

THE FRIENDS OF THE WAITE ARBORETUM INC.



NEWSLETTER

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OLIVE

Olea europaea "Swan Hill"

"The olive is one of the most characteristic plants of the Mediterranean basin. The crop, an ancient one, is of immense historical importance as the principal source, for a period of millennia, of edible oil for people living in the Mediterranean area. Though ancient, it has changed but little and is now in decline, a decline which can be arrested only by adaptation of lei-culture to modern conditions. The leading producers are Spain, Italy and Greece."

So begins my text on olives and, of course, South Australia is one of the areas where "adaptation to modern conditions" is in a very active state indeed, with advanced research occurring on the Waite Campus.

Olive culture seems to have begun in the eastern Mediterranean. A great diversity of kernel types have been found dating from the fourth millennium BC. The trees gradually moved towards the west. The history of the crop has been dominated by the longevity of the tree and its capacity for regeneration from the rootstock, which those who fight the feral olives in South Australia know only too well.

Many cultivars are available differing in oil quality, yield, size etc. Olives were introduced early to South Australia and one could say that they have been disastrously successful, and there is now a boom in orchard planting. It is not of such olives that I write.

The discovery of a sterile, non-fruiting olive has completely changed the possibilities of the olive tree to be used as a street or park tree. It is, after all, very hardy, long-lived, attractive, not too large, amenable to savage cutting if necessary and it also has an honoured history.

"Swan Hill" is such a sterile olive discovered at Swan Hill in Victoria in the early 1960's. It is of interest that the potential of a sterile olive as an ornamental was appreciated by the University of California and that they were already on the lookout for such a tree. When on sabbatical leave in Australia in 1960 - 61, H.T.Hartmann was shown such a tree by the Victorian Department of Agriculture and scions were soon sent back to California. By 1966 not a single fruit had been produced on the few young trees grown.

Propagation has been only by budding or grafting as cuttings do not take easily. The tree was soon taken up enthusiastically in California.

Not only is the tree fruitless but pollen production by its flowers is low compared with fertile or feral olives. This is a great advantage to those who suffer from allergies to olive pollen.

"Swan Hill" olives has now been known for 40 years and its useful qualities recognised for at least 25 years. Have any councils tried it yet?

Feral olives are a proclaimed community pest plant for three Board areas on Adelaide Hills as well as other Board areas. This applies to trees not planted for domestic or commercial use. This would presumably allow the planting of sterile olives for decorative purposes.

Perry's Nursery, Kangarilla road, McLaren Flat was propagating the trees a few years ago. One hopes that this potentially useful tree will be added to the TREENET programme.

David Symon

Note: There are two Swan Hill olives in the Arboretum #314A & B (G9) planted in 1991. These were grown from cuttings obtained by Jennifer Gardner from the original tree in Swan Hill

A NOTE ON OAKS

From Ed. You have all, I am sure, read previous newsletters within which have been articles by David Symon on particular species of Oak. The Arboretum does have a fine collection of species within this genus. Eric Sims has kindly agreed to supplement these articles with some relevant comments.

Quercus infectoria

Various oaks over the centuries have been esteemed for their value in tanning leather, but *Quercus infectoria* has been especially valued because it was prone to being parasitised by a minute wasp in the super family Cynipoidea which causes it to heap up galls that were particularly rich in tannins. This substance – a normal product in the bark that presumably is part of the tree's defences – was formally used in medicine for its astringent properties (which I didn't appreciate when, as a child, my sore throats were painted with a glycerine and tannin preparation and the coagulated mucus that resulted had to be expectorated seemingly indefinitely). Tannin mixed with an iron salt and gum was also used in making ink.

Q. infectoria is a deciduous bush of the Mediterranean littoral, with deeply toothed sinuate leaves 2.5 - 4.0 cm long and somewhat cylindrical acorns sitting in a downy cup with indistinct scales. The periodic production of the galls was anxiously monitored by the proprietor of the trees. I have always felt sorry for "Brother Lawrence" in Robert Browning's amusing poem, "Soliloquy of the Spanish Cloister". He was the soliloquiser's "heart's abhorrence" who shared the table with him at mealtime and was apt to bore him with his,

"Wise talk of the kind of weather,
Sort of season, time of year:

*Not a plenteous cork-crop: scarcely
Dare we hope oak-galls, I doubt:*

What's the Latin name for 'parsley'?

What's the Greek name for Swine's Snout?"

The festering hatred of the frustrated monk can perhaps be forgiven, but all lovers of gardening will understand Brother Lawrence's obsession with his fieldwork.

Eric Sims

Curator's note:

New plantings of *Q. infectoria* are #590. 544. 547 (E13).

AUSTRALIAN ACACIAS IN WEST AFRICA

During the 1970s dry zone acacias from Australia were introduced into similar climatic regions of sub-Saharan Africa to help combat desertification, to provide firewood, for soil stabilisation and to act as windbreaks against the sandstorms that sweep in from the Sahara, but it wasn't realised at the time that acacia seeds had once been used by Australian Aborigines as a nutritious food.

Because of the tedious, labour-intensive preparation required, seeds were among the first foods dropped from traditional diets when wheat flour was introduced by white settlers. Yet *Acacia victoriae* for example, contains nitrogen equivalent to 18% crude protein, significantly higher than wheat at 12%.

In 1989 CSIRO scientist Dr Chris Harwood visited Yuendumu on the edge of the Tanami Desert 300 kilometres west of Alice Springs. There Dr Jock Morse was working with the aborigines helping them to develop a 'bush tucker' industry. He saved them years of research when he found a small group of elder women who remembered how to prepare flour, and from which trees.

Harwood realised that these dry-zone acacias could also be a food source for West Africans. He knew that forester Lex Thomson visited Maradi in Niger during a CSIRO advisory visit. There he observed the heavy seed crops on *Acacia coleii* already growing in the region. Hunger, famine and malnutrition and their attendant diseases are a major health issue in the West African sub-Saharan semi-arid zone known as the Sahal. Harwood and Morse asked the Yuendumu women if they would share their knowledge directly with the Hausa people of Niger. With Dr Lex Thomson, and Tony Rinaudo, who was already working with these people, there followed a trip to Maradi where the villagers were delighted to learn from the two Aboriginal women. Rosie and Kay were fascinated by the idea of black women on the other side of the world eating their traditional food. The village women quickly adapted their traditional recipes to make a range of seed-based foods including stews, pancakes and a kind of pasta. Village people, particularly the women, quickly gained weight when acacia flour was added to their food.

The work of these scientists, supported by the Australian Centre for International Agricultural Research, involves identifying species and provenances that produce the most edible seed in particular environments. They are from CSIRO Division of Forestry's Australian Tree Seed Centre in Canberra, and there they identified three species of acacias ideally suited to food production in East Africa while bearing in mind that of the thousand or so acacia species, most are toxic! These trees, *A. coleii*, *A. cowleana* and *A. tumida*, are easy to establish, fast growing, high yielding and bear nutritious, easily-collected seeds. Another advantage is that the foliage is unattractive to livestock so protection from grazing is not needed as the trees establish. *A. coleii* in particular has hard-coated seeds which can be stored for a long time so villagers can build up a food store.

The workers involved believe that the concept of edible acacia seeds as a useful food for semi-arid tropics should now be examined seriously by national agricultural research agencies. Donor organisations could support the follow-up nutritional research needed and extend these studies to other countries in the Sahal region.

Lex Thomson wrote recently in an e-mail to me, 'One thing we really want to do in the coming year is a thorough survey of usage of Australian acacia seeds as food in Niger.' I shall follow the work of these Australian scientists with great interest.

References: 'Seed Saviours' Bryony Bennett ECOS - Science and the Environment, CSIRO, Spring 1995
'Bush Tucker Dreaming' Brad Collis, CSIRO Feature Article, June 15, 1999

Mary Tester

BOTANICAL ARTISTS OF NOTE

By a strange coincidence, the world's most noteworthy botanical artists were born in three consecutive years – 1758, 1759 and 1760. They were Francis Bauer, Pierre-Joseph Redouté and Ferdinand Bauer. It was their good fortune to have been born at the right time. Their coming-of-age coincided with a remarkable period of exploration, appreciation of science and a golden age of botanical art nourished by rich and royal patrons.

The three artists are often compared with each other; but comparisons are said to be odious, so perhaps it is better to appreciate each of them for his own special qualities. Redouté may be said to be the most renowned botanical artist, able to paint exquisite portraits of flowers, but the two Bauer brothers are generally acknowledged as the foremost in scientific botanical illustration.

Francis and Ferdinand Bauer were born in Austria, the sons of a court painter to the prince of Liechtenstein, and although their father died in their infancy, they inherited his talent. Their ability was recognised in their early years and were well trained by the Abbot of Feldsberg, a botanist. They were soon commissioned to paint flower studies.

In their early twenties, they left Feldsberg for Vienna, where they were engaged by Nikolaus von Jacquin, eminent botanist and Director of the Royal Botanic Gardens at Schonbrunn Palace. In Vienna, Ferdinand was introduced to John Sibthorp, Sherardian Professor of Botany at Oxford and together they travelled to Greece and Asia Minor collecting and painting plants for *Flora Graeca* which was published with 966 coloured illustrations.

In 1790, Sir Joseph Banks, as unofficial Director of Kew Gardens, recognised that with expeditions and exploration on a grand scale, and with cargoes of newly discovered plants arriving, there was a need for an artist-in-residence at Kew to record them. So he made Francis Bauer an offer he could not refuse to become Botanic Painter to His Majesty, his liberal salary being paid from Sir Joseph's own purse. There he remained for 50 years until his death in 1840.

It is sometimes difficult to distinguish between the work of the two brothers. They both excelled at producing work that was meticulous in its botanical correctness and fine detail and also aesthetically pleasing. But they were quite different in character. While Francis was content to remain at Kew, the more adventurous Ferdinand felt the wanderlust and on completion of his work for *Flora Graeca*, he accepted the invitation from Sir Joseph Banks to join Matthew Flinders on his voyage to Australia as botanical draughtsman.

In the late 1790s, Sir Joseph Banks had been concerned that nothing of commercial value had yet been discovered in Australia, so he conferred with the Admiralty about mounting an expedition. The Admiralty agreed that the complete charting the whole coastline of Australia would help to place the continent firmly in British hands, stimulating settlement and commerce; so they provided a decaying sloop HMS *Xenophon* for this enormous task. It was considered to be inadequate to fight the French but apparently good enough to sail to the other side of the world to chart unknown coasts. With her rotting timbers concealed by copper sheathing she was re-named HMS *Investigator* and in July 1801 sailed from Spithead with newly-promoted Captain Matthew Flinders in command. It was not Flinders first voyage to Australia; in 1798/9, with George Bass, he circumnavigated Tasmania, proving that it is an island.

Sir Joseph planned every detail of the well-equipped expedition. He drafted the duties of the scientific personnel, selected their equipment, provided maps and journals from previous voyages to Australia and also a prefabricated "plant-cabin" for use at Port Jackson. Amongst those on board were William Westall a landscape artist, an astronomer, a mineralogist, Scottish naturalist Robert Brown with his assistant Peter Good, and Ferdinand Bauer.

Bauer and Brown, who was 13 years his senior, worked well together. Brown described the plants and Bauer drew them, often in a difficult environment of heat, humidity and, when aboard ship, in cramped conditions. Bauer is recorded as only once being driven to anger, when water poured into his cabin and destroyed some of his work. Reason enough!

Illustrating plants is always a challenge, even in a studio. The subject is fragile and perishable, so it is necessary to work at great speed and with a sure hand. Observation is paramount and drawing skill not far behind. Dried and pressed plants have one advantage in that they will not change while being drawn. They will however have lost their original colour and form and it requires a lot of imagination and good botanical description to reconstruct them in an illustration. Bauer developed his own elaborate numerical colour code to remind him of an exact colour when he was required to complete his work after returning to England.

When Matthew Flinders left Sydney to find a replacement for the unseaworthy HMS Investigator, Brown and Bauer continued their work and eventually, in 1885, returned to England in the very same Investigator, by now even more patched and carrying 11 packing cases of illustrations and between 3 000 and 4 000 specimens of flora and fauna.

Some years later Bauer began to prepare his own plates for "Illustrationes Florae Novae Hollandiae". He had been unable to find engravers and colourists capable of doing work to his high standards, and by this time war had impoverished his patrons. Just 15 plates had been published before Bauer, depressed by his failure, returned to Australia where he completed his work on Australian plants. He died in 1826.

A limited edition of 30 plates was reproduced in recent years and displayed at the Museum of Economic Botany in the Adelaide Botanic Gardens. One exquisite coloured engraving commemorates Robert Brown. It is called *Brunonia australis*.

In 1810, Robert Brown published a book on the flora of Australia, describing more than 2 000 plants, three-quarters of them new to scientific botany, but the book was a financial failure. He was Librarian and sole curator of the Banksian collection at the British Museum and lived to the age of 85.

The story of Flinders, a remarkable navigator, a man of initiative, courage and great seamanship, is a sad one. He set off for England on HMS Porpoise to find a replacement for HMS Investigator. He had a greenhouse erected on the quarter-deck for the botanical specimens. But Porpoise was wrecked on a reef and the specimens were lost. Fortunately Robert Brown had duplicates of them. With a few men, Flinders navigated the ship's cutter back to Sydney.

He then set off once more for England in another leaking ship, the schooner Cumberland, but was obliged to call at Mauritius for repairs. He was unaware that war had again broken out between Britain and France and he was arrested. As he languished in goal for six years he wrote a tribute to his cat "Trim". Trim was borne on Reliance, sailed on Investigator, and it seems "this affectionate friend" provided some solace. In ill-health, Flinders returned to England in 1810 and prepared his great work "A voyage to Terra Australis", but died as it was being published in 1814, when he was just 40 years old.

Pamela Brinsley

This fascinating article by Pamela Brinsley should surely stimulate some of us to visit the

ENCOUNTER 2002 EXHIBITION

'Striving for Excellence - The Art of Scientific Accuracy.'

This is an exhibition of botanical-related works by Robert Brown and Ferdinand Bauer.

Urrbrae House – 3rd to 31st March.

NOTES FROM THE PRESIDENT

The year continued to be full of interest for all involved in the Arboretum and Urrbrae House. Beryl Martin's Exhibition of new paintings with the theme of "Colour, Contrast & Form" was enjoyed by more than 660 people who attended. Once again our visitor survey indicated that word of mouth is the most effective way of advertising. Thank you to all those who helped us in this way by sharing the extra flyer you were sent with an interested neighbour or friend. The new frame at the corner of Fullarton and Cross Roads placed to hold the advertising banner was very successful. The Exhibition raised more than \$960 for use in furthering the care of the Arboretum.

The Salvia Society's Open day in the garden of Urrbrae House on 18th November was most successful, despite the unsettled weather. The unusual spring weather ensured that the many salvias planted by our keen volunteers over the past months were blossoming and were much admired. Our valued friend Peter Love generously presented us with a donation of \$60 from the Salvia Society together with a letter of thanks to the volunteers.

On a delightful morning early in November, staff and all volunteers linked with the Arboretum, Urrbrae House and the Reserve were invited to Brunch on the lawns to meet the Vice-Chancellor. He announced a grant to help towards the initial cost of treating the salt damp problem of Urrbrae House. He hopes that a future grant may be made towards the Arboretum. It was a very happy occasion.

Our final event for the year was the Christmas Party for all Friends of the Arboretum, the Conservation Reserve and Urrbrae House. This was combined with a visit from the Centenary of Federation Committee, who joined Friends in a tour of the Garden of Discovery at 5.30pm followed by drinks and nibbles in the House as the evening was very cool. Once again it was a joint effort by committee members in organising the refreshments for all who participated. The Presidents of the Friends of Urrbrae House and The Arboretum thanked everyone for their support throughout the year. In particular, Professor John Prescott thanked all those who had worked in the rose garden over several weeks to ensure that it looked its best for the very successful "Talk, Walk in the Rose Garden" followed by Walter Duncan's talk in Urrbrae House in November. Seasons Greetings were extended to all.

Warmest regards, Cicely Bungey

EDITOR'S (A)MUSINGS

Quotation from MEN of the TREES (S.A.) NEWSLETTER, No.6, Dec 1982

The following are excerpts from an article that originated in an extract from Frank Keenan in "Street Trees in China", (Trees and Victoria's Resources, Vol.24, No.3).

"The 5th National People's Congress of China has launched a nationwide tree-planting drive to begin during 1982. Every Chinese citizen, apart from children under 11 years and the elderly, weak, sick and disabled, will have to plant 3 to 5 trees every year. That is, in effect, about 600 million people in China would join the tree-planting drive adding 2500 to 3000 million trees each year..... Street trees in China are well trained.....Planes in particular are trained to have their canopies meet across the road, and where street trees are present, the branches are trained around the wires and never cut back because of them.....The Chinese authorities in Nanning put forward the philosophy that in their country 'the wires shall obey the trees'.....In 1974 the fruit production from street trees was 25,000 kg..... The honesty of the people of modern China is such that fruit is never stolen."

Those interested in TREENET please take note!

Can plants count?

The following material comes from one of the fascinating books of Stephen Jay Gould viz: "Ever Since Darwin - Reflections in Natural History", W.W. Norton & Company Inc., 1973.

"A bamboo bearing the formidable name *Phyllostachys bambusoides* flowered in China during the year 999. (Presumably AD and not BC: Ed.) Since then, with unerring regularity, it has continued to flower and set seed roughly every 120 years.

P. bambusoides follows this cycle wherever it lives. In the late 1960s, Japanese stocks (themselves transplanted from China centuries before) set seed simultaneously in Japan, England, Alabama and Russia.....Sexual reproduction follows more than a century of celibacy in these bamboos.....(They can propagate asexually, however, by producing new shoots from underground rhizomes.).....Also, they do not live happily ever after, for the flowering stalks die after setting seed – a long wait for a short end."

Gould follows with a variety of reasons for this strange degree of synchronous behaviour in widely separated individuals.

Read the book, and his others, if you haven't already done so.

FORTHCOMING EVENTS AND DIARY DATES

General Meeting, Monday, February 18, URRBRAE HOUSE, 8.00 pm.

Ms. Pam Catcheside will address the meeting.

Her talk will be entitled:

"Fungal Hunting in South Australia."

Refreshments will be available after the meeting.

AGM – April 10 – Further details will be notified separately by post.

NOTICES

For those of us with access to the Internet, the following address may prove of interest:

<http://www.waite.adelaide.edu.au/urrbraehouse>

OR

<http://www.waite.adelaide.edu.au/waitearboretum>.

From these sites there are clearly labelled links to such items as Peter Waite, Friends, What's on, Volunteers etc.

ANOTHER THOUGHT ABOUT TREES FROM ROBYN BARKER

They are beautiful in their peace, they are wise in their silence. They will stand after we are dust. They teach us, and we tend them.

Galeain ip Altiem MacDunelmor

