmecophytic Air Plants. Its leaves are capable of absorbing amino acids, as are the roots it sends up into its leafy domatium.

Brocchinia reducta is another barely known bromeliad that often appears naturally with carnivorous pitchers. It also features a leaf bulb, but retains the ability to trap water in its leaf tanks. In these pools, insects are drowned and digested through the leaves. Since the plant does not excrete any enzyme, debate has existed regarding its classification as a true carnivore. New research indicates that it releases a sulphur compound that hastens decomposition of trapped insects. This rare behaviour combined with its myrmecophytism make *Brocchinia reducta* a truly unusual species.

The third genus is *Aechmea*, probably the largest of the bromeliad families. Its ant-housing representative is *Ae. brevicollis*, yet another obscure plant. Like most of its myrmecophytic relatives, it features leaves that channel water away rather than collecting it in a tank.

Introducing Our New Bromeliad Cultivar Registrar 2024: **Graeme Barclay from New Zealand**

Geoff Lawn has decided to retire from the position of Cultivar Registrar of the BSI Cultivar Register.

Geoff has volunteered over 15 years and thousands of hours to the important job of registering our plant names and thus ensuring 'order' in the Bromeliad world. We sincerely thank him for his efforts to date and wish him well in his 'retirement'.

Geoff has also recently been appointed an 'Honorary Trustee' for Australia to the BSI, for which we also congratulate and thank him for his continued involvement.



For the past 15 months or so, I have been assisting Geoff with dealing with the large backlog of pending bromeliad registrations from around the world. I have decided to step up immediately to replace him as Registrar and continue this important work. The good news is our roles will now be reversed and Geoff will stay involved and become my 'Assistant', to help get back on track.

Hence, a few points to note:

1. If you have submitted registrations in the past that are not yet approved, DO NOT PANIC, they have not been forgotten and WILL get looked at and completed within the next month or three. Please check the "What's New" section on the BCR menu, there will be new registrations coming through daily from now on.
2. Please ensure you ALWAYS use the online form for submitting NEW registrations (see the menu tab "New registration" at the top of the BCR page). Please DO NOT email your registration photos and data to cultivars@bsi.org any longer. This will ensure they are processed much quicker.
3. A number of registrations have NO PHOTOS included (a requirement for registration), hence why they have not been done yet. If you receive an email from me in the near future requesting a new photo or a question on the data supplied, please reply urgently so I can process it for you ASAP.

Thanks in advance for your attention and assistance with getting the BCR up-to-date again. Please continue to be patient and know we are working on it!

Graeme Barclay

Broms in the Bay Bromeliad Conference - 2024

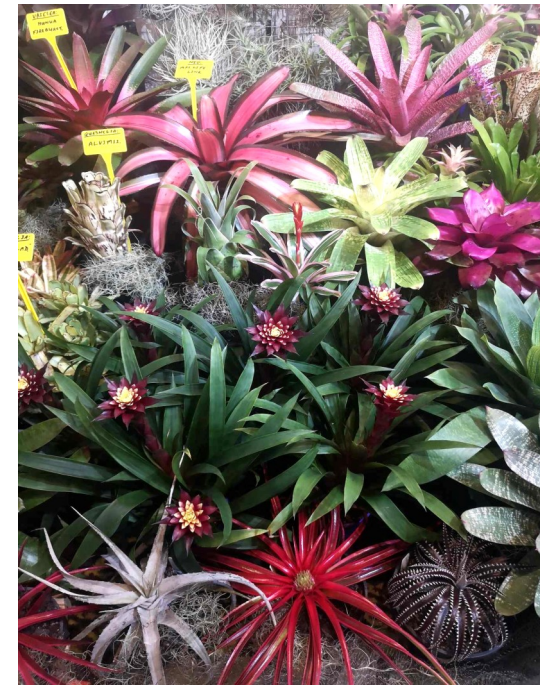
The event was held from 3.30pm Friday August 2nd to Sunday August 4th. We left home early Thursday morning on our 5 1/2 hr drive to Hervey Bay to allow us a few hours to look around and familiarize ourselves with the area. Being a late afternoon start on Friday we decided to go on an early whale watching boat cruise, the weather was near perfect and the whales didn't let us down either.



The Conference was supported by the Fraser Coast Bromeliad Society and what a fantastic job their members did of putting this event together. For the foliage Vriesea lover there were some plants in the display to whet ones appetite.



The line up of speakers was a good mix to entertain all levels of interest from a video link foliage Vriesea nursery tour to a habitat slide show of the treasures of the Serra do Espinhaco. We were shown exciting new Tillandsia hybrids and a 'Colombian travelogue'. For the more technically minded a look at the 'beginning of where Bromeliads originated'. 'Acclimatising our plants for cold winters' and the fertilizing your Bromeliads talks were both full of some good helpful advice. All in all a fantastic event with well supported sales tables and rare plant auction. Congratulations Fraser Coast Bromeliad Society. Would I attend again, yes.



