MICHAEL DOSMANN

This trio of *Malus baccata* display their distinctive spiral-grained bark in the Arboretum's Bradley Rosaceous Collection.

can be found in the Bradley Rosaceous Collection. Other collections of *M. hupehensis* and *M. halliana* were made on this momentous expedition as well, significantly increasing the genetic diversity of these species in cultivation. The Arboretum collection continues to undergo development. Recently, we have acquired a number of wild-collected *M. sieversii*, the progenitor of the cultivated apple found growing in Kazakhstan and neighboring countries.

With respect to the enhancement of fruiting genotypes, the Arboretum's collection played a noteworthy role, even if it was indirect. Apple scab is a serious fungal disease that damages not just the leaves of trees but also fruits, causing serious economic losses in apple orchards. Resistance can be conferred by the presence of the V_f gene, whose original source came from *Malus floribunda* selection 821 growing at the University of Illinois. This clone, the most frequently used source for scab resistance in the world (Koller et al. 1994), arose from seed sent from the Arboretum in 1908 to C. S. Crandall, a geneticist at the University of Illinois who was studying inheritance patterns in *Malus*. However, it was not until the 1940s that the initial crosses were evaluated for disease resistance, and it has only been in the last 30 years that high-yielding cultivars have been introduced through the PRI (Purdue-Rutgers-Illinois) Apple Breeding Program, the most important just in the last few years (Janick 2006). I like this story for a number of reasons. It demonstrates how important it is for the Arboretum to distribute material (plants, seeds, cuttings, tissue, etc.) to researchers to enable their work. It also illustrates the importance of prudence and patience when working with trees—in this case, it has taken nearly 100 years since the original shipment from the Arboretum for the most meaningful dividends in research (in this case superior apple cultivars through one breeding program) to be realized.

Currently, the Arboretum's living collection of *Malus* comprises 455 accessioned plants (about 3% of the total collection), representing 173 unique taxa, 104 of which are cultivars. Development is constant: old lineages of high value are maintained through vegetative propagation, discretionary accessions are disposed of, and new germplasm is obtained. Recent and future renovations on Peters Hill and the Bradley Rosaceous Collection provide wonderful opportunities to grow novel material of both wild and cultivated origin. At the species level, the goal is to possess two to three wild provenances; for cultivars, we will continue to trial new introductions of ornamental selections and will also begin to feature several selections of eating apples. And, of course, the collection will continue to hold many old and historically important selections, including those introduced by the Arboretum.

NANCY ROSE

***Malus* 'Dorothea'.**

Crabapple Cultivars Introduced by the Arnold Arboretum

'Barbara Ann'

'Dorothea'

'Henrietta Crosby'

'Henry F. Dupont'

'Katherine'

'Pink Pearl'

'Blanche Ames'

'Bob White'

'Donald Wyman'

'Mary Potter'

'Prince Georges'

M. baccata 'Columnaris'

M. baccata 'Jackii'

M. ioensis 'Palmeri'

M. x *robusta* 'Erecta'

M. sargentii 'Rosea'

M. x *zumi* 'Calocarpa'

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In the Footsteps of Father David

Cédric Basset

Armand David (1826–1900), famously known as "Father David," is well known by those passionate about plants. Indeed, many plants carry his name, such as *Davidia* and *Acer davidii*. Though best known for his plant discoveries, one cannot mention this great figure without also mentioning the famous giant panda that he discovered in 1869 near Baoxing (previously Moupin) in the Sichuan province of China.

During our expedition to Sichuan in May, 2007, we followed the same paths that Father Armand David took during the second half of the nineteenth century. These regions—with their extraordinarily rich flora and fauna—are fortunately still preserved, no doubt in part because they remain very difficult to access.

A Few Notes from Father David

Upon arriving in Moupin, Armand David wrote: *"The land of steep mountains is, despite the loggers and farmers, abundantly forested with fir trees and cedars up to 3,000 m... The lanceolate pine and the narrow-leaved pine, as well as the alder of Setchuan, thrive up to 2,000 m. The rhododendrons are particularly abundant."* It

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This flowering *Rhododendron* was part of the extreme botanical richness we admired in the narrow valley of Pujigou, located south of the nature reserve of Fengtong.

should be noted that there are no cedars (*Cedrus*) in this region; Father David probably uses this term to designate other conifers with a similar horizontally spreading form. The lanceolate pine is certainly his designation for *Cunninghamia lanceolata*.

At that time, Moupin (now known as Baoxing) was still part of Tibet. And Armand David wrote: *"Long closed to the Chinese, the principality now tolerates their growing number."* That was a different era, indeed.

On March 23, 1869, having just discovered the giant panda (*Ailuropoda melanoleuca*) he writes: *"The young bear is entirely white, except for his four limbs, his ears, and the area around his eyes which are a deep black. Thus, we have here a new species of Ursidae that is very remarkable not only because of its color but also because of the hairiness under its paws."*

Later, he writes concerning his botanizing: *"The large rhododendrons are flowering, and I can already distinguish at least seven distinct species. I also found, in the middle of a wet forest, a magnificent magnolia with large purplish flowers and with no leaves yet."* This may be *Magnolia liliiflora*, naturally present in this region.

