



Photo Credit: Ye Jianfei and Dr Liