



**THE FRIENDS OF TREBORTH  
BOTANIC GARDEN**

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FOTANEG TREBORTH**



**NEWSLETTER**

**CYLCHLYTHYR**

**Number / Rhif 40**

**January / Ionawr 2011**



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### **Cover Photos (Julian Bridges/Cathy O'Brien)**

Front	A caper plant ( <i>Capparis spinosa</i> ) in flower on Lipari, Italy
Back	Typical Stromboli eruption from the viewpoint on the slopes of the volcano

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## AGM Report October 2010 by Chairman and Secretary

Believe it or not, this is our 4<sup>th</sup> annual report, and looking back it strikes me that there has been huge change in many ways for the Friends and the Garden, but in some **ways we haven't moved very far. In previous reports, phrases like 'year of challenges' and 'a roller coaster of a year' have cropped up** – so no change there then!

Much of our activity in the early part of the year was centred on preparations for the Week of our 50<sup>th</sup> Birthday and UN Year of Biodiversity – completing the wildlife pond and butterfly border (a huge task), getting the welcome area sorted out (not to mention the rest of the Garden) and arranging events like Botanic Beats, the pond opening and the all-important Alumni Day. Many months of hard work. Was it worth it? Of course it was, but if anyone mentions major events for the foreseeable future, **they might well end up in one of Sarah's compost heaps.**

The emphasis of the Friends work at Treborth and the community work we are involved in is changing. We have to carry on with the day-to-day management of the Garden but the number of outside projects we are involved in is increasing and we **must be careful we don't take on too much. Having said that, all the projects will benefit the garden enormously.**

**We've seen great changes in the woodland because of the Better Woodlands** for Wales grant, now in its third year, and also the CCW Management Agreement, in place at last. The coastal footpath work was delayed for a while but has now started and, when complete, will enhance Treborth further.

Several of our recent graduates (and some not so recent) have taken on substantial roles at Treborth and have also been travelling on our behalf (more of that **after the AGM**). **As a result of Badger's going for us to the Helsinki conference of BGCI**, we now have a plant collections sub-committee which deals with the plant comings and goings at Treborth. **Thanks to John Gorham's attending a PlantNet** conference on running a clean garden, we now have a biosecurity sub-committee which will work towards keeping pests and diseases under control in the glasshouses and Garden, the biosecurity aimed at volunteers not visitors I hasten to add.

Our educational portfolio has burgeoned this year. We have once again had a horticultural scholar (Paul Lewis), we have run a series of gardening workshops, and Friends are involved with student projects and giving talks to clubs and societies. We are about to start involvement with the Beacon for Wales project and Interreg with Ireland, and so it goes on.

**There has been a bit of spare time to see other gardens, Dibley's Nurseries and a successful holiday to gardens in the Midlands organised with the AGS by Hazel Cave.** Our Len Beer lecture was by Keith Wiley, whose beautiful garden we saw on holiday

last year with Treborth.

**Those of you who have been to Treborth can't have failed to notice the wonderful eco-friendly refit we have had in the lab, or Hub as Jackie has christened it.** We now have a warm, dry, clean, bright and environmentally friendly place to work in. Thanks to all involved, and to David Ransome in Estates for making it happen, and especially to Paul, Jackie, Jamie and Pete.

Now I come to our relationship with the university and the future of Treborth. We had a meeting with Prof Steve Hawkins and all interested parties (CCW, wildlife trust, Plantlife etc) in February, when the possibility of a community trust was discussed. We had a lot of support for Treborth and a timetable was put **in place for 'things' to happen. Since then, John Latchford has been working on our behalf** for the Department and we have a Treborth Champion in new professor, Tom DeLuca. Steve Hawkins has, however, left us for pastures new but John Latchford is still working hard for Treborth, as is Tom.

Volunteers are the lifeblood of Treborth and we thank them all, Friends, graduates and students. They work thousands of hours to keep the Garden going. Our latest band is the mowing men, using the ride-on mower the Friends bought years ago to help maintain the lawns. They are all trained and certificated and the cost was borne equally by the Friends and the University.

We have had many donations this year and thanks to everyone for such generosity. One I must mention was given by the parents of a student who died tragically young some years ago. This money, £2000, will pay for a new bird hide to replace the old one down by the new pond. Gifts such as this make all of us feel that our work in and for Treborth is valued, which, when the going gets tough, helps a lot.

We are losing two committee members this time: Pat Denne, who has been so valuable on the committee, and Rachel Hughes, who took on the role of **Treasurer when she didn't really have time. Thanks to Rachel for doing so, and welcome to our new Treasurer, Debs Wieland, who is already treasuring away.** We also have some new blood to keep us on our toes.

It only remains once again to thank everyone involved at Treborth and to all you members for your continuing support.

Judith Hughes and Sarah Edgar

PS News in Brief –

Our bid for a share of **Waitrose's monthly Community Fund** (the green token scheme) resulted in our being awarded £358. The formal cheque hand-over and photos will give us a welcome bit of free publicity!

We hope you will like the change of font used in the newsletter. Some people will find the new one easier to read, and it does look slightly more modern.

Many thanks to Pauline Davies, Pat Denne and Malcolm Downing for their donations to the Friends.



## Wild Science at Treborth Botanic Garden – a family day out

Sunday 13<sup>th</sup> March 2011, 2-7pm

As part of Bangor Science Festival 2011, Iolo Williams will be at Treborth Botanic Garden for an afternoon of Wild Science. Listen to the sound of a living stream of water being sucked through thousands of straws embedded in the gum trees trunk. Everyone can bug hunt, pond dip, moth watch and miniprobe with microscopes, in the field, glasshouses and lab. There will be specialists on hand to explain the menace of carnivorous plants, the allure of orchids and the extreme lives of desert plants. Refreshments will be available and if the weather is clear there will be a star-gazing session early evening too!

Bangor Science Festival, part of the National Science and Engineering Week, offers something for everyone, with activities for families and schools groups, adults looking for entertainment and stimulating debate, or professionals interested in the latest research.

This Festival is organised with the help of the Dr Tom Parry Jones Fund, which was set up by the Bangor University alumnus and inventor of the electronic breathalyser to promote science and engender entrepreneurship in young people.

This event is part of the British Science Festival organised by the British Science Association. For more information, visit the [British Science Association](#) website, or take a look at their [National Science & Engineering Week](#) pages. For the local programme and how to join in see <http://www.bangor.ac.uk/bangorsciencefestival/>

Jackie Read

## Curator's Report: August – November 2010

Our 50<sup>th</sup> year has continued a pace with continuing improvements to the laboratory and other parts of the fabric of Treborth, largely carried out by volunteers (Friends and students). **The efforts have been heroic, from Jackie Read's amazing talent at organising fund raising gigs with the Treborth House Band (to purchase ecofriendly paint!) to Pete Wieland's mastery of wood and pipes which brought us tasteful domesticity to the lab in the form of bespoke 'kitchen units', to Paul and the gang's wielding of paint brushes to every conceivable corner of the new-look building.** Without exception these improvements (the first in 30 yrs) have been much appreciated by all users of the Garden and recent groups using the new-look lab have included the Department of Life-Long Learning's Art Groups, Gwynedd Guild of Spinners and Weavers, Beaumaris & Menai Bridge Camera Club, N Wales Moth Group and several Workshops (including that reported on in the Weather and Wildlife section of this newsletter). My thanks to everyone who has contributed to making the Treborth Lab one of the university's most appealing venues, including David Ransome of the University's Estates and Facilities Dept.

Treborth's 50 years were celebrated by a half-hour special broadcast on Radio Wales on 14th September when the Garden's multipurpose nature was explored in the company of the curator and through interviews with a range of Garden users. Barbara Jones, the Countryside Council for Wales' Upland Ecologist spoke with enthusiasm about Treborth's role in conserving the wild flora of Wales and highlighted the Garden's stocks of *Woodsia ilvensis*, the rarest fern in the UK. Ilya Vukomanovic, Chairman of the N Wales Branch of Butterfly Conservation explained the value of long-term monitoring of moths by reference to Treborth's nightly sampling over a period of 22 years. Sophie Williams, researcher in the University's School of Environment and Natural Resources and Geography (SENTRY) defended the role of botanic gardens in promoting the Global Strategy for Plant Conservation and the importance of a local botanic garden in this respect, especially one with such a strong educational remit. Finally Mark Long, researcher in Bangor's School of Chemistry waxed lyrical about carnivorous plants and took great pleasure in showing off the fascinating collection of these extraordinary plants brought together from all over the world by students working voluntarily on Treborth's behalf.

The new wildlife pond featured on S4C's Byw yn yr Ardd programme and the Garden's 50<sup>th</sup> was highlighted in Bangor University's Alumni News and Staff Newsletter.

Discussions began in August with the regional office for Interreg Funding which encourages large scale co-operative projects between Ireland and Wales. The

aim is to enhance Treborth's role in the provision of horticultural skills and the promotion of sustainable living and better understanding of plant science. This would be achieved through new appointments and an expansion of facilities in the Garden.

The College of Natural Sciences is still pursuing financial support from the **Esmee Fairbairn Fund to underpin and develop Treborth's third civic mission role.** Treborth has been successful in securing a Beacon for Wales Grant to promote sustainable attitudes and skills locally through the part-time appointment of Jackie Read who is developing an educational programme which includes in-house sessions as well as out-reach activities.

Professor Tom De Luca, academic champion for Treborth and a senior researcher in soil science has been appointed to the Board of the Pontio Project and **hopes to link Treborth's development with elements of the University's city centre** Pontio development thus raising the profile of the Garden significantly. He has also **submitted ambitious improvement plans for the rhizotron, Treborth's underground laboratory** (the largest facility of this kind in the UK) and linked these with a major **upgrade of Rivendell, the empty property adjacent to the curator's house, to create** a modern research hub for rhizotron research.

Gwynedd County Council has begun work on major improvement works to the woodland path as part of the Coastal Footpath of Wales Project and this should be completed by early Spring 2011. It will involve resurfacing work, signage, remedial health and safety tree pruning and the creation of an entirely new section of pathway parallel with the lower section of the main access drive thereby encouraging pedestrians off the often busy drive along a pleasant wooded route. At least half of the improved pathway will have disabled access.

John Sweeney (Mynydd Timber) has won a CCW contract to carry on with control of invasive cherry laurel (*Prunus laurocerasus*) and rhododendron (*Rhododendron ponticum*) in the woodland at Treborth, thus opening up new vistas of the Strait and releasing the native woodland flora from the strangulating grip of these two formidable evergreens. This work should also be completed by early spring. Visitors to the wooded areas of Treborth should be aware of the current management activities and adhere to any temporary access restrictions whilst work is in progress.

The woodland projects have been voluntarily overseen by Gerry Downing of the Friends over a significant period of time since their initial planning, and this sort of committed strategic input from the Friends is increasingly important in shaping the Garden. The Friends Collections Committee now take a lead role in

documenting and selecting the plant collection and advise on many plant husbandry matters, making the whole operation of managing and developing the plant collection more professional.

Jamie Stroud and Lynwen Lloyd Hughes who both graduated with great success this summer have continued to give the Garden great service through their part time employment by the Friends over the summer and autumn and have assisted with many vital activities including decorating the building, finishing the landscaping of the National Vegetation Classification (NVC) Garden, relandscaping the Tropical House to accommodate a new crop plant display as well as daily jobs including moth recording, especially in my absence. Jamie also arranged for two volunteers (one from Namibia, one from UK) to work at Treborth for a week as part of the Global Exchange Volunteer Programme.

During the autumn semester several second year students have carried out their work placement module at Treborth and as a result have become much involved with the crop plant project, the NVC Garden and improvements to the Cool House. Supervision for their activities has often been provided by the Friends. The second year Biology and Ecology students have received weekly identification **classes at Treborth this term and SENRGY's Agriculture and Conservation first years** have explored the botany of crop plants. Over 100 undergrads have used the Garden for other practicals this term including insect diversity assessment and fungal ecology. Over 150 first years of many academic leanings experienced the full biological diversity of the Garden mid term and STAG ensured that all the School of Biological Sciences students newly arrived this autumn enjoyed the hospitality of **the Garden during Freshers' Week. Art and Design students from Coleg Menai** continue to find inspiration from study days at the Garden.

STAG have organised two very successful work parties as well as several very enjoyable social events at the Garden, plus popular ceilidhs held in Bangor. They have produced another innovative calendar for Treborth for 2011 – **I'll say no more!**

The Friends as ever have been constantly attentive and their input and influence continues to grow – an important recent practical innovation being help with mowing. No less important has been the encouragement of support for the Garden from varied sources eg a successful appeal from Waitrose customers which resulted in the retailer donating over £350 to Treborth. In addition, the Friends have organised a successful composting workshop and held another very worthwhile Plant Sale raising £1000 for the Garden. Our important links with Lesotho have been significantly strengthened by a recent visit to southern Africa by **two Friends (see Gerry and Sarah's article in this newsletter).**

Once more, Treborth hosted a successful ecological field course for Horticultural Diploma students from the Royal Botanic Gardens Kew, following on from which five Kewites became Friends of Treborth.

Finally, it was with great pleasure that we welcomed the new Vice-Chancellor of the University, Professor John Hughes to Treborth at the end of November. During a 50 minute tour and talk he met with representatives of the **Garden’s major stakeholders and departed with words of encouragement for us all.** He sees Treborth as a vital arm of the University, not just of our own College of Natural Resources, and he is keen to promote the civic role the Garden so strongly champions as well as help develop its core educational and research roles at higher education level.

It is very pleasing to end my seasonal report with such uplifting comment **from Bangor’s new VC** – I feel certain that the Garden will be able to deliver these goals in a new and more enlightened academic environment.



### Weather and Wildlife August – November 2010

Month	Rain		Temperature °C		No. Of Days		
	mm	inches	Max.	Min.	20 °C or above	with rain	air frost
Aug	53.0	2.1	20.5	7.75	2	18	0
Sep	125.7	5.0	22.5	7.25	4	17	0
Oct	86.7	3.4	21.75	1.25	1	18	0
Nov	107.8	4.2	14.75	minus 4.75	0	23	5

2010 continues to throw notable meteorological events our way. August will be remembered for being one of the duller and coolest on record and yet produced below average rainfall. September produced over twice as much rain after a promisingly fine warm start. October proved drier than previous years and gave some very pleasant autumn sunshine during the first half of the month with temperatures rising to 21.75 degrees on the 8<sup>th</sup> and dropping no lower than 16 degrees the night before. November shared the top spot with July for highest number of wet days (23) as well as claiming the lowest night time temperature (minus 4.75) of the year so far and almost the lowest maximum day time

temperature (2.75 degrees – only bettered by two days in the first week of January when temperatures did not rise above 2.25). The last week of the month witnessed five consecutive nights of air frosts and a few centimetres of snow with 3 cm of ice on the ponds.

And yet 2010 looks like being another significantly warmer year globally and for Treborth a significantly drier year than average – with just 848.7 mm (33.4 inches) recorded by November's end, we are still 8.6 inches below the annual average so either December will turn out very wet indeed or we shall end the year in deficit.

With all the humidity of July and August, fungi were strikingly fruitful and thankfully a reasonable harvest lasted well into the autumn; once again the arboretum produced colonies of Dog Stinkhorn (*Mutinus caninus*) and large boletes, or sponge-caps, appeared around specimen trees in the parkland.

**Ann Wood's butterfly border continued to attract more insect life than any other part of the Garden thanks to its eye-catching choice of blooms which lasted till late October and proved irresistible to hymenoptera and lepidoptera in particular - it was thrilling to see 6 species of butterfly nectaring there simultaneously including Comma (*Polygonia c-album*). Val Lane has kindly undertaken a regular butterfly transect this summer and in future newsletters we shall report on her findings as butterflies join moths in being quantifiably monitored at Treborth.**

During the four month period there were only two nights when more than 200 individual moths were trapped in the Robinson Light Trap – both in the first half of August – not unusual. Another Clay Triple-lines (*Cyclophora linearia*) turned up on 1<sup>st</sup>/2nd August and the year's only Black Arches (*Lymantria monacha*) on 4/5 August. Other notable species included Brindled Ochre on 6/7<sup>th</sup> and 9/10<sup>th</sup> October, Pale Eggar (*Trichiura crataegi*) on 4/5 September and the Crescent (*Celaena leucostigma*) on 24/25 August, a first for Treborth and a wetland moth the larvae of which depend upon Flag Iris (*Iris pseudacorus*) and several species of grasses and sedges. On the last night of October, two male December Moths (*Poecilocampa populi*) made a surprisingly early appearance in their season. Early November proved good for moths with up to 10 species and 45 moths per night in stark contrast to the final week of the month when there was not a single moth caught due to severe weather. Finally, another surprise visitor to the light trap in the middle of November was a female Oak Bush Cricket (*Mecoma thalassinum*) – a graceful Orthopteran with remarkably long slender antennae, shining apple green body and gently curved scythe-like ovipositor. This species emerges during the second half of the year and is crepuscular or indeed nocturnal in its habits, hence its appearance in the light trap.

Treborth hosted a centipede, millipede and woodlice workshop in October organised by Richard Gallon from our local biological records centre, COFNOD. It proved a great success and under the expert guidance of Tony Barber (British Myriapod and Isopod Group) the 18 attendees sorted out and identified 7 species of centipede, 11 species of millipede and 5 woodlice species. Highlights included the centipedes *Stigmatogaster subterranea*, *Geophilus flavus* and *Cryptos hortensis* and the Pill Millipede *Glomeris marginata*. Along the seashore, they found the salt tolerant centipede *Strigamia maritima* and the woodlouse *Ligia oceanica*. The glasshouses yielded some interesting species such as the fast moving millipede *Oxidus gracilis* as well as a new species of centipede for Wales, *Lithobius lapidicola*. Finally back out in the grounds beneath the roadside logs, the land hopper *Arcitalitrus dorrieni*, an introduced crustacean from Australia, proved a challenging catch.

The new wildlife pond continued to naturalise and evolve a pleasing **diversity of plants and animals which form the basis of Rachel Bolt's undergraduate research project (see Rachel's article in this newsletter).**

The bird-breeding season appears to have been broadly successful especially for small passerines such as tits and finches. Thrushes appear to have been less successful perhaps disadvantaged by dry conditions in the first half of the year. However thrushes from afar (Fenno-Scandinavia) invaded the Garden in hefty numbers in October to feast on yew (*Taxus baccata*), the gentle murmuring sub-song of flocks of redwing (*Turdus iliacus*) **hidden away in the arboretum's dense canopy** often the only clue as to their presence at the time, but later a driveway littered with the juicy spent remains of a thousand yew berries an unmistakeable mark of their autumnal presence.

Stoats (*Mustela erminea*) and weasel (*M. nivalis*) continue to make fleeting appearances though their effect on the rabbit (*Oryctolagus cuniculus*) population is not immediately clear! Treborth still boasts a healthy rabbit population and it still concerns me that foxes (*Vulpes vulpes*) remain scarce. On the other hand it is exciting to report that red squirrels (*Sciurus vulgaris*) continue to be encountered by visitors to the Garden – may be 5 confirmed sightings in all this year including one cheeky little chappie who raced across the road as the postman was delivering mail to Len and Sarah at the Lodge at the bottom of the drive. The grey squirrel (*Sciurus carolinensis*) situation is happily one of a much-reduced population thanks to intensive and prolonged trapping by Craig Shuttleworth and his team from the Anglesey Red Squirrel Group.

Soprano Pipistrelles (*Pipistrellus pygmaeus*) were delightfully active and vocal when the Anglesey Branch of the North Wales Wildlife Trust met at Treborth

one evening in late September and despite having quit their summer roost in the west end of the laboratory, the population in the Garden still seems buoyant – they certainly make good use of the air space above the new wildlife pond.

As we enter the final throes of 2010 the raw cold and dampness of winter suddenly grips the Garden, the trees now singular against the horizon of grey cloud and water appear fence-like and unfriendly and their leafless limbs offer no comfort to the Garden landscape. The meadow plots shudder at the slightest chill breeze, the last seeds spill and the vole and shrew seek deeper sanctuary in the cocksfoot tussocks. **Ice now whitens the wildlife pond clamping down on all the past months' liveliness.**

The raven (*Corvus corax*) cronks lamely from the big ash tree - it has no mate to share mid- winter with and no prospect of commencing the New Year in breeding mode. For all the creatures of Treborth, winter is another season in a continuous chain of survival and renewal. It is to be endured and suffered without complaint. It will determine the starting line up for the following year as naturally as wind and ice and snow and cold recycle - and it has no favourites.

Nigel Brown



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**Natur Cymru's** *Inspired by Nature*  
Writing Competition Winner, Summer 2010

Extract from a Victorian Diary (anon), 1889

*Richard Birch has brought to our attention the following document; the remarkable powers of observation and deduction revealed therein are of lasting interest to the naturalist.*

In the autumn of 1889, on the explicit instruction of his personal physician (myself), The Great Detective was prevailed upon to seek rest and recuperation, to which, surprisingly, he agreed.

"I have a desire to go here," he said, unfolding a map of Wales and indicating the island of Anglesey; and so it was I went forth to make the necessary arrangements, and the next day we caught the train from Euston to Bangor, North Wales.

I had arranged to stay in a boarding house in the mining port of Amlwch, on the north west coast. It was dark when the local train pulled into the station, and the air was heavy with brimstone. First impressions were far from salubrious; nevertheless, I had never before had cause to doubt his choice.

At breakfast the following morning, my companion was full of enthusiasm. He had already taken a constitutional around the town, and pronounced it a capital choice to spend a relaxing weekend.

After breakfast, we hailed a carriage to take us to Parys Mountain, an opencast mine east of the town. The superintendent was a Cornishman,<sup>1</sup> and had heard of my esteemed companion, although many of the local Welsh miners had not. Nevertheless, we were granted access to an adit of particular interest, and although the air was nauseous, we lit lanterns and plunged inside.

"Observe, Doctor, we stand *beneath* the mud of a deep ocean in Ordovician times. This rock was here even before the volcanic activity that deposited the minerals being mined so assiduously."

"How can you know that?" I asked.

"It's written for all to see. Look here – " he pointed at some white marks in the dark rock. "*Graptolites*, extinct colonial marine creatures preserved as fossils.<sup>2</sup> They are as accurate as a date stamp."

A brilliant blue mineral, the colour of lapis scattered across the floor, caught his eye. **"Ah yes, a form of copper sulphate I don't doubt." He produced a spatula from the pocket of his coat and proceeded to scrape some into a phial.**<sup>3</sup>

**We entered deeper into the adit. "I have a desire to see some of the caves' inhabitants; come, Doctor, hold your lamp aloft so that we may illuminate the ceiling."**

**I did so, but the light was inadequate to penetrate the Stygian darkness. "It's no good. These lamps are not nearly bright enough."**

My companion laughed. "On the contrary, my good friend. Not only is it possible to deduce the fact that bats have occupied this adit, but what *kind* of bat they were, and *when* they did so. Shine your lamp here, on the floor."

I did so, and noticed that there was a scattering of moth wings.