Cunninghamia lanceolata **is a large conifer in the cypress family (Cupressaceae) that can reach 50 meters (164 feet) in height. It is present in the landscape of the Chinese provinces explored by Father Armand David.**

Baoxing, Town of the Panda

Nowadays, the little town of Baoxing pays homage to Father David with a statue of him and with another that celebrates his discovery of the panda. The balustrades along the river are engraved with representations of the numerous species of plants and animals that he discovered during his sojourn in the region.

According to numerous local officials, Armand David's discovery over 130 years ago confers on Baoxing the status of "cradle of the giant panda." And yet, Baoxing remains infrequently visited by tourists. Westerners are rare, since the town is located on a road little used by tourists. The roads that connect Chengdu to Tibet through Kangding and Litang, or through Wolong, pass to the south and north of Baoxing, respectively, while the north–south road that connects Rilong to Ya'an through Baoxing is poorly travelled.

There are several explanations for this lack of tourist traffic. The road linking Rilong to Ya'an is not always in a good state. It is long and winding, and the lack of bus service forces one to use a taxi. There are few possible stops along the road. Our stop in the small town of Yanjingping was an adventure: no real hotel, only one very dirty house, and one building

ARNOLD ARBORETUM ARCHIVES

An Extraordinary Discoverer of Life

Armand David was born September 7, 1826, in the village of Espelette in southwestern France. On November 4, 1848, he joined the Lazarist order in Paris where he studied for several years. He then traveled to Italy to study medicine, zoology, and botany. On July 5, 1862, he arrived in Peking where he lived for the following twelve years. During those years, he carried out three expeditions to western China. After falling sick during the third expedition, he returned to France in 1874. During his life in China, he visited Inner Mongolia, Shanghai, the Sichuan provinces, and Hubei and Jiangxi, combining his missionary work with his scientific research. From March 1, 1869, until 1872, he worked in Moupin (now known as Baoxing) in Sichuan. During his travels in China, Armand David collected 13,000 specimens including 189 new plant and animal species, among these the handkerchief (or dove) tree (*Davidia involucrata*), the butterfly bush (*Buddleja davidii*), *Lilium davidii*, *Populus davidiana*, as well as thirteen species of rhododendrons, three magnolias, four firs, and four oaks.

where we found a room with no bathroom facilities. In the only restaurant in town, we involuntarily attracted a crowd and became, for the duration of our dinner, the main attraction. Baoxing, on the contrary, turned out to be a quiet small town, ideal for an enjoyable stop. There we stayed in a comfortable hotel where the rooms were very clean.

The Forgotten Valley and Pujigou

Baoxing is located to the south of the nature reserve of Fengtong. This reserve covers 40,000 hectares (98,842 acres), with 13 percent of the area serving as habitat for the panda. The town proudly advertises the region and its natural marvels—virgin forests, waterfalls, forests of *Osmanthus*, panoramas—but public transportation, as often in China, is non-existent. One must hire a vehicle and driver (fairly easily done at the train station) and communicate to the driver that he must wait all day or return to a meeting point after several days. Otherwise, in the small villages, one would not be sure of finding a vehicle available for returning to town.

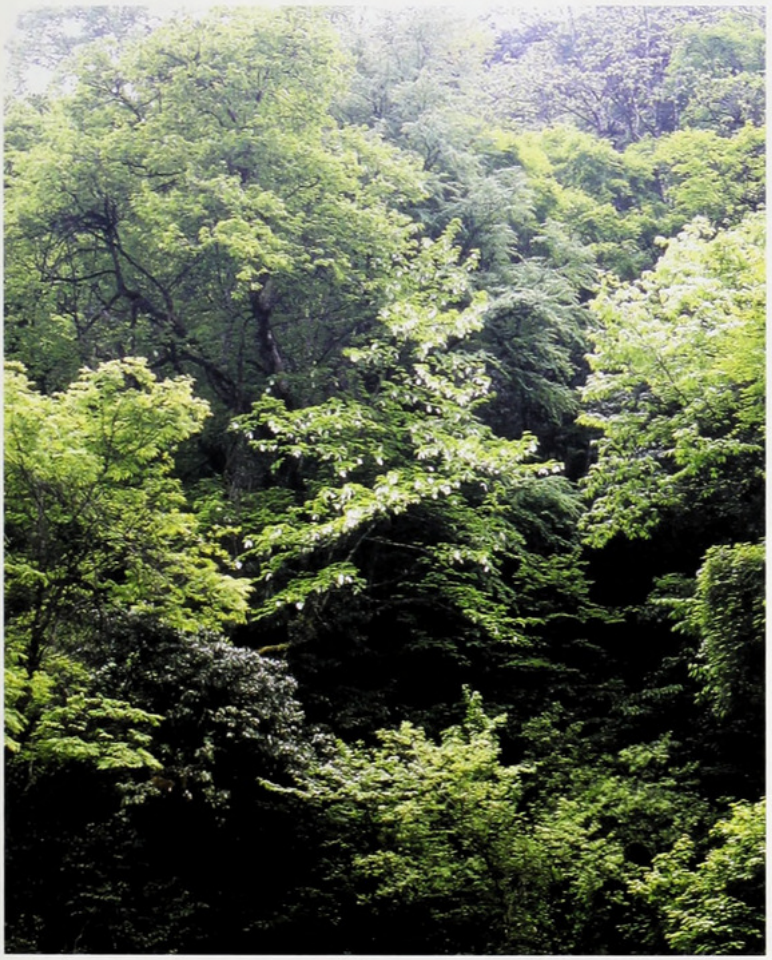
We decided to enter the nature reserve by an alternative route, by taking the road that leaves from the northwest of Baoxing and winds to its final destination, the village of Pujigou. The road, paved at its start, rapidly gave way to a narrow dirt path where we had perilous crossings with the trucks from a nearby quarry. To our surprise, after two and a half hours of driving, our driver stopped before a dilapidated wooden bridge and told us that we had to continue on foot.

He told us that Pujigou was located about an hour's walk further. We took five hours, since we walked very slowly at first, our botanical passion ignited as we marveled at discovering an interesting plant with each step. The flora in this infrequently traveled area offers a rare diversity, the very acidic soil being favorable to the growth of many plants of the Ericaceae and the climate allowing amazing sub-tropical species to flourish.

We arrived at an old, abandoned building in the middle of the forest where two men and one woman lived without electricity. The reception was icy at this abandoned and empty inn. We were in Pujigou. It is not really a village, but rather the remains of what must have previously been a remote mountain refuge. Deciding to flee this place, we turned around and went on to find a village where we were hosted by a local resident.

The Fengtong Reserve

In all of our previous trips to China we had never found such a wild valley as at the Fengtong Reserve. Unlike more accessible nature reserves such as Wolong, here at Fengtong there was no road, no cars or buses, only a small path. The valley is narrow, with steep slopes covered with dense vegetation that benefits from the very humid air. From a botanical perspective, it is a real treat.



Davidia involucrata **(center) bloomed among the dense vegetation in this narrow valley in the Fengtong Reserve.**

The orchid *Calanthe tricarinata* grows about 30 centimeters (about 12 inches) tall. It enjoys semi-shaded areas and a humid climate.

The superb striped bells of *Enkianthus deflexus*.

All along the trail, magnificent handkerchief trees (the famous *Davidia involucrata*, dedicated to Father David) in full bloom hung over us. The edge of the path was full of flowering *Disporum bodinieri* (a member of Convallariaceae) and a somewhat rare *Paris, Paris fargesii*. In the nooks of dead tree trunks and on rocks, beautiful orchids—*Calanthe tricarinata* and *Pleione limprichtii*—bloomed abundantly. Above our heads we saw two beautiful shrubs, *Dipelta yunnanensis* of the honeysuckle family (Caprifoliaceae) and *Enkianthus deflexus* of the family of the rhododendrons (Ericaceae). The giant dogwoods (*Cornus controversa*) spread their tiered silhouettes above the shrubs.

***Cornus controversa* displays its elegant horizontal branching habit.**

Some Rare Finds

One great surprise was finding dozens of plants of one of the most spectacular hornbeams, *Carpinus fangiana*. I had wanted to see it for a long time and had already searched for it, notably at Mount Emei (Emei Shan). This tree is surprising for its large leaves (longer than 20 centimeters [7.9 inches]) and catkins that can reach 50 centimeters (19.7 inches) long.

Several species of viburnum (among these *Viburnum brevitubum*) carried their long, white tubular inflorescences in the manner of the viburnum of China, *Viburnum chingii*. We met more frequently another little shrub with lots of flowers: *Deutzia glomeruliflora*.

In this gorgeous reserve, another seasonal spectacle was provided by climbing plants of the Lardizabalaceae: *Holboellia* and *Akebia*. Certain stems, several meters tall, were covered with flowers exuding a sublime scent. A few plants of *Akebia trifoliata* revealed flowers that were almost black. A little higher, *Sinofranchetia chinensis*, belonging to the same family, was reaching even farther up into the trees.

The trail, although inaccessible to cars, was very good for walking. Certain signs showed that it was previously accessible to vehicles. The reserve is home to the giant pandas, and large stands of bamboo of the genus *Drepanostachyum* bordered the trail. We also saw a beautiful, large *Yushania* on which climbed *Codonopsis tangshen* (in Campanulaceae), not in flower.

Remembering Father David

At the forest's edge and along paths on shady rocks, several species reminded us of Father David:

- *Epimedium davidii*, a small epimedium (Berberidaceae) with beautiful four-pronged yellow flowers.
- *Acer davidii*, David's maple (Sapindaceae), with its bark finely striped with white.
- *Corydalis davidii* (Fumariaceae) with its pretty yellow flowers. Much rarer is the impressive *Corydalis anthriscifolia*, a large plant with long purple inflorescences of which we saw only one specimen.

In another small, narrow valley, we observed large arisaemas in flower with enormous leaves