Growing Carnivorous Plants in the UK

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Here is the story of how I brought some Mediterranean atmosphere to the green climate of England.

A little while ago, I decided to travel and work abroad, so I spent April through June 2001 working at Kew Gardens, in London. It was a great opportunity for me to work in what is maybe the most important botanical garden in the world.

Kew Gardens were founded in 1759. Today 550 people work there, of which 200 are gardeners, 150 are scientific staff, and the others are technical and support staff. The library contains more than 130,000 volumes and 4000 periodicals. The herbarium, one of the largest in the world, contains seven million specimens. The plant and seed collections are the largest in the world.

The Garden has about 40,000 kinds of plants on view for the public—the rest are grown in the more secure environment of the Garden's nurseries. There are three greenhouses open to the public: the temperate house, the tropical house, and the Conservatory. The Conservatory is for the most precious and interesting collections (cacti, carnivorous plants, orchids, ferns, bromeliads, aroids, etc.).

Not accessible to the public is a temperate nursery and a tropical nursery. Each nursery is about as large as the three greenhouses all together.

When I arrived at Kew in April, the specimens on display were very large and nice (such as their *Sarracenia flava* var. *rugelii*), but apart from a large *Utricularia reniformis*, the most precious stuff was in the nursery, far from danger by being damaged by too curious people or kid's hands. In the previous year almost all of the carnivorous plant collection had been lost because of the poor quality of water. However, Kath King, from Perth Australia, was now in charge of the carnivorous plants and was working to rebuild the carnivorous plant collection.

The tropical nursery contains a coolhouse for *Sarracenia*, *Drosera*, *Pinguicula*, *Cephalotus*, *Dionaea* and *Drosophyllum*, and a warm house for *Nepenthes*, *Heliamphora* and some tropical *Utricularia*. *Darlingtonia* and temperate *Pinguicula* (such as *P. grandiflora*) are grown outside. *Byblis gigantea*, *P. primuliflora* and some other *Nepenthes* and *Heliamphora* are kept in a well-lighted bromeliad greenhouse.

In the warm house, *Nepenthes* cover a full bench almost 2 meters large and about 10 meters long. I remember best the specimens of *N. hamata* (pitchers 15 cm long), *N. pervillei* (plant is 30 cm large), *N. macfarlanei* (pitchers 25 cm long), *N. rajah* (plants 15 cm large), *N. northiana*, *N. merrilliana* and *N. madagascariensis*. There are many other interesting species including *N. hirsuta*, *N. treubiana*, *N. veitchii*, *N. reinwardtiana* (80 cm tall), *N. bongso*, *N. ramispina*, *N. sanguinea*, *N. maxima*, *N. ventricosa*, *N. tobaica*, *N. mirabilis* (1-2 meter plants), *N. thorelii*, *N.* × *mixta* (1-2 meters tall), and *N. tobaica* (80 cm tall), etc. Before you have a heart attack, you should know there are no giants. Still, even if they need a lot of love and care to become 2-3 meters climbers, they are healthy, large and strong.

The warmhouse also has *U. alpina*, *U. calycifida* and *U. prehensilis*, *U. reniformis*, *U. praelonga*, *U. tricolor*, *U. pubescens* and *U. bisquamata*.

The coolhouse has 10-20 specimens of every *Sarracenia* species, about fifty

Dionaea, about thirty *Drosera* species (tuberous, pygmies and others; 1-10 specimens of each). There is also *U. sandersonii*, *U. dichotoma*, *U. livida*, and *U. bisquamata* from Betty's Bay; other plants include Mexican Pinguicula (*P. laueana*, *P. gypsicola*, *P. esseriana*), *P. primuliflora*, *P. lusitanica*, a flowering *Cephalotus* (20 cm across), 3-4 *Drosophyllum*, *Byblis gigantea* and an elegant, 25 cm tall *Roridula dentata*.

The best, red *Heliamphora nutans* and *H. heterodoxa* are in the *Nepenthes* house. More *H. nutans*, *H. minor*, a nice flowering *B. gigantea*, *N. rajah* and *N. macfarlanei* are quite happy in the bromeliad house, which is a well-lit, relatively low humidity environment.

On 21 April Kath King and I attended the annual general meeting of the UK Carnivorous Plant Society, held at the Reading University, near London.

I met a lot of people from the Carnivorous Plant Society, and saw the University collection, wealthy with some huge *S. minor*, a lot of healthy *Drosera*, trays filled with red *Dionaea*, a deep purple *Drosera binata* and other colorful plants. After some lovely tea and biscuits we listened to some lectures; I read a short speech encouraging collaboration of carnivorous plant societies. For example, I encouraged collaboration between the UK Carnivorous Plant Society and Kew Gardens. At the end, Kath King agreed in promoting a better and more intense collaboration between the Kew Gardens and the Carnivorous Plant Society, and in August there will be an open day in the Kew tropical nursery specifically for the Carnivorous Plant Society.

On the 25 of May I visited the Chelsea Flower Show (see Figures 1, 2). (My ticket was provided free, compliments of the Carnivorous Plant Society.) I spent most of the day talking with the growers in the three carnivorous plant stands: the UK Carnivorous Plant Society (silver medal winner), South West Carnivorous Plants (silver medal winner) and Hampshire Carnivorous Plants (gold medal winner). You can really feel the 25 years of the UK Carnivorous Plant Society's history, talking with the kind and always available people. They know everything! In few hours I learned how to feed *Utricularia* with nematodes to make them flower (Paul McKeown, seed bank manager), I listened to different opinions about Don Schnell's classification of the different varieties of *S. flava* (Matthew Soper of Hampshire Carnivorous Plants, Chris Crow of *Sarracenia* Nurseries), I know a lot more about neon lamp brands (Alistair Pearce of South West Carnivorous Plants), and heard about the history of the UK Carnivorous Plant Society (Steve Cottel, chairman). They also provided me ideas (Alan Haines, web builder and Malcolm Goddard, newsletter editor) on how to improve the Italian Carnivorous Plant Society.

The specimens on display were fabulous: *U. reniformis* and *U. longifolia* var. *forgetiana* covered with flowers, perfect and giant *S. psittacina*, *S. flava*, *S. minor*, shining, emerald-like *Darlingtonia*, *P. moranensis* with white flowers, *P. crystallina*, *P. laueana* and many others with plenty of flowers. Also present were vast numbers of tuberous and pygmy *Drosera* (including a magnificent *D. gigantea*). While *Cephalotus*, *Heliamphora* and *Nepenthes* are my main interest—and the specimens of them there were beautiful—I almost ignored them, as I was completely taken by the beauty of all the rest.

I helped dismantle the stand and load the plants onto a truck at the end of the show. It was half past nine in the evening when, tired by the intense day but enthusiastic for all the growing information I learned, I returned home.

While I worked at Kew, Phil Wilson and Paul McKeown often visited Kew to help Kath King with the identification and the cultivation of the plants. As a bonus, they often brought spare plants. I was present during one of these visits. I remained in silence while they found tens of incorrectly labelled *Drosera* pots. All those sun-



Figure 1: The Carnivorous Plant Society's display at Chelsea flower show, 2001. Photo by Alan Haines.



Figure 2: The Carnivorous Plant Society's display at Chelsea flower show, 2001. Photo by Alan Haines.

dews that to me were simply all *D. spathulata* (sundews are not my specialty), were recognized with amazing ability and quickness. We spoke about Kew's *Sarracenia rubra* subspecies, about a strange *N. macfarlanei* that may actually be a hybrid, about *Pinguicula ehlersiae* and how often it is sold as *P. cyclosecta*. Over biscuits and a cup of tea, they related what Kew's carnivorous plant collection was like in the past, they recounted tales of *Drosera* floating on the water in some bogs on the Tepuis, they described floating *Pinguicula primuliflora* in some American lakes, and discussed horticulturists performing such feats as growing huge *H. tatei* grown as an epiphyte on a slab of bark and some lucky people who are growing rope-size *Aldrovanda* in ponds where the conditions are perfect.

On 14 June I met the famous Martin Cheek in the Kew Herbarium. Martin is the professor who has done a great deal of work in the study of *Nepenthes* taxonomy. If you look carefully in your carnivorous plant books, after names such as *N. argentii*, *N. aristolochioides*, *N. danseri*, *N. diatas*, *N. lamii* and *N. macrophylla* you will read "Jebb and Cheek". He is that Cheek. Martin has been working at the Kew Herbarium on a long-time project classifying South African flora, but my visit gave him an opportunity to return to one of his favourite genera: *Nepenthes*. Martin is a very kind person, he always speaks slowly with a low voice—almost whispering and hypnotizing. When he speaks about *Nepenthes* you can see in his eyes the shine of someone who has, for his passion, the curiosity and the enthusiasm of a child. He delighted me for an hour of his precious time with some words about the differences between *N. burkei* and *N. ventricosa*, *N. stenophylla* and *N. faizaliana*, and *N. thorelii* and *N. smilesii* (even showing me dried specimens), and described the habitat of the two amazing species *N. merrilliana* and *N. northiana*. He showed me material that Peter Taylor used to write his monograph on *Utricularia* (including even his microscope!).

The 22 and 23 of June were unforgettable. I took the bus from London and after 3 and a half hours I arrived at Culmstock, Devon, in the evening. I was to visit



Figure 3: Mike King's *Sarracenia flava* var. *rubricorpora*, in his 10 meter long greenhouse. Photo by Mike King.

Alistair and his wife Jenny Pearce and their nursery "South West Carnivorous Plants". Al and Jenny are two delightful people—I brought them an Italian wine as a gift, and they offered me a dinner in a local pub. Before it grew too dark, I saw his vast and diverse collection, and was particularly impressed by hundreds of colorful *Sarracenia*, a large tray of *U. sandersonii*, a huge *N. veitchii* (the highland form, with striped peristome), and some giant *Darlingtonia* with their bright heads shining at the sunset light. We spent the whole evening speaking about carnivorous plants, sharing photos, and surfing the web. Since I was visiting with Phil Wilson the next day—only half an hour from Culmstock—Alistair and Jenny kindly offered for me to sleep there, and then to accompany me to Phil's house the next day.

Finally, it was time to sleep. As I dropped into sleep I felt all the romantic beauty of traveling; while the moonlight came through the curtains and a dog was barking somewhere, I realized that I was sleeping on a divan at Culmstock, a small village in the southwest of England.

The following morning we arrived at Phil Wilson's home in Somerset (where also lives Adrian Slack). I gave Phil the second bottle of Italian Moscato and I took some pictures of his extensive collection. There are a lot of rare specimens of many different carnivorous plants: *Roridula gorgonias*, *U. humboldtii*, *U. multifida* in flower, a lidless clone of *S. flava*, *S. leucophylla* 'Schnell's Ghost', etc. I saw some people I had met earlier at the Chelsea Flower Show, and I helped them to put new UK CPS bulletins in envelopes for mailing. Paul McKeown gave me a lift back to London (on the way back I saw Stonehenge!). This drive with Paul was possibly the most instructive conversation of the whole trip as for hours we discussed many different carnivorous plant growing techniques.

It was 7 July when my tired limbs could finally relax—the Kew internship was over and I had more free time to enjoy England. Alan Haines helped me to not get lost with the English trains, and with another bottle of Moscato in hand, we visited Mike King's collection near Birmingham. It was the most beautiful *Sarracenia* collection I had ever seen (see Back Cover and Figure 3). For such a large collection there was a perfect order: all the plants were labelled, the greenhouse windows were clean, the concrete floor was free of rubbish, old pots and compost. All the *Sarracenia* were strong, healthy and colorful, all the dead leaves and spent flowers were trimmed away. Mike did not use greenhouse fans or shades. Instead, the roof windows automatically opened when the temperature rises too much. The plants were obviously happy about the full sun, plentiful rain water and fresh air. Mike was a perfect host, he ran from one guest to the other, answering questions and showing off this or that plant. The food was good and plentiful. And, after showing me around his home—including his supplies of peat and perlite, and a barrel system he uses to collect rain water—he confided to me that these plants are his life. I thought back to when I had first met Mike during a previous meeting of growers and how he always enjoyed showing off pictures of his wonderful *Sarracenia*...I think that anyone would do the same if they had such fine specimens!

On 14 July I travelled by train to meet Matthew Soper, owner of "Hampshire Carnivorous Plants" and winner of a gold medal at the Chelsea Flower Show. For Matthew, I brought along a bottle of light sweet wine from Reggio Emilia. His collection was vast—hundreds of *Sarracenia* species and hybrids and a few *Drosera*. But what most attracted me were his *Nepenthes* and *Utricularia*. With pop music dancing in the air, Matt showed me with pride his thirteen year-old *N. rajah* with a beautiful pitcher about 25 cm long! I saw some beautiful *N. macrophylla* (20 cm pitchers), highland and lowland forms of *N. veitchii* (20 cm pitchers), *N. inermis* (10 cm pitchers), *N. hirsuta* (20 cm pitchers), *N. lowii* (10 cm pitchers), a wonderful *N. veitchii* × *maxima* (25 cm pitchers) and many others. He also showed me his

Heliamphora ionasi (rather small, but you know how slow this species grows), *H. tatei* (10 cm tall) and an unrecognizable, strange *Heliamphora*. I asked him if it was the new, recently discovered *H. hispida*, but he was not sure, as he received it just last year labelled only as a "new species." There were some huge *Darlingtonia*, among which I saw a clone covered with smaller and more numerous windows than usual. He had attractive clones of *Cephalotus* that, just like movie stars, looked stressed because of the too many shows they had taken part in. Matt also had a shocking, giant *S. flava* var. *rubricorpora*—I never before saw a pitcher as large as that! There was a large tray filled with *Utricularia* species, most of them in flower, among which I saw the precious *U. tricolor*, *U. tridentata*, *U. longifolia*, *U. pubescens*, *U. nephrophylla*, *U. blanchetii* and some astonishing *U. praelonga* full of scapes covered with huge yellow flowers. Over tea, we looked at some very interesting *Nepenthes* pictures he took in nature, and three hours went by like they were few minutes. As a note of particular interest, we spoke about how Thailand, Cambodia, Vietnam and Indochina are rarely explored, and how there may be plenty of new species just waiting for brave taxonomists.

The very next day, I made my last visit to a UK grower, meeting Paul McKeown in his house near Watford, north of London. (Paul does not like wine, so I brought him some beer.) His *Sarracenia* collection was suffering because of root mealybugs infesting his plants after the Chelsea Flower Show. (It seemed that all the growers complained about the loss or worsening of many carnivorous plant specimens after the Flower Show.) Paul had great plants, like flowering *Genlisea violacea* and *Genlisea hispidula*, and large specimens of *U. quelchii*, *U. endresii*, and *U. nelumbifolia*. His 10 year-old wonderful, huge *Darlingtonia* was fantastic. But what nearly mesmerized me is his highland *Nepenthes* collection. He had an impressive *N. veitchii* vine (1 meter long), an eight year-old *N. rajah* (along with a few "small" specimens 25 cm in diameter), *N. macrophylla* (pitcher: 20 cm), *N. aristolochioides* (pitcher: 8 cm), *N. sanguinea* (pitcher: 15 cm), *N. maxima* (pitcher: 30 cm), *N. fusca* (pitcher: 20 cm), *N. bongso* (pitcher: 20 cm), *N. spectabilis* (pitcher: 20 cm), *N. mikei* (pitcher: 12 cm), *N. glabrata* (pitcher: 5 cm), and *N. sibuyanensis* (pitcher: 12 cm). In addition, he had many smaller but healthy specimens of *N. pilosa*, *N. burbidgeae*, *N. lowii*, *N. hamata*, *N. ovata* and others. Paul told me more than once that the problems with highland *Nepenthes* were often due to inadequately-developed root systems in plants coming from micropropagation. Another important point was that (apart the usual exceptions like *N. alata*, *N. ventricosa*, *N. khasiana*, and *N. maxima*), these species really did poorly in overly warm conditions. (Paul is using 50% shade and a humidifier that sprays cold fog about every 20 minutes. The temperature, even in summer, rarely goes over the 25°C (77°F) and the night minimum is 12°C (54°F).) Paul said that these two points were more important than what kind of soil is used, or how much humidity and light the plants were given. Once the small plants have developed a strong root system in the cool environment, they will grow quickly and bigger, just like lowland species. The evidence was before me! This was the first time I saw all these highland species growing so big; even the small plants were healthy, with every leaf and pitcher bigger than the previous ones.

Well, that concludes my experiences in the UK. I saw wonderful plants, I learned a lot of new growing tips and I met many friendly, interesting and experienced growers that I wish to thank for their kindness. I hope they enjoyed our discussions as much as I did, and I hope one day, if anyone of them ever come to Italy, we will be able to show off as many beautiful and rare specimens as I saw on my UK travels.

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Front Cover: *Drosera cuneifolia* flowers. See article on page 100.

Back Cover: Mike King's giant *Sarracenia flava* var. *rugelii*. Photo by Mike King. See article on page 120.

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