"Remark, my friend: all these wings belong to but a few species, all of which are in the family *Noctuidae*. These moths have a specific flight period: here a Yellow Underwing. It flies in July. Here an Angle Shades: it has a longer flight period, but July numbers are bolstered by immigration. Elementary reasoning would therefore point to a moth predator occupying this cave in that month, and further – " he continued " – moths consumed at the roost in this manner are typical of the long-eared bat." <sup>4</sup>

After a tour of the mines expressly in honour of our visit, which my colleague found eminently fascinating, our carriage took us across the island to Rhosneigr, a journey of over an hour. After a repast of cold mutton at a local inn, my companion suggested we aid our digestion with a constitutional along the beach. Here he found much of interest in the flotsam on the shoreline. I myself found a small, intricately carved wooden figurine, which I put to him enquiringly.

**"My dear Doctor," he responded soberly after a moment's reflection. "This is a Haitian voodoo doll; I rather fear that in August last year, the death by drowning of a pregnant woman from those islands was induced by supernatural causes involving the use of this doll."**

"We infer this by the nature of the carving. See? The figurine is shown with distended belly. I estimate the lady was eight months pregnant. Had the child lived, it would be a year old now."

"But how can you be sure this?" I said aghast.

He produced, from his pocket, items that he himself had picked up during our constitutional.

"This, Doctor, is a seed from a tropical plant that accompanied your figurine on its **transatlantic voyage.**" He held up a shiny brown object. "It's a sea bean;<sup>5</sup> travelled here from tropical America. When considered in conjunction with the design of your figurine, Haiti in the Caribbean is indicated, and since figurines such as this were produced exclusively for supernatural ritual, there is no other possible explanation."

Yet it was a decidedly disturbing one. We made our way back to the beachhead and to our waiting carriage.

My misgivings on the efficacy of the prescribed rest were dispelled the next day as we travelled back to London. My companion looked well, with a high colour and cheery disposition as he buried himself in the newspaper.

"I must own", says I sheepishly, "that I receive greater benefit from such outings when accompanied by yourself, than I would ever get were I alone."

He dropped the corner of the paper and smiled. "Observation and deductive reasoning are as essential a skill for the naturalist as for the detective, as I'm sure Mr. Darwin would concur.<sup>6</sup> For now, though, we must put aside the former hobby and adopt the latter vocation. See here," he said, brandishing the front page. The *London Post* headline was *Ripper says he will kill again!*<sup>7</sup> My companion lit his pipe, folded his newspaper and stared ruminatively out of the window. "The games afoot!" he said.

Richard Birch

<sup>1</sup> The mines were then owned by Mr. Fanning Evans and 31 miners were employed, some of whom may have been Cornish émigrés; a relic from the previous owner, Captain Thomas Mitchell, who was from Cornwall.

<sup>2</sup> Graptolites from the *Dicranograptus clingani* zone occur in the mudstones at Parys Mountain, indicating a late Ordovician (Caradocian) age, 450 million years old.

<sup>3</sup> Pisanite (FeCu)SO<sub>4</sub>.7H<sub>2</sub>O is common at Parys Mountain. The stunning blue colour is rapidly lost on exposure to sunlight.

<sup>4</sup> Brown long-eared bat (*Plecotus aurita*) is a specialist moth predator and could be the culprit. However, Natterer's bat (*Myotis nattereri*) may also feed in this way,

and has been recorded from roosts at Parys Mountain, whereas brown long-eared has not.

<sup>5</sup> *Entada gigas*, from Tropical America, Africa and the Caribbean. Theoretically they can float to UK shores in the Gulf Stream and the North Atlantic drift, where they get caught in a clockwise current around Ireland, and thence into the Irish Sea. They wash up fairly frequently on beaches in Cardigan Bay, and would therefore be more likely to occur on the north and west coasts of Anglesey. Their voyage "lasts on average about 14 months". (A.O. Chater *pers comm*.)

<sup>6</sup> Darwin's *On the Origin of Species* was published in 1859, and its principles were long accepted by this time.

<sup>7</sup> This headline dates the visit. The infamous "Dear Boss" letter, in which Jack the Ripper declared to the secretary of the Whitechapel Vigilance Committee that he would strike again, was received on 12th October 1889, a month after the discovery of the notorious '**Pinchin Street Torso**': an unidentified woman whose death was attributed to Jack the Ripper. Curiously, the Baker Street Detective never involved himself in the Ripper case.

*Information about Natur Cymru's 'Inspired by Nature' writing competition: Natur Cymru - Nature of Wales Quarterly Magazine – is running another writing competition. The deadline is 31 March 2011. Details can be found at [www.nature2010.org.uk](http://www.nature2010.org.uk) or phone 01248 387373. This is open to all subscribers. Friends of Treborth can sign up to Natur Cymru for only £10 (normal price soon to rise to £16) - send a cheque payable to Natur Cymru Ltd to Mandy Marsh, Natur Cymru Ltd, Maes y Ffynnon, Penrhosgarnedd, Bangor, Gwynedd LL57 2DW ([m.marsh@ccw.gov.uk](mailto:m.marsh@ccw.gov.uk), [info@naturcymru.org.uk](mailto:info@naturcymru.org.uk), [www.naturcymru.org.uk](http://www.naturcymru.org.uk))*

**"The most noteworthy thing about gardeners is that they are always optimistic, always enterprising, and never satisfied. They always look forward to doing something better than they have ever done before."**

Vita Sackville-West

## Survivors

In April 2008 I was working in and around the laboratory building at Treborth but decided I should just go down to the Long Border East and see how it was getting on in my absence.

As I passed the Long Border West, my eye was caught by a strong splash of **red half hidden under one of the shrubs**. **As I wasn't aware of any herbaceous plants** in that area I was intrigued and went to have a closer look. I was surprised to find a robust-looking *Polyanthus*-type *Primula* with flowers of a good deep red and well-defined yellow eye. I looked round to see if there were any other plants and saw a few feet away another but this time with pale yellow flowers. What struck me immediately was that both had dark pink stems and calyces which contrasted well with the crinkled leaves. They seemed wasted here in amongst the (dare I say it?) weeds. I took photographs and then asked the long-serving volunteers if they **knew anything about them**. **There didn't appear to be any record of such plants**. I suggested to Nigel that I should pot them up later in the season and maybe try to multiply them.



**For various reasons I didn't** come into Treborth for a couple of months, so it was late June when I headed down to the border with 2 pots and a fork. Horrors! A brisk bit of tidying had seen the strimmer at work among the unmentionables and there **wasn't a crinkled leaf in sight**. Luckily I had marked the sites with small stakes, and one of them was still there, albeit at a rakish angle and with no guarantee that it was where I had put it. After a careful search on hands and knees, I thought I had located both and had potted up 2 root

balls. I did wonder what Ann would say if she discovered that I had put a couple of pots of docks in her precious Maize House! All was well when a few weeks later I saw unmistakable *Primula* regrowth.

I had a fright after the autumn plant sale when I couldn't find them but Ann had moved them to the small cold house for safekeeping, having seen my large NFS sign on them (I have to confess that I had taken very small pieces home with me in case of accidents).

The next year, both began flowering at the end of March and kept going for a month with the yellow one having nine inflorescences simultaneously and was a very striking plant. I took them home at the end of July and split each into 4. I also harvested seed from both which germinated within 4 weeks. The flowers of course were open pollinated so we will have to wait and see what attributes the offspring have.



I brought three of each colour back in the spring of this year but I think Paul took them to plant in the Rockery so you will have to wait until next year to get a chance at these.

One of the 2009 seedlings from the red plant flowered at the end of August. I was not able to compare it directly with its parent but I felt the red was not quite so deep but it is obviously a good doer.

I intend to keep on splitting the parents and sowing whatever seed I get. This year only the yellow plant set seed, which has already germinated.

I won't offer the seedlings for sale until they have flowered once and I can see that they are fairly similar to their seed parent. The supply will be only a trickle and the plants may never grace the show bench, but you will be getting a plant that has proved that it can survive anything our local climate and pests can throw at it, not to mention the weeds! It would be nice to be able to name these as a Treborth plant but there are so many *Primula* cultivars of limited variation on the register that I am sure they would overlap with some others. If you buy them and propagate them, just pass on where they came from or, better, bring them back for future sales.

Erle Randall

## Scenes from a visit to South Africa and Lesotho - Part 1

It was one of those holidays where the planning of it was part of the enjoyment. **We wanted to go somewhere special for Gerry's 60<sup>th</sup>** birthday year and South Africa had long been on our wish list, and we were particularly inspired by two members of the Friends - Pauline Perry had told us about the botanical treasures of the Western Cape where she worked for some years, and Hefina Chamberlain had spoken of the beauty of the Drakensberg mountains. We were also on a mission to visit our twin, Katse Botanic Garden in Lesotho, to discover how we could further co-operation between Katse and Treborth; but more of this in the next newsletter.

**Our first afternoon was spent wandering through Company's Garden in the** centre of Cape Town, which is now a small botanical garden but was originally set up by the Dutch settlers in the C17<sup>th</sup> to provide vegetables for stocking the ships of the Dutch East India Company. In the evening we attended the opening of the Kirstenbosch Botanical Art Biennale. We had received an invitation from Christopher Willis, Director of the South African National Botanic Gardens (which are run by SANBI, the South African National Biodiversity Institute) whom Sophie **Williams had met at a Botanic Gardens' conference in Dublin in June. At the** Biennale opening we enjoyed some wonderful paintings and also met up with Chris Willis and Gill Scott. Gill was instrumental in setting up Katse Botanic Garden, **worked at Kirstenbosch and was an old colleague of Pauline's.**

The following day we went back to Kirstenbosch to look round the garden. It is a stunning place, set on the eastern slopes of Table Mountain, with views north to Table Bay and the mountains beyond. As we wandered around its 36ha we tried to get to grips with some of the plant families of the Cape Floral Kingdom. This is the smallest of the six floral kingdoms of the world, but has an extraordinary richness and diversity for its size; as we kept being told, the British Isles is over three times the size of the Cape but has only 1500 species compared to the Cape Floral Kingdom's 8600! **It is characterised by fynbos vegetation. Fynbos** - from the **Afrikaans for "fine bush"** - is comprised of four components: proteaceae, ericaceae, restionaceae, and geophytes. Highlights of the day included: a king protea (*Protea cynaroides*) in flower and some wonderful leucospermums (Proteaceae), particularly the yellow and red pincushion varieties which are pollinated by sunbirds; colourful carpets of mesembryanthemums (known in South Africa as vygies, the Afrikaans word for small fig which the young fruit slightly resemble); a cycad garden; a bright scarlet *Clivia miniata*, flame lily, to remind us of Treborth; and a sculpture gallery with an external green wall made of hundreds of half plastic bottles each planted with one plant but set together in an attractive curved framework.

After a few days in Cape Town which included a trip on the cable car up to the top of Table Mountain (where the “tablecloth” dramatically swept over us while we were up there), we travelled 200km north to Clanwilliam, a small town on the edge of the Cederberg Wilderness Area. On the other side of the road from our guesthouse was an acacia tree that was covered with handsome 10cm long Emperor Moth caterpillars - black with silver markings and silvery tufts. As we sat on the terrace with a welcome glass of wine, the school day ended and the street was filled with children going home. It was an interesting example of gender characteristics - the boys picked up the caterpillars on the ground and climbed the tree to pick off more, then threw them at the girls who ran off shrieking! We hoped the caterpillars didn't suffer too much.

We visited Lamberts Bay on the coast. Sarah can never resist a good gannet colony - one of her favourite birds - and at this one we could get very close to the birds because of a well designed hide on Bird Island. There are 8500 pairs of Cape gannet (*Morus capensis*) in the colony and most of them seemed to be crammed together in about 100sqm. In the bay we also saw a few fishing trawlers with long rubber pipes floating behind them. These turned out to be diamond fishing boats: these travel north up the coast and divers go down to look for gravel that contains diamonds, trapped in depressions on the seabed. Then a machine is sent down which sucks the gravel into the rubber pipes, guided by the divers. Once on the boat, the gravel is sorted and the diamonds picked out.

We drove from the coast inland to the Cederberg Wilderness Area, with rugged mountains and weathered sandstone formations. We tried putting our new found knowledge of fynbos vegetation to the test, but there was such diversity of species even along the road side that we resorted to taking lots of photographs and hoping that Pauline would be able to help identify the plants!

The next day was something we had particularly looked forward to - a trip to Hantam Botanic Garden near Nieuwoultville. This Garden is the newest of the SANBI collection, and was until a few years ago a farm called Glenlyon, owned by Neil MacGregor. He was a farmer who managed his merino sheep flock in a way that was in balance with the needs of the outstanding flora on his farm. He became internationally renowned for his knowledge and enthusiasm, and used to show visitors around his farm in a battered old Bedford bus called Flora. One of these visitors was David Attenborough who filmed there for “The Private Life of Plants”. Sadly Neil MacGregor has died which is why the land has passed into SANBI's care, but visitors (including us) still get a ride in Flora to see the vegetation. We saw several interesting plants, including the endemic and endangered *Hesperantha vagiata* with yellow flowers and dark brown markings called beetle marks because the flower is pollinated exclusively by monkey beetles, and the rare *Babiana*



*praemorsa* - deep blue with white markings on the petals and a deep perianth tube which is pollinated by a long-proboscid fly which has a tongue up to 8cm long. In parts of the reserve there are more than 5000 bulbs per square metre, but unfortunately the floral display was not too good this year because of the dry winter. So we were

*Babiana praemorsa*

advised also to visit Biekos farm a few miles away. There we found the famous carpets of wild flowers - delicate bulbs such as the bright red romuleas, tall yellow *Bulbinella nutans* and several little blue irises.

Our next stop was the Breede River valley, staying on Elandsberg nature reserve. This covers 4,000ha and is the largest remnant of threatened renosterveld habitat in South Africa. Renosterveld is characterized by the dominance of members of Asteraceae, specifically one species - renosterbush (*Elytropappus rhinocerotis*). We saw several rare flowers including the pretty orange Elandsberg moraea (*Morea villosa* subsp *elandsmontana*), and also for the first time some larger mammals such as Cape mountain zebra, bontebok (a medium sized antelope with distinctive white belly and buttocks - helpful for identification as they are very skittish and we usually saw them disappearing away from us!) and the eland (the largest antelope - the bull eland can weigh up to a tonne). Outside the ranch house dining room a tree was hung with up to fifty Cape Weaver bird (*Plovia capensis*) nests. We were fascinated to watch the bright yellow-breasted males - blackbird sized - weave the nest from grasses; the entrance hole was downward facing so the male had to shape the nest with a sideways extension in order to give a ledge inside the nest on which the female could lay her eggs. When a female arrived at the colony there was a tremendous buzz of excitement amongst all the males as they all entreated her to come to their nest; this only died down once she decided which nest to investigate.

To south east of the green wetlands of Elandsberg we travelled to Karoo Desert National Botanic Garden where the soil is red and (at the time we went) the garden was full of hot colours - bright yellows, oranges and reds of the

Drosanthemum, Ursinia and Gazania - interspersed with strange shaped desert plants such as the quiver tree (*Aloe dichotoma*), which gets its name from the San (native African people) practice of hollowing out its tubular branches to make quivers for their arrows. Pauline Perry worked here in the 1990s so the camera was working hard to record for her what it is looking like now.

We then spent a few days based in Swellendam, a small town 230km east of Cape Town, which lies below the Langderberg Mountains. From here we had a day trip to De Hoop Nature Reserve, on the coast a few hours away and, after bumping along a dirt track for 50km we encountered a wide coastal plain with thick coastal fynbos edged by high bleached dunes (some reach 90m). The reserve is part of a World Heritage Site and includes a marine protected area up to three miles off the coast. There is also a 19km long inland lagoon, or vlei, which is designated as a Ramsar site because of its internationally important bird populations. We walked along the vlei and, as well as seeing birds such as ibis and Cape cormorants, we had our first sight of hydrax, known as dassies, which live in small colonies in rocky areas; they are brown and look rather like overgrown guinea pigs. Later we went to a small beach called Koppie Alleen, where a pair of the endemic black oystercatchers was starting to build a nest. Then we noticed some movement off shore and saw the long curved backs of five southern right whales, including a calf and mother. Every spring these whales migrate from the sub-Antarctic to the calm waters of the Cape to breed. We sat transfixed for the next hour watching them breach and lazily turn in the water. The calf flashed its tail at us every so often. We suddenly realised that the light was failing so it was more speeding down dirt tracks to get back to the reserve entrance before it closed.

No trip to Cape Town would have been complete without a trek to the end of the African continent and so, on our way back to Cape Town, we visited Cape Agulhas. This is the most southerly point in Africa and therefore the official meeting point of the Indian and Atlantic Oceans. It turned out to be a wild but unspectacular rocky beach with a fine lighthouse which housed an old-fashioned tea room and a lighthouse museum. Apart from technical paraphernalia the small museum housed a collection of postcards of lighthouses from around the world. Only one Welsh lighthouse was represented, our own South Stack lighthouse, and we vowed to send some more examples for their collection upon our return.

Our last expedition, on this leg of our trip, was to the Cape of Good Hope and Cape Point. These lie close to each other at the tip of Table Mountain National Park, the peninsula that stretches 50km south of Cape Town. This national park has rich fynbos habitat and we resumed our amateur botanising. We were rewarded by the discovery of a strange parasitic plant, which we thought might be *Hyobanche sanguinea*, whose inflorescence resembled a small bright pink loafah!



*Hyobanche sanguinea*

Cape Point is the most southwesterly point of Africa and has dramatic cliffs over 200m high. We took the obligatory walk up the hill to the Cape of Good Hope lighthouse and were reminded of our close historical ties with SA and of the reach of the British Empire. For here we found a plaque commemorating the South Africans who guarded these strategic sea lanes throughout the 2<sup>nd</sup> world war and another, on the lighthouse, showing that it was made by Deville & Co of Greenwich, London, in 1857.

So ended the first part of our trip. South Africa is a wonderful country, not without its social and economic problems but, as we discovered, rich in hospitality and blessed with a variety of flora and wildlife that will live long in our memories.

Sarah Edgar and Gerry Downing

'Just living is not enough,' said the butterfly.  
'One must have sunshine, freedom,  
**and a little flower.'**

Hans Christian Andersen

## 4<sup>th</sup> Global Botanic Garden Congress – Dublin, Ireland

### Science and Conservation

In my segment of this three piece discussion of the 4<sup>th</sup> Global Botanic Garden Congress, held in Dublin last June, I'll be explaining the main scientific and conservation points of interest and relevance to Treborth. Much of the conclusions of the congress echo those of the EuroGard V congress held in Helsinki the year before, which I was honoured to attend on behalf of the Friends of Treborth Botanic Garden. For a more detailed look at the findings from Finland, you can refer back to my article in the "*Newsletter*" issue 36, September 2009.

The science of botanic garden conservation was discussed at the congress in the context of preserving biodiversity in a changing world. As we had also come to an important policy junction regarding the Global Strategy for Plant Conservation (BSPG), the overall aim of the congress was to chart a new direction and focus for science and conservation in botanic gardens worldwide. We humans, plants and all other life, live in a changing environment. There are well known arguments that **rage back and forth about why the earth's environment is changing, but most people agree that whether anthropomorphic or natural, climatic change is happening, and happening at an alarming rate.** Rapid climate change presents a particularly acute problem for plants that are unable to migrate quickly to new areas that are more hospitable than their old native habitats. It also presents opportunities for plants to become invasive, and swamp out native plant life in areas outside their original range. And it presents a host of problems to the very **institutions trying to conserve plants, the world's botanic gardens.**

Presentations by distinguished botanists from around the world concluded that whilst climate change puts pressure on all plants in the wild, some groups in particular are more threatened with extinction than others. Oceanic island and alpine floras, which are assemblages of plants that have nowhere to migrate to in the wake of rising atmospheric temperatures are two groups that were singled out as requiring urgent *ex situ* conservation measures to assist their populations in coping with climate change. Similarly, species with restricted ranges or low genetic diversity are also said to be under considerable threat. In response to this, two new consortia for the conservation of oceanic island flora and for cycads, the ancient and heavily threatened group of gymnosperms, were set up at the congress.

But as well as the acknowledgement of increasing pressures on biodiversity in its natural setting, there was also the acknowledgement that climate change is affecting botanic gardens themselves. If botanic gardens are to be the modern day arks that Sara Oldfield, Secretary General of Botanic Gardens Conservation International (BGCI) says they are, then they too need to adapt to their own

changing climates. In this way, research is critical. At Treborth we are lucky that we have a wealth of climate data, but closer monitoring of the times that plants flower, set seed, and germinate is required so that we can get a better understanding of what might grow well in our Garden, and what might fail in the light of a changed environment. *Ex situ* sites like Treborth will become much more important in the future for phenological research such as this.

Although botanic gardens like Treborth have a huge role to play in monitoring and conserving the plants that may be threatened by global climate change, they also have an equally important role in monitoring and researching those plants that might do a lot better because of global changes: invasive species. In the past botanic gardens have been responsible for the release of many invasive species, and Treborth is not short of a few of its own. But by monitoring, year-on-year, the responses of the plants in our charge to the seasons, we can detect those that might potentially become invasive, and provide vital information that may contribute to tackling present and future invasive plant problems.

Turning aside from global climate change, another change has happened in the past year which does not threaten plants, but might threaten the sanity of plant taxonomists and those of you interested in plant names. It's the Angiosperm Phylogeny Group's 3<sup>rd</sup> reclassification of plant families. There are not a lot of changes from the 2<sup>nd</sup> revision, but many of you might not be aware that APG is the system now most commonly used to classify plant families, and is now a standard among herbaria and botanic gardens across the world. I won't explain all the changes here, but those of you interested might like to read the Linnaean Society's press release on APG III at the following website address: <http://www.linnean.org/index.php?id=448>.

So what does all this mean for Treborth? The congress certainly provided a lot of food for thought, but my main suggestions for Treborth would be the following, which rather snappily almost all begin with F:

- Friends in high places - Continuing to develop our involvement with conservation organisations such as BGCI and the International Conifer Conservation Program is an efficient way of improving our own contribution to the GSPC. Perhaps a volunteer could take on a liaison role, to keep up contact with outside organisations such as these (especially the ICCP, as we have specimens donated to us by the program and we have been offered more).
- Focus on threat - Focussing in on conserving specific groups of plants, for example alpiners, natives, conifers or plants from a particular biome or location such as the Afro-montane biome of Lesotho.

Encouraging students to undertake projects related to *ex situ* conservation of specific plant assemblages such as these would help.

- Phenology - Continuing to monitor the timing of natural events around us. This is something everyone at Treborth does, but perhaps a volunteer logbook for observations could be placed in the Hub where any volunteer can make phenological observations from Treborth, the surrounding countryside or their own gardens at any time.
- Facts - Updating the plant records to APG III. Not necessarily a huge task, nor a terribly pressing one, but we do need to be making sure that we are giving the most up-to-date and accurate information and facts about plant names to the public.

Once again, it has been an honour to represent the Friends at an international event. I hope that between the three of us, Sophie, Tom and I have been able to pass on some useful suggestions that will help to develop Treborth further as a world-class botanic garden.

Anthony Pigott

#### Global Strategy for Plant Conservation

The 4<sup>th</sup> Global Botanic Garden Congress held in Dublin, June 2010, was attended by over 300 delegates from 60 different countries. This gathering of plant biologists and conservationists was an exciting opportunity to share expertise, ideas and **stories from the world's botanic gardens. One of the key topics of discussion was the Global Strategy for Plant Conservation (GSPC).** This document outlines 16 targets and acts as a framework for practical plant conservation. Many botanic gardens use the GSPC as a guideline and have incorporated aspects of the GSPC into their conservation activities.

Botanic gardens are particularly well placed to contribute to the GSPC target that focuses upon *ex situ* conservation. Drawing upon the horticultural expertise and infrastructure maintained at many botanic gardens, conservation collections of threatened species have been developed worldwide. Treborth Botanic Garden is active in this role with collections of rare British plants. However, to further contribute to the GSPC, Treborth Botanic Garden could develop the conservation collection. The Friends Collections Committee has started to discuss how this may be taken forward in the future.

Another key goal of the GSPC is education and promotion of plant conservation within the public domain. The Congress highlighted the important role botanic gardens play raising awareness of the loss of plant diversity. With the decline of botany and plant science in academic curricula, botanic gardens are trying

to fill the gap and reach out to many audiences. Of course, education is one of the primary aims at Treborth.

Translating the GSPC into action is one of the biggest challenges for plant conservationists. However, it is an essential task if we are to develop a coordinated global effort for conservation. Botanic gardens around the world are asking **themselves, 'How do we fit into the global picture?'** - Treborth could also ask this question.

Many botanic gardens are beginning to develop five or ten year plans, that outline the aims and objectives of the botanic gardens. Then a plan of action is created, a method of attaining those goals. Although challenging and time consuming, developing a strategic plan of action could possibly be an excellent progression for Treborth Botanic Garden. It would provide an opportunity for us to explicitly place ourselves in a global context within the GSPC and help coordinate our activities. With changes at Treborth upon us, this could be the ideal opportunity to consider the direction and future of the Garden.

Sophie Williams

Redefining the role of Botanic Gardens – towards a new social purpose  
A major outcome from the conference was a paper from a year-long study, carried out by the Research Centre for Museums and Galleries at the University of Leicester and supported by BGCI (Botanic Garden Conservation International), entitled **'Redefining the role of Botanic Gardens – towards a new social purpose'**.

This study was carried out with the GSPC (Global Strategies for Plant Conservation) in mind, in particular Target 14 (public awareness and education):

**'Everyone needs to understand the importance of plant diversity and the need for plant conservation'**.

It was carried out using a range of resources: papers and articles, interviews, case studies, think tanks and BGCI questionnaires. It found that botanic gardens are best placed to educate the public on conservation issues and to be role models: this is exemplified by Rinker (2002) who stated that **'modern botanical gardens are global treasures in an age of ecological crisis'**.

There are seven areas to focus on in order to modernise botanic gardens:

- Broadening audiences – A fundamental issue for the majority of botanic gardens is that they have not prepared a visitor profile, but there is a widespread perception that visitors to botanic gardens are

white middle class. However, gardens are looking towards involving a wider audience, and Treborth Botanic Garden is in a unique position, with many positive projects, past and future. These include the Plants and People course for vulnerable people (in this case, the unemployed) that gave participants the chance to develop their gardening skills, and the Gardening Basics course for the wider community. This theme will be continued through the Beacon for Wales project where we will be working with vulnerable adults again and children.

- Enhancing relevance to communities – This is a total organisational commitment, and in Treborth Botanic Garden this includes Bangor University. It must be stressed that this is a long-term task and everyone involved in it needs to be committed. This will hopefully inspire all visitors to gardens to make the connection between their lives and the environment. Examples of botanic gardens that have achieved this are the Brooklyn Botanic Garden and the Botanic Garden Trust, Sydney. **They are going beyond the ‘garden gate’ to help their local communities convert waste land that was once used by drug gangs into community gardens.** However, most botanic gardens are still struggling to identify and understand their social role.
- Education - This aspect is well recognised and established as a priority, and Treborth is no exception. The varied nature of the Garden lends itself to a wide variety of lessons, both practical and theoretical, with discussions over a cup of tea and biscuits. However, Treborth really is still a youngster in terms of development and set **programmes, but this position allows us to take advantage of others’ expertise.**
- Conducting research – **This is in relation to visitors’ needs, and the dynamics and understanding of the roles of botanic gardens and of natural history in general.** Treborth could play a key role and may be able to generate some funding through this area of research.
- Contribution to the public and political debate on the environment – More visitors to botanic gardens are aware of environmental issues and expect to be able to take part in these debates. For example, the **Sydney Botanic Garden has a programme called ‘Big Answers to Big Questions’ in which visitors can participate and talk to the experts.** It is all about being more open and allowing some positive change. However there is a degree of scepticism about this approach because some gardens felt that certain issues would offend their visitors and therefore were not prepared to risk such debates.
- Models for Sustainability – This is to show visitors how they might take action to increase sustainability. Treborth has introduced many

green initiatives into the way it works and is on the way to being a sustainability model. But there is room for further development: we need to focus on the weaker areas and prepare information for the public to explain what we are doing.

- Actively changing attitudes and behaviour – There are many good instances of botanic gardens trying to influence visitors through example and by using thought-provoking displays: Chelsea Physic Garden’s ‘Shelf Life’ is an effective display that shows people the plants that are used to produce a product by growing the plants in the containers of that final product, and the Eden Project is reaching out to people who may not be traditional botanic garden visitors and gives all staff some type of public contact role.

However, this movement towards developing a social role for botanic gardens has to overcome some negative trends that need to be identified, considered and countered for maximum effect. The inhibitors confronting Treborth are: a small workforce and a hierarchy of management. Treborth also has to consider the purpose of the Garden and the type of visitors to the Garden. We need to ask ourselves the following questions:

Why do we exist?

What do we believe in?

Who do we exist for?

What do we want to achieve?

Once we have these answers, we need to communicate them to members and to the wider world.

Tom Cockbill

I would rather do a good hours work weeding than write two pages of my best; nothing is so interesting as weeding. I went crazy over the outdoor work, and at last had to confine myself to the house, or literature must have gone by the board.

Robert Louis Stevenson

## Plant Recording and Labelling at Treborth

An absolutely essential part of a botanic garden is a system of record keeping – what plants are in the collection, where they are in the garden, where they were acquired, and probably details of their taxonomy and methods of culture. At Treborth, a system has been in place probably as long as the Garden has existed, initially in the form of a card index (some remnants remain even now), but it is only in the last ten years or so that we have moved on to a more modern method in which the records are held and managed on a computer – in our case a PC.

The initial problem at Treborth was to find a ready-made system that would meet our needs without undue cost. The first to be considered was a very powerful system called BG-Base, originally developed in America and at Cambridge, and supported in the UK by Edinburgh Botanic Garden. It had its attractions, but there was also a downside. It was costly to buy and maintain (courses would have to be run), and while extremely versatile, it offered more riches than seemed strictly necessary in a relatively small garden like Treborth.

A possible alternative was a system called BG Recorder: developed for Botanic Garden Conservation International (BGCI) and, in the UK, being used at Bristol Zoo. It was less complex than BG-Base, but still had flexibility that would allow it to be tailored to meet our particular needs. Its great attraction though was the fact that it was free. This was the system we chose, and it was in use for some time before problems began to emerge. Exactly what the problems were is unclear now (it was before I became involved), but in part they seem to have been connected with the process of drawing on the data to make plant labels.

The problems proved to be so serious that in 2003 (about), it was decided to abandon BG-Base in favour of a straightforward Excel spreadsheet with the records as they stood being copied across – but with merging of some fields. BG recorder had kept genera, species and subspecies in separate fields and they were now brought together in a single field. Another change was to abandon the use of two number systems, one for the accession sequence and one referring to the species (the same for any accession). Perhaps surprisingly (though with some logic) it was the species numbers that were retained. It is basically this system that we use today, although it has been extended and refined in various ways. As it stands the fields are:

1. Accession Number – actually a Species Number
2. Location – indicated by code letters with, for example, SAB referring to the South African Bed, BAM referring to the bamboo area, ARB referring to the arboretum. There are such codes at the moment (and probably more to come)

3. GPS co-ordinates (mainly relevant for specimen trees and bamboo)
4. Family name
5. Species name
6. Authority for the name
7. Name of the person validating the identity
8. English plant names
9. Welsh plant names (a new field)
10. Country(s) where the species is native
11. Notes – can be anything but includes names of donors and culture information
12. Date acquired
13. Date of latest record
14. Date when label was made
15. Type of label – **codes indicate 'T' labels, hanging labels, engraved labels etc.**
16. Date of plant loss (reasons may be given in the Notes field)
17. A recent addition has been a series of some 25 fields intended to allow like records to be brought together through the process of sorting – an important and very efficient function provided by Excel. There are for example fields for Lesotho plants, conifers, cycads, ferns, economic plants, plants with fossil records etc. Another useful option in Excel is the filter function. This makes no changes to the file but, by applying specified criteria in selected fields, will display the data in ways that make it easier to interpret – by hiding unwanted records and displaying just those that meet the criteria. So, for example, one could pick out all the records of carnivorous plants or all the bamboos.
18. A field containing links to photographs of the plant – not yet fully implemented, but on the way.

When new species are added, accession numbers are assigned by adding 1 to the highest number used up to that point. This is displayed in line 1 of the spreadsheet, and is automatically updated (an Excel formula). We are up to 3600 at present.

Species native to Treborth are stored on the same worksheet but on a separate page (tabs are at the bottom of the screen). The layout here differs from the main list in that the locations referred to are the uncultivated parts of the garden – principally the grassland and the woodland. There are about 12 such habitats with **presence indicated by a 'Y' in the relevant column. Under this system, each species name has to appear only once.** Because accession numbers have little meaning for species growing in the wild, they are not used in this case.

Data are backed-up after every session by copying the file to a flash memory stick. **This also serves as a way of transporting data so that the manager's home computer can be kept in step with the one in the lab.**

Plant label making involves 'copy and paste' operations from spreadsheet cells to the printer. Black laminate tapes are created on a specialised Brother printer, and then stuck onto a plastic backing. This may be in the form of a 'T' (mainly for herbaceous plants) or a simple rectangle (for tying to shrubs and trees). A standard label includes data on the plant family, the species name, sometimes the English and Welsh names, the country of origin and the accession number. Several other label types from an earlier time can still be seen around the garden, but most have degraded with time. Only the engraved labels used for trees remain in good condition, although some of them have suffered due to the pressure exerted as the growing bark pushes outwards.

One of the benefits of our recording method is that it allows for participation in a scheme run by BGCI in which records from botanic gardens around the world are submitted and placed on a searchable database. This makes a useful resource for people trying to track down particular species, but can also supply cross-referenced information with Red Data lists, plant images, the International Plant names Index, Crop Wild Relatives and the Tree Conservation Database. We have yet to offer our data, but hope to do so in the future. A benefit for us would be the detection of mis-spellings of species names or of names that are out-of-date or simply wrong. The delay in sending is partly because they require name fields to treat genera, species and subspecies separately, which in our case would mean a reversion to an earlier format. It can be done however.

The spreadsheet is accessible to anyone by clicking on a desktop icon, although only the database manager is free to make changes. As it happens, backups are always held elsewhere so even if unauthorised changes were made, they would soon be over-ridden. For security reasons, orchid records are given special protection and exist in a separate file which is not generally accessible, even for viewing.

There is an idea being considered at the moment that the database should go online – perhaps as part of the Friends of Treborth website. This would make it accessible to more people (though for viewing only) and would offer better security against bad things happening in the lab – computer failure perhaps, or possibly fire.

David Evans

Plant carrots in January and you'll never have to eat carrots.

Anon

## Notes on the Wildlife Area Development

**It was always destined to be known as 'The New Pond' but as conceived the new pond was, and is, just part of a larger vision.**

Like so many of the great wildlife developments in Gwynedd, the original idea came from Anna Williams, the Snowdonia Wildlife Gardening Officer. She works tirelessly with schools throughout the area to nurture and develop schoolchildren's appreciation of wildlife, often by establishing gardens at their schools. In autumn 2008, Anna had funding from the Countryside Council for Wales (CCW) to develop an area where classes from schools could come and experience different habitats and wildlife in a comfortable and safe environment. She approached the Friends and Nigel to see if we were interested in taking this project on. This fitted perfectly with the Friends and the Garden's objectives and especially as the education and inspiration of countless schoolchildren of all ages has been done by Nigel Brown, principally, for many years at Treborth Botanic Garden.

So it was agreed; we would form a committee. Ann Wood, Nigel, the two Pauls (Lewis and Hibbert), Tom Cockbill and I met throughout January, February and March 2009 and determined on an ambition to establish a wildlife-friendly area for both adults and kids to enjoy. To this end, a design was agreed, permissions obtained, and the detailed planning completed. The centrepieces would be a butterfly border, which would provide grown-ups with a living example of what can be achieved in your own back garden, and a large pond. This pond would have dipping ponds set at a good height for children to use safely, a wildflower bank and a bog garden.

**Not too ambitious then! To this was added a 'Quiet Area', a 'Teacher's table and picnic space', specimen tables, and a Welsh Apple Orchard. Tom christened the development 'Going Wild at Treborth', which proved to be quite correct.**

Work started on February 1<sup>st</sup> 2009 and continued throughout the year as the weather and availability of labour allowed. The pond liner was laid and the pond filled for the first time in April 2010 and the finishing touches added throughout May and early June.

**The grand opening was held in June as part of the Garden's 50<sup>th</sup> Anniversary celebrations and christened by 30 + schoolchildren and Russell Jones, the S4C 'Byw yn yr Ardd' programme presenter. It was a great success.**

Development of the area continues with plans to replace the temporary 'brash' dog barrier round the pond and to extend the apple orchard. A new bird

hide and extensions to the butterfly border are also planned and the completion of the Quiet Area's surround.

This is not a record of all the hard work that was done to succeed with this ambitious development; nor is it a testament to all the students and Friends who worked on the project, but as usual, a phenomenal amount of work was done by many students and Friends to achieve an outstanding new resource for TBG. Thanks and congratulations are due to all of them.

**But that's not the end of the story. . . A monitoring programme needs to be initiated to record natural colonisation and the introduction of species and hence biodiversity, and to identify any issues that may need remedial action such as water loss due to leaks and warm weather. As they say, watch this space!**

Gerry Downing



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## The Hole to the Whole... the construction of the new Wildlife Pond at Treborth.

As the freezing winter day drew on and we hacked and chipped away at the huge uneven hole at the bottom of the Botanic Garden, the mental image of mirrored serene calm water, lush foliage and abundant diversity of invertebrates was flickering **and faint in everyone's mind.**

Indeed, there were times where the initial enthusiastically-accepted plans made in autumn 2008 by Anna Williams – the Snowdonia Wildlife Gardening Officer – seemed as if they were permanently on hold. However, not all spirits were broken and hope lost for the ponds completion, and after another surge of determination and influx of willing volunteers, the brand new wildlife pond began to take shape.

A few more work parties, much more breaking of rocks (and, I hesitate to add, the odd shovel) the hole was finally deep enough to suit the blueprint plans. An audible sigh of relief (or was it disbelief?!) was heard throughout the Garden when this statement was announced, followed by the equally audible sound of a cork popping, and the glug of well-deserved beverages being poured.

Alas, there was still much work to be done, and even more problems to be faced...

Gravel, sand and bark chippings had to be shifted, the liner laid, the wildflower bank planted, and, of course, the pond filled. No mean feat by all accounts. Just to add to the pressure, we now had a deadline fast approaching – the Alumni Day and subsequent celebrations. The heat was on.

Members of the Friends and key STAG volunteers worked frequently throughout February and March, most of which were spent shovelling the mass of sand from the edge of the road, into a trailer, and unloading it when it reached the pond so as to provide a good base sufficient to hold down the liner, and create the beginnings of a good habitat for the aquatic plants and animals to come. The same was then to be done with bark chippings, which now lie around the edge of the pond for aesthetics as well as a hardwearing walkway... Phew...

After the last mounds were smoothed over, we trudged, aching, but with a huge sense of achievement back to the lab. As the door swung open, and the welcome wave of warmth hit us, we were also met by a committee with its members undertaking an intense discussion. Shushing noises were sent our way, and a few theatrical angry glares which rapidly turned into cheeky grins and an offer of a cuppa... As Judith rose from the group and busied with the hot drink order, Paul

Lewis and Ann Wood explained that they had been deciding the next stage of the pond development; choice of meadow flowers and bog plants to go on the pond banks, while Nigel outlined some aquatic plant species that were going to be introduced from local natural water sources, in order to kick-start the succession process, as well as to make a more presentable attraction for the Alumni Day.

3 months to go...

April began, and still we worked through the showers to turf the banks with grass from Treborth. Ann and Paul deserve special recognition and thanks for choosing and planting the majority of these plants. The bog plot species and aquatic plants that entered the pond came in sporadically from local areas. As each batch was delivered, I constructed a list of the species and origins of each plant, and sorted through them prior to their entry into the pond. This information would then give me an idea as to which invertebrate species were being introduced among the plants, enabling me to learn of their source and monitor their success thereon.

June 9<sup>th</sup> – The GRAND pond opening!

The camera crew were set up, the children from local schools were ready **and volunteers were on edge as we listened to Nigel's speech. The ribbon was then cut**, revealing the new and, thankfully, COMPLETE wildlife pond! It had only been filled a few weeks back, and already there were nymphs and larvae of a range of invertebrate species to be seen. Broad-bodied chaser dragonflies had even been spotted mating and laying their eggs within the pond.

As the cameras rolled, the crew filmed the children while they netted and identified creepy-crawlies from the dipping ponds, and experts from the Wildlife Trust and CCW looked on. The day had turned into a perfect sunny afternoon which everyone enjoyed – and what better way to end it with a picnic and a glass of champagne!

Since the Alumni Day on 13<sup>th</sup> June (another big success of the month), the pond has continued to thrive and grow as further plants are planted and invertebrates move in. During my monitoring, I have noted far more invertebrate numbers, and even newly established species that were not recorded within the plants that were introduced. A fish was even spotted by Nigel and me during the summer! – Although it has not been sighted since.

December now brings the frost, and as my sampling period draws to a close, the pond does not look as spectacular when compared to the thriving beauty we all remember in the summer. The hive of activity that it was seems to have

dulled somewhat as everything slows down and hides for the winter months... I, however, have thoroughly enjoyed my days spent thigh-deep in the pond, wondering what I will find each month lurking among the weeds or whizzing along the surface. It has been truly inspiring to watch how the diversity and abundance of the pond that I helped to create transforms throughout the seasons. Thank goodness that initial spark of determination was never extinguished! We volunteers sure are made of stern stuff.

And now for that cup of tea...

Rachel Bolt



### Your Renewed Subscriptions please!

Some of you who pay your subs annually may not yet have renewed your membership for this year (Oct 10-Oct 11). If this has jolted your memory, please could you renew now. Our subscriptions are very good value compared with other Botanic Gardens, and we really do need your contributions towards the maintenance and development of Treborth. I can send you a membership form if you request one, or please go to our website ([www.treborthbotanicgarden.org](http://www.treborthbotanicgarden.org)) where you will find a form to print out.

If you pay annually by cheque or cash, please could you consider changing this to a Standing Order to your bank – a section on the membership form needs to be **completed for this. It cuts down administrative work and you don't have to do anything once it has been set up.**

As we have mentioned before, we have changed our bank from Barclays to the Co-op Bank. This means that those of you who pay via a Standing Order will need to cancel your previous mandate in favour of Barclays and complete a new one for the Co-op if you have not already done so.

There is also a Gift Aid Declaration section on the membership form to fill in which will give us extra money.

If we do not hear from you, regretfully this will be the last newsletter we send you. We would love to be able to send newsletters to everyone who shows an interest in Treborth but we need to keep our administrative costs to a minimum.

Angela Thompson, Membership Secretary  
**01248 712564, email [act.celyn@gmail.com](mailto:act.celyn@gmail.com)**

## The National Vegetation Classification (NVC) beds at Treborth

The “NVC beds” are one of Treborth’s ‘special’ collections and, as far as we know, are unique amongst Botanic Gardens of the UK.

National Vegetation Classification (NVC) is the British system of classifying types of natural habitat according to the plant species they contain, and the aim of this collection is to show the ground flora that is typical of several different woodland types. Those represented here are W8 high base status southern lowland, W9 high base status northern upland, W10 moderate base status southern lowland, W11 moderate base status northern upland, W16 low base status southern lowland and W17 low base status northern upland. There is also a small pond with surrounding wetland, and an ancient woodland indicator area.

The collection is hidden away between the back of the temperate house and the railway line boundary. Although still incomplete it does illustrate at least some aspects of NVC woodland types and ancient woodland indicator plants. Many of the indicator species are labelled so can be used as an aid to plant identification in any season. On the down side, the area has proved difficult and labour intensive to manage. This is due in part to the high fertility of the soil (with a large seed bank of unwanted species), and in part to the lack of manpower for the high maintenance needed. But, given more labour to control invasive weeds and to plant wanted species, there is great potential here to develop an attractive, useful and unique collection.

Pat Denne



Our England is a garden, and such gardens are not made  
By singing 'Oh how wonderful' and sitting in the shade,  
While better men than we go out, and start their working lives  
By grubbing weeds from garden paths with broken dinner knives.

Rudyard Kipling

## Crevice Gardening

**In Autumn 2010 I was approached by Bangor University's Estates Department and asked to create a planting scheme adjacent to the main entrance of the Main Arts building. An empty planting bed already existed to the side of the main steps and directly in front of the access ramp. The dimensions of this bed are approximately 6 metres wide by a metre and a half deep, tapering to a point to form a triangular planting bed. Following on from the considerable success of my previous raised bed scheme in front of the Wheldon building, which on one side has a collection of alpiners and herbs, I decided to produce a 'crevice bed' planting scheme in front of Main Arts. This raised bed would again utilise alpine plants and dwarf bulbs, but due to the north east facing aspect of the bed a selection of shade tolerant plants would be used.**

The idea to create a crevice planting scheme was inspired by a number of factors. I recall a feature from the **Alpine Garden Society's excellent quarterly members magazine** in September 2003, which examined crevice gardening. This form of cultivating alpine plants is particularly popular in the Czech Republic with devotees such as Zdenek Zvolanek promoting this style of growing rock plants as a successful method of growing the more difficult high alpine cushion plants at low altitude. I was also pleased by the success of a couple of small troughs (hypertufa covered butler sinks) that I had planted up in a crevice style at Treborth.

The Estates Department suggested that it would be appropriate to use something distinctly local as part of the planting scheme. This gave me the idea to create a crevice planting scheme with pieces of local slate sourced from Penrhyn Quarry at Bethesda. The idea behind crevice gardening is that in their natural environment, many alpine plants grow with their substantial root systems growing down into a fissure within or between rocks. The crevices provide perfect conditions for a wide range of alpine plants with excellent drainage, excellent aeration and also a uniformly cool temperature within the crevices.

As a method of growing some of the trickier alpine plants in cultivation, crevice gardening has had a fairly unsteady level of interest over the years and in particular rock gardens and then traditional raised beds and scree beds have proved to be more popular. However, in the last few years crevice gardening has become a more popular way of growing alpine plants, particularly in continental Europe.

To create a successful crevice garden, it is best to use certain types of rock such as limestone, mudstone, sandstone and some of the slates. The person **creating the garden must also have a good 'eye' and a 'feel' for creating rock work.** If you are inexperienced then study some examples of crevice gardens which can be

found online. The Scottish Rock Garden Club and the Alpine Garden Society have many articles on crevice gardening on their websites. A quick search on Google with the term **'crevice gardening'** brings up lots of examples. It is also a good idea to start at a small scale creating a crevice garden in a small trough or a planter and then progressing to larger projects. The thin pieces of stone are laid into a very gritty sharply drained soil in a vertical manner with the **'crevices'** created in the gaps between these vertical pieces of stone. Think of slices of toast in a toast rack to get the general idea! The width of these crevices can vary from a few millimetres to several centimetres. The gaps are then filled with the very gritty and sharply drained soil mixture. It may be beneficial to introduce certain plants during the construction



of the raised bed crevice garden. If the plants have been nursery sourced and come in standard size small alpine plastic pots, then it is also a good idea to carefully wash out a lot of the soil around the roots so that the root ball can be compacted or flattened to fit into the rock crevices you have created. Once all the plants are in place, they can be carefully watered in and mulched with a gravel/ chippings top dressing. When I created the crevice garden in front of Main Arts, because I used blue slate from Bethesda Quarry, I decided to mulch around the plants using small slate chippings. If you create your own crevice bed using limestone or sandstone you could mulch around your choice of plants with limestone or sandstone chippings.

The recently completed crevice bed constructed from blue slate at the Main Arts building, Bangor University.

When choosing plants, dwarf shrubs and bulbs for your crevice garden, there is a hugely extensive choice of alpiners and rock plants. Depending on the size and scale of your crevice bed, try to avoid choosing the vigorous types of species such as Aubrieta, Alyssum and many of the Campanulas. In particular many of the choice cushion alpine plants such as Androsaces, the Kabschia and Silver Saxifrages and many other tiny but beautiful plants will thrive within your crevice garden. In the case of the Main Arts crevice planting, the aspect is very sheltered but receives little direct sunshine (north east facing). With this in mind, a wide variety of alpiners that appreciate a cooler position have been chosen. Plants such as the native Purple

Saxifrage *Saxifraga oppositifolia*, Kabschia Saxifrages, Ramondas and *Phlox adsurgens* have been selected. A crevice garden will also be successful in a full sun south facing position, as long as the correct plants are chosen.

The recently completed crevice garden in front of Main Arts was finished at the end of October 2010. Many of the plants are now dormant and the bulbs will not make an appearance until late winter. However by May 2011, I believe that this garden will have come alive and given the perfect growing conditions that have been provided, the plants will thrive and spread quickly. If you are in the vicinity of Main Arts at any point then please have a look and see how the garden is progressing. If you are feeling really adventurous, have a go at creating your own, even if it is only trough sized!



The recently completed crevice bed constructed from blue slate at the Main Arts building, Bangor University (with slate chippings and plants!).

Paul Lewis – December 2010

The man who has planted a garden feels that he has done something for the good of the world.

Vita Sackville-West

## Fire and Brimstone: a trip to see the five volcanoes of Southern Italy

As a trained geologist, I have always wanted to see a volcano erupting, so for my 50<sup>th</sup> birthday the obvious place to go was southern Italy where Stromboli is a well-known reliable performer. So I used an opportunity to take a long holiday which my employer had provided, utilising an accumulated leave scheme, and we took 6 weeks to travel overland in our camper van to southern Italy in the spring and early summer of 2010. Little did we know that when we planned the trip that we could **have gone to Iceland, but you don't get good wine, pizza and hot sunshine there in the springtime.**

The primary purpose of the holiday was volcanic but I made some botanical observations in passing. Firstly it was a pleasant experience to accelerate the process of spring by driving south; we travelled through flowering fruit trees on both sides of the Alps with a wintery hour at the top of the Simplon Pass between Switzerland and Italy where the sandals I was wearing were not the best footwear for walking between the patches of melting snow. On the south side of the Alps the poppies were in flower, so in one day we travelled from spring, back to winter, and then straight into full summer. A lot of the trip was travelled on motorways so the roadside observations of the size and state of maturity of giant fennel was a good indicator of our progress, from bunches of fronds to buds and to magnificent full bloom in the south.

To the volcanoes: there are two volcanic provinces in southern Italy; the northern one spreading from Amiata on the mainland opposite Elba in the north to the area around Naples in the south, and the other one in the Aeolian islands and Sicily. The northern area is characterised by explosive eruptions and andesitic lavas typical of a tectonic subduction zone where one plate slides beneath another. This is part of the mechanism that created the Alps where the floor of the ancient Tethys Ocean, that had separated the continent of Africa from Europe, was pushed under the European plate with the compression associated with that activity producing the Alpine mountain chain. The process of subduction results in magma being produced in the mantle between the two plates. This is of typically andesitic composition and produces explosive eruptions. We have seen an example of this recently with the volcanic activity at Mount Merapi in Indonesia where over 120 people lost their lives in early November this year. The southern province is different with alkaline basaltic lavas, which is more puzzling from a geological point of view and I have yet to find any definite answers.

The northern province includes the remnants of extinct volcanoes to the north of Rome. These are characterised by round lakes infilling volcanic calderas,

surrounded by the products of explosive volcanism, such as pyroclastic flow deposits or ignimbrites. These are now the summer holiday retreats for many Romans, pretty and tranquil but with a deadly geological history. This province has currently active volcanoes in the area around Naples which clearly show us the deadly nature of the explosive eruptions.

Firstly, there is Vesuvius, adjacent to Naples, where historically recorded events gave us the first written accounts of the eruptions of this type of volcano, written by Pliny the younger, closely after the eruption of AD79 which buried the cities of Pompeii and Herculaneum in ash and pyroclastic flows.



At Pompeii archaeologists discovered that there were holes in the now solidified ash that, if filled with plaster of Paris, gave casts of the bodies of victims of the eruption and many of these casts are displayed at the excavations site. The city of Pompeii was buried under some 4m of pumice ash, which accumulated like snow over a period of several days, and many of the inhabitants had

been able to escape but not all of them. It is thought that the victims would have died from asphyxiation - after all, if volcanic ash can damage jet engines, it probably would not be too good to inhale. Herculaneum however, was buried beneath 25m of material that came from a hot pyroclastic flow; this part of the eruption would have arrived suddenly and many hundreds of people were trapped, and died instantly in the heat whilst waiting for rescue by boat, their bodies clustered in shelters in the arches of the city wall by the then port area. The high temperatures of the event can be seen in wooden beams turned to charcoal in situ in houses, and buckled and partially melted iron bars in some windows in the excavated city. This material was preserved by the immediate burial under the pyroclastic flow material which was at about 600°C when it arrived and which cooled into a solid rock.

Vesuvius has erupted several times each century, the last time being in 1944, and is considered likely to do so again soon, which is a matter of concern to the authorities, as there are now 2 million people living around its sides. The local geography of the Naples area is similar to imagining a 1300 m high volcano sitting in the centre of the Wirral. On the other side of Naples there is a volcanic area known as the Campi Flegrei with several volcanic centres in a small area. Here there is a reasonably active caldera at Solfatara which emits steam and hydrogen sulphide with a roaring pressure of 3bar. The ground surface of this whole area has been continually slowly rising and falling, associated with the injection of magma into the

crust beneath. This is best shown at the Temple of Serapis in Pozzuoli built in the 2<sup>nd</sup> century AD, which has sunk 10m since it was built, been flooded by the sea and risen again by some 12m, leaving a zone in the columns where marine bivalves had made holes in the marble. The temple, and the earth movements proven by the mollusc activity, provided a 'Galapagos finches' moment in the history of the development of geology and is featured on one of the most important awards of the Geological Society.



Vesuvius from the streets of Pompeii

The area is now sinking again; this movement illustrates the activity in the crust beneath, and the area is used to educate school children about the dangers of the volcanoes that they live beside.

The volcanoes of the southern province have a different eruptive character producing sprays of liquid lava and lava flows but there is evidence of more explosive eruptions too.

Mount Etna is the biggest volcano of the collection at 3300 m high. This erupts regularly producing flows of basaltic lava which flow down its slopes invading the villages and towns below. The upper slopes show the scars of these eruptions as black rivers running down from numerous craters which pock mark its flanks. These lava flows cut through the forest vegetation indiscriminately, have closed roads, destroyed the ski lifts and the tourist developments near the summit on numerous occasions.

The island of Lipari was the first of the Aeolian Islands we visited; these islands are famous for growing capers and we found a caper plant in flower with its spectacular white and purple bloom. This island has featured what I call Guinness eruptions. It last erupted in the 8<sup>th</sup> century AD with brilliant white pumice ejected violently followed by black obsidian lava which in places still has bubbles of gas entrained within it, and sets to a black volcanic glass. This style of eruption has been **repeated several times with earlier, 'weapons grade', obsidian flows exploited by Neolithic people to make tools which were traded across the whole of the Mediterranean.**

The island of Volcano has a large crater which erupted in 1888 and the continually emitting gasses still provide a toxic cocktail of hydrogen sulphide, steam, arsenic sulphide and sulphuric acid vapour. There are notices advising tourists not to spend too much time near the fumaroles where the gasses are emitted, not that one would want to as it really does take your breath away, making the walk around parts of the crater rim into a journey to the very gates of hell.

Stromboli is an isolated island in the Eolian group, it is 926 m high, and rising up from the sea, it looks exactly as a child would draw a volcano. It has had a continuous eruptive history since the beginning of historic time. It has a continuously active crater which is predictably regular, providing eruptions at roughly 20-minute intervals, throwing out molten rock in firework displays of varying size. The first night we were there it was overcast so only dim red lights in the clouds were visible but the noise was audible from the Observatory restaurant above the village. The second day was clear and sunny so we walked up to the viewpoint most of the way up the volcano: this is the highest point you can go without a guide. On the way we walked through areas of scrub, flowers and 7ft high reeds until we reached the almost bare slopes at the top. We saw a flock of bee-eaters, very bright in their blue and yellow plumage and with chattering voices. We sat at the viewpoint and watched, with a German couple for company. The man was a geophysicist who specialised in installing instrumentation around active volcanoes. We saw and heard the eruptions in the afternoon light, fading into dusk to full dark and most spectacular they were too. As the light faded, we began to see the red colour of the eruptive material, and as it grew darker it just got brighter and brighter with combinations of yellow and red depending on the heat of the lava shooting out, accompanied by a noise like thunder as each eruption happened. After watching in the dark for an hour or so, we walked back down the mountain to the Observatory restaurant with the light of Venus setting into the sea making a streak of light across the water. There, we sat outside on the terrace to eat pizza and drink local wine, from where we could watch further firework displays late into the night. It was magical.

**Cathy O'Brien**

Let us be grateful to people who make us happy; they are the charming gardeners who make our souls blossom.

Marcel Proust

## 2010 Coach Tour of Gardens of the Midlands (7<sup>th</sup> to 10<sup>th</sup> September 2010)

This year's Garden Tour was a joint venture between FTBG and the North Wales Alpine Garden Society. We are very grateful to Hazel Cave for organising such a thoroughly enjoyable and interesting sequence of gardens: as will be seen from the reports below, each garden had a different emphasis, all were inspiring and all well worth visiting.

Birmingham Botanical Gardens (Tuesday 7<sup>th</sup> September)



The “Birmingham Botanical Gardens” is believed to be the only botanic garden in the UK which is run by a trust independent of University or Council control. It opened in 1832, and still retains many of its original early Victorian features, blended together with a modern emphasis on education and conservation. It is an attractive and calming oasis, only a short distance from the industrial heart of the city.

According to its mission statement, “We aim to bring enjoyment and to use the plant collection to spread the message that plants are essential” and it seems to be fulfilling that mission very well, attracting 250,000 visitors a year. As well as a Curator/financial director, it employs 6.5 full-time gardeners, assisted by about 30 volunteers (a hard-core of whom were said to be “worth their weight in gold”!), plus 4-5 horticultural trainees who shadow the gardening staff. Also, two full-time teachers

are employed for the educational work with school classes, using a modern study centre.

We were lucky enough to be shown around by Derek Wilks, who was an excellent guide. The main glasshouses have a strong emphasis on economic uses of plants, together with some rarities for their conservation value, and changing seasonal displays to provide continuity of interest. The arid house had a wide range of cacti and succulents (with a browsing peacock!) showing diverse types of adaptation to drought, with tree-sized *Opuntia* and *Cereus* needing regular hard pruning to contain them. The Mediterranean house had a spectacular *Pelargonium* display, kept going throughout the year with winter-flowering varieties, as well as economic plants of the area. The subtropical house had splendid cycads and ferns (including the extremely rare hybrid *Dicksonia lethamii*), and the tropical house was as lush as a rain forest (featuring Cavendish bananas as well as other economic plants such as cassava, pineapple and taro).

We had all too short a time to explore outside, only glimpsing an impressive **rockery with waterfall (said to be in need of renovation)**, **children's playground (a major attraction to the Garden)**, a Victorian bandstand with appropriately flamboyant bedding scheme, historic garden area, aviary, rhododendron walk, and many other specific collections.

There is a full programme of events, fairs, theatrical performances and concerts throughout the year. A special bonus for me was an exhibition of textile art that had been inspired by the Garden and glasshouses. A Botanic Garden well worth another visit.

Pat Denne

Picton Garden and Old Court Nursery, Colwall (Wednesday 8<sup>th</sup> September)

The second garden we visited on our tour was the Picton Garden and Old Court Nurseries at Colwall, who hold the National Collection of Michaelmas daisies, which they took on in 1985/6.

The Nursery was started in 1906 by Ernest Ballard, who specialised in many varieties of Michaelmas daisies. In 1940 Percy and Paul Picton joined the nursery and added many plants to the Picton Garden adjacent to the nursery. This garden has such a selection of trees, shrubs and unusual flowers that one could spend a great deal of time there. The acers are particularly interesting, and in the Centenary Garden is a tulip tree (*Liriodendron tulipifera* 'Fastigiata') **very cleverly trained, pruned and held with upright wires – a very eye-catching feature.**

Many types of Michaelmas Daisies are in raised beds which makes the planting very colourful. This helps your selection of purchases, which are clearly labelled and

priced. Questions about mildew abounded! Mr Picton was of the opinion that the European species *Aster amellus* seemed to be better. If you are not organic, a new spray by Vitax has been produced with an oil base.



I have known this nursery for many a long year and one plant I observed growing there in North Wales is *Althea cannabina* which is supposed to be half-hardy. I have grown it here in a sheltered part of the garden for over twenty years.

Picton Nursery reaches its peak in mid-September and one would leave after a visit with a very satisfied feeling of a wonderful National Collection that Plant Heritage should be proud of.

Joan Bennington

Stone House Cottage Garden: Flowers and Follies (Thursday 9<sup>th</sup> September)

In recent decades there has been a welcome resurgence of interest in Britain's walled gardens. Even more encouraging, for their future survival, is the desire to restore many of those gardens that remain and, where possible, adapt them to a useful purpose in the twenty-first century. Although some walled gardens can still be given over to large scale fruit and vegetable production the demands of wealthy families and their once large households are largely a thing of the past. Most walled gardens today have to find new roles to secure their futures.

One such walled garden is Stone House Cottage Garden near Kidderminster which we visited on our garden tour this summer. This walled garden and its

adjoining cottage were bought in 1974 by James and Louisa Arbuthnott and they have spent the last 35 years developing a beautiful garden with a plant nursery, and James has given vent to his imagination and love of bricklaying. Over the three



and a half decades he has embellished the garden with brick towers, pergolas, gatehouses and secluded arbours. The garden is a riot of climbing plants and shrubs which garland the walls. Brick paths lined with yew hedges have a magical maze like quality and lead the visitor to the lawns and glorious herbaceous beds which front the cottage. Vistas have been carefully planned so that looking from one folly the eye is directed to another through a corridor of flowers and greenery. It is a very peaceful garden with a lived in atmosphere.

Some people have likened the garden to San Gimignano in Tuscany and it is true that one tall square tower in particular echoes the fortified palaces of that Italian town, but because the garden and the follies are the creation of two people with a love of architecture and a passion for building the garden has more in common with Portmeirion. The adjoining area for plant sales gives the buyer the advantage of being able to see the plants growing in the garden before making a choice.

Stone House Cottage Garden is a veritable Xanadu, "a stately pleasure dome...with walls and towers...girdled round " and our visit there was certainly one of the high points of our tour.

John Martin

Witley Court, Great Witley (Thursday 9<sup>th</sup> September)

After a morning visit to Stonehouse Cottage Gardens near Kidderminster, we travelled to Witley Court, currently being restored by English Heritage. The spectacular ruins of the Country House evoke the lavish lifestyles of the **Foley and Dudley families, who developed it from a Jacobean Mansion**. **Lord Dudley's great** wealth, generated by his industrial enterprises in the West Midlands, enabled his family to live an extraordinarily opulent life. It also funded the creation of an ornate formal garden. An army of servants was involved in servicing the property and family, further swollen during lavish house parties attended by the Prince of Wales (later King Edward VII) and his circle.

Much of it was gutted by fire in 1937, and the then owner Sir Herbert Smith decided not to rebuild. It was never lived in again, and was abandoned and subsequently stripped of all its beautiful features – fireplaces, panelling, chandeliers etc.

English Heritage took on this project 13 years ago. The guide explained how over the years they have uncovered the spacious drive up to the house, and opened up a vista towards its entrance. They uncovered the base of a badly damaged balustrade completely overgrown by huge trees and weeds, and this has now been restored to its former glory. The south parterre has recently been recreated to give an idea of its former Victorian glory, and restoration of the eastern parterre is also underway. The formal gardens are complemented by the surrounding landscape of parkland, woodland and wilderness gardens.

One of the great features of the gardens is the Perseus and Andromeda fountain in the south parterre which has been restored to full working order. **This fountain was the centrepiece of landscape gardener William Andrew Nesfield's** ambitious garden scheme for Witley in 1850. The fountain is switched on, on the hour, for visitors to witness its spectacular display.

The beauty of the gardens and the surrounding area, and the enormous amount of work that has already been done by English Heritage made this visit very worthwhile, and the weather was kind to us.

Joan K. Jones

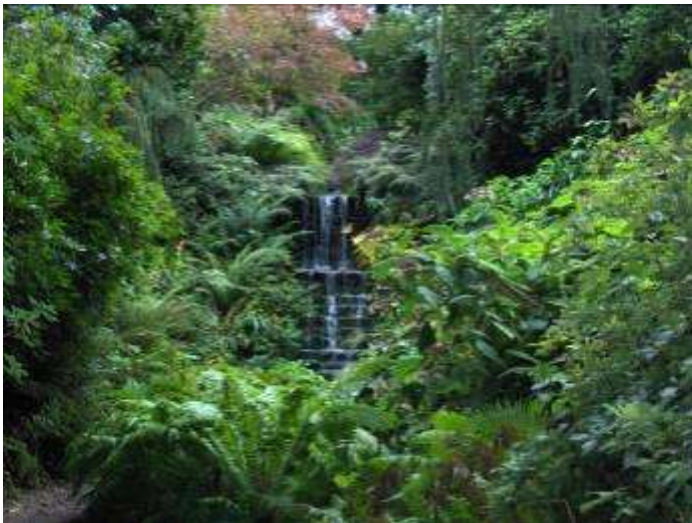
Whitlunge Gardens (Thursday 9<sup>th</sup> September)

Whitlunge differed from the others we had seen in that the overall landscaping and design features seemed to be the main purpose of the garden. The planned walk took us through a series of very pleasant garden rooms, many of

which contained an interesting feature, such as a weeping pear, a sundial or a bubbler. A bubbler is a large stone with a hole bored through the middle or a pile of polished stones through which water gently bubbles making a pleasant relaxing feature. The walk carried on past a water sculpture, a knight in full armour with his sword in a stone, and on to Hobbiton where we met Gandalf, dwarves and a small hill with hobbit holes. Then we came to a cave with fernery and several skulls, enough to scare any child according to my wife. An uphill walk took you to the hornbeam gazebo. A number of espalier hornbeams had been planted in a circle leaning inwards and bound together to form a living domed hut. At this point another bubbler erupted, from which the water ran down a short rill before falling into a small pond stocked with goldfish. Of all the features we saw this was the one which I would have taken home if I could. At the top were a small stone megalith and a laberinthine pathway. The path continued past a summer house with good views into the nursery, sales area and tea rooms. I thought this was a very worthwhile visit, and that the garden demonstrated a range of interesting ideas, some of which could be interpreted and used by the average gardener at home.

John Davidson

The Dorothy Clive Garden (Friday 10<sup>th</sup> September)



This 12 acre garden borders Staffordshire, Cheshire and Shropshire and has a network of paths leading to different areas of the garden, the Quarry, Gravel, Hillside, and Alpine Scree and Pool.

The Quarry garden with its waterfall had colchicum and cyclamen, *Rodgersia* and *Campanula* with plenty of *Crocsmia* at its edges and many rhododendrons, hydrangeas, hostas and acers. The gravel garden, with its theme of grasses, had a splendid laburnum arch which also had clematis and roses planted along it. The Alpine scree garden had stone paths and steps leading down to a lily pond which had huge *Gunnera manicata* at its edges and flowering pampas grass. I think this part of the garden would look stunning in the spring.

For me, the best part of the garden was the herbaceous borders in the Hillside Garden. It rained quite a bit whilst we were in the garden but these borders were such a riot of colour that it didn't matter. Banana plants with their huge leaves combined with dahlias, *Verbena bonariensis*, rudbeckia, amaranthus all added to a zingy palette of colour, whilst in another border there was a pink and white theme with *Cleome*, tall white *Nicotiana*, pink cosmos and roses with huge red hips. There were specimen trees in the garden including *Davidia involucreata* in the spring and in midsummer the Mount Etna broom.

The Friends of Willoughbridge Garden Trust support and promote the Dorothy Clive Garden and I think that whatever time of year you visit this garden there would always be something of interest to admire. When we were there we saw it in all its autumn glory.

Hazel Bond



### ... and finally

I just wanted to share with you the amusing exhortation to go green(er) I came across the other day when I received an item ordered online. It came with the mail in a small cardboard box, and when I turned it over I found this printed on the base:

**'I'm recycled – recycle me!**

In my previous life I was a mere shoebox or maybe a flat-pack shelf or something.  
Please assist my karmic ascent and recycle me once more.

**(And stop looking at my bottom!)**

Angela Thompson

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