Some fantastic plants in the display



Mitch and Michelle
roaming around the
Botanic Gardens.

Days end at our
accommodation looking
over the lake
after the
Conference.





Billbergia 'Darth Vader'
1st Open and Judges Choice
Michelle Hartwell



Tillandsia 'Cotton Candy'
1st Tillandsioideae
Gary McAteer

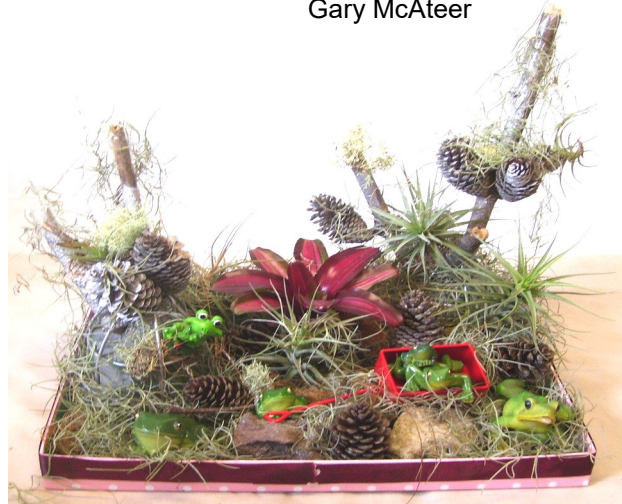


Neoregelia 'Princess Caroline'
grown by Kayelene Guthrie



Tillandsia bulbosa
grown by Helen Clewett

'Frogs in Little Red Wagon'
1st Decorative
Coral McAteer



Guzmania lingulata var. *cardinalis*
grown by Helen Clewett



Tillandsia caput-medusae
grown by Michelle Hartwell



'Waiting for Spring'
1st Decorative
Donna Villegas

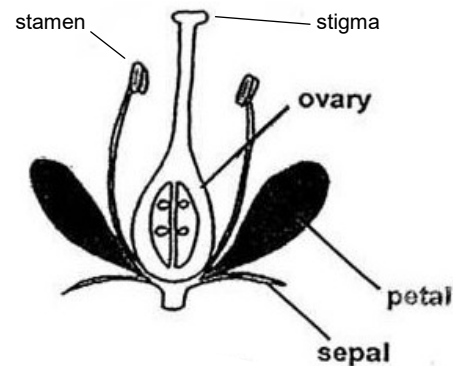
Bromeliads Have Two Methods of Reproduction.

Sexual reproduction: new plants arise from pollination which forms seed, the seeds germinate and grow into plants.

Stamen = male, pollen bearing part.

Stigma = female, pollen receptacle.

Asexual reproduction: (scientific term) is by vegetative propagation, where the pups are produced on the parent. The parent plant is mostly referred to as a 'mother'. In this method there is no sex (i.e. transfer of pollen from male to female parts of the flower) or pollinating (by birds, bees, ants etc.) involved.



Types of Pups/Offsets

Viviparous: pups form on the stem of the inflorescence e.g. *Tillandsia secunda*, *Till. somnians*, *Till. flexuosa* and Orthophytums do this. These pups virtually fall off the stem when ready for removal.

Stoloniferous: forming on a stolon, many *Canistropsis* and *Neoregelia* do this e.g. *Neo. 'Fireball'*, *Neo. compacta*, *Neo. pauciflora* etc.

Canistropsis billbergioides stolon can be cut anywhere along the stolon up to the heel of the plant.



Grass pups / Hair pups / adventitious pups: small slender growths from the base or epidermis of a plant or along the stem or trunk e.g. on *Alcantarea* as shown here are a suitable size to be removed.



Tillandsia secunda

Upper pupper: a pup/offset formed high up in the leaves or near to the base of the inflorescence e.g.

Cipuroopsis elata,
Lutheria splendens,
Goudaea ospinae
Goudaea ospinae var. *gruberi*.



Pup / offset: these form at the base of a plant sometimes within the lower leaves e.g. many Bromeliads.

Pups/offsets borne within the leaf axils which includes those of upper puppers are best removed by firstly stripping away the lower leaves to gain access to the base of the pup. Occasionally it may be preferable to split the leaves down their centre to open up access to the base of the pup. This lessens the damage to the parent plant allowing the possibility of gaining more pups/offsets. Pup production can be quite exhausting on the parent plant so don't forget to fertilize it.

Division / crowning: new plants form by crown division at the central stem or plant base e.g. *Dyckia*.

Basal pups are easily removed however dividing a crown is not for the faint hearted. Work from below the plant removing any dead basal leaves and look for the junction of the crown/divisions. Cut down through the root base starting at the junction point and carefully pry open. Wear leather gloves if necessary and take care.



How to Straighten Twisted Wire with Ease

Gary brought to the meeting some lengths of twisted aluminium wire to show how he straightens it quickly and easily with a battery powered/cordless drill.

Donna volunteered to have a go.

Firstly one end of the twisted wire was clamped to the bench



Next the wire was placed into the chuck of the drill.

Once the chuck was tightened securely Donna pressed the trigger lightly at a low speed to begin the process.



In less than 30 seconds she had a straight piece of wire ready for use for making coiled Tillandsia hangers or wrapping around a Tillandsia to hang it.

Photo by Ross Little and two screen shots from a video taken by Kayelene Guthrie

What is a Monocot ?

Monocotyledon (monocot): One of two classes of angiospermous (seeds in a closed ovary) plants, characterized in the main by producing seeds of a single cotyledon or seed leaf e.g. Bromeliaceae.

Bromeliaceae

sourced and taken in part from Wikipedia

The **Bromeliaceae** (the **bromeliads**) are a family of monocot flowering plants of about 80 genera and 3700 known species, native mainly to the tropical Americas, with several species found in the American subtropics and one in tropical west Africa, *Pitcairnia feliciana*.

It is among the basal families within the Poales and is the only family within the order that has septal nectaries and inferior ovaries. These inferior ovaries characterize the Bromelioideae, a subfamily of the Bromeliaceae. The family includes both epiphytes, such as Spanish moss (*Tillandsia usneoides*), and terrestrial species, such as the pineapple (*Ananas comosus*). Many bromeliads are able to store water in a structure formed by their tightly overlapping leaf bases. However, the family is diverse enough to include the tank bromeliads, grey-leaved epiphyte *Tillandsia* species that gather water only from leaf structures called trichomes, and many desert-dwelling succulents.

The largest bromeliad is *Puya raimondii*, which reaches 3–4 metres (9.8–13.1 ft) tall in vegetative growth with a flower spike 9–10 metres (30–33 ft) tall, and the smallest is Spanish moss.

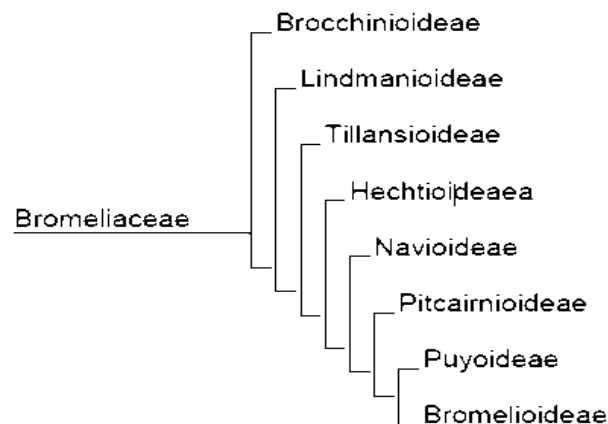
Bromeliads are mostly herbaceous perennials, although a few have a more tree-like habit. Many are more or less succulent or have other adaptations to resist drought. They may be terrestrial or epiphytic, rarely climbing (e.g. *Pitcairnia* species). Some species of *Tillandsia* (e.g. Spanish moss, *Tillandsia usneoides*) are aerophytes, which have very reduced root systems and absorb water directly from the air. Many terrestrial and epiphytic bromeliads have their leaves in the form of vase-shaped rosettes which accumulate water. Individual leaves are not divided and have parallel veins without cross connections. The epidermis of the leaf contains silica. Bromeliad flowers are aggregated into inflorescences of various forms. The flowers have bracts, often brightly coloured, and distinct calyces of three sepals and corollas of three petals. The flowers have nectaries. They are pollinated by insects, birds (often hummingbirds) or bats, or more rarely (in *Navia*) they are wind-pollinated. Fruits are variable, typically taking the form of a capsule or a berry.

Bromeliads are able to live in an array of environmental conditions due to their many adaptations. Trichomes, in the form of scales or hairs, allow bromeliads to capture water in cloud forests and help to reflect sunlight in desert environments. Bromeliads with leaf vases can capture water and nutrients in the absence of a well developed root system. Many bromeliads also use crassulacean acid metabolism (CAM) photosynthesis to create sugars. This adaptation allows bromeliads in hot or dry climates to open their stomata at night rather than during the day, which reduces water loss. Both CAM and epiphytism have evolved multiple times within the family, with some taxa reverting to C3 photosynthesis as they radiated into less arid climates.

Evolution

Bromeliads are among the more recent plant groups to have emerged. They are thought to have originated in the tepuis of the Guiana Shield approximately 100 million years ago. The greatest number of extant basal species are found in the Andean highlands of South America. However, the family did not diverge into its extant subfamilies until 19 million years ago. The long period between the origin and diversification of bromeliads, during which no extant species evolved, suggests that there was much speciation and extinction during that time, which would explain the genetic distance of the Bromeliaceae from other families within the Poales.

Based on molecular phylogenetic studies, the family is divided into eight subfamilies. The relationship among them is shown in the following cladogram.



The most basal genus, *Brocchinia* (subfamily Brocchinioideae), is endemic to the Guiana Shield, and is placed as the sister group to the remaining genera in the family. The subfamilies Lindmanioideae and Navioideae are endemic to the Guiana Shield as well.

The West African species *Pitcairnia feliciana* is the only bromeliad not endemic to the Americas, and is thought to have reached Africa via long distance dispersal about 12 million years ago.

Evolution of the Bromelioideae

Around 5.5 million years ago, a clade of epiphytic bromelioids arose in Serra do Mar, a lush mountainous region on the coast of South eastern Brazil. This is thought to have been caused not only by the uplift of Serra do Mar itself at that time, but also because of the continued uplift of the distant Andes mountains, which impacted the circulation of air and created a cooler, wetter climate in Serra do Mar. These epiphytes thrived in this humid environment, since their trichomes rely on water in the air rather than from the ground like terrestrial plants. Many epiphytic bromeliads with the tank habit also speciated here.

Even before this, a few other bromelioids had already dispersed to the Brazilian shield while the climate was still arid, likely through a gradual process of short-distance dispersal. These make up the terrestrial members of the Bromelioideae, which have highly xeromorphic characters.

The family Bromeliaceae is currently placed in the order Poales.

The family Bromeliaceae is organized into eight subfamilies:

Bromeliaceae were originally split into three subfamilies based on morphological seed characters: Bromelioideae (seeds in baccate fruits), Tillandsioideae (plumose seeds), and Pitcairnioideae (seeds with wing-like appendages). However, molecular evidence has revealed that while Bromelioideae and Tillandsioideae are monophyletic, Pitcairnioideae as traditionally defined is paraphyletic and should be split into six subfamilies: Brocchinioideae, Lindmanioideae, Hechtioideae, Navioideae, Pitcairnioideae, and Puyoideae.

Brocchinioideae is defined as the most basal branch of Bromeliaceae based on both morphological and molecular evidence, namely genes in chloroplast DNA.

Lindmanioideae is the next most basal branch distinguished from the other subfamilies by convolute sepals and chloroplast DNA.

Hechtioideae is also defined based on analyses of chloroplast DNA; similar morphological adaptations to arid environments also found in other groups (namely the genus *Puya*) are attributed to convergent evolution.

Navioideae is split from Pitcairnioideae based on its cochlear sepals and chloroplast DNA.

Puyoideae has been re-classified multiple times and its monophyly remains controversial according to analyses of chloroplast DNA.

Open Popular Vote

1st	Michelle Hartwell	<i>Billbergia</i> 'Darth Vader'
2nd	Kayelene Guthrie	<i>Neoregelia</i> 'Princess Caroline'
3rd	Helen Clewett	<i>Guzmania lingulata</i> var. <i>cardinalis</i>

Tillandsioideae

1st	Gary McAteer	<i>Tillandsia</i> 'Cotton Candy'
2nd	Helen Clewett	<i>Tillandsia bulbosa</i>
3rd	Michelle Hartwell	<i>Tillandsia caput-medusae</i>

Decorative

1st	Coral McAteer	'Frogs in Little Red Wagon'
1st	Donna Villegas	'Waiting for Spring'

Judges Choice

1st	Michelle Hartwell	<i>Billbergia</i> 'Darth Vader'
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Web Links for Checking Correct Identification and Spelling ?

Bromeliad Cultivar Register (BCR): <http://registry.bsi.org/>
Refer to this site for correct identification and spelling of your hybrid or cultivar.

Bromeliad Species Database (BSD): www.bsi.org/members/?bsd
Refer to this site for species identification, photos, descriptions and more.

New Bromeliad Taxon List : <https://bromeliad.nl/taxonlist/>
Refer to this site for latest species name changes and correct spelling.

Bromeliads in Australia (BinA) <http://bromeliad.org.au/>
Refer to this site for its Photo Index, Club Newsletters many with
Table of Contents Index and there's Detective Derek Articles.

Keep these web sites set as desktop icons for quick reference access.

Where do I Find the Dates ?

www.bromeliad.org.au then click "Diary".
Check this site for regular updates of times, dates and addresses of meetings
and shows in your area and around the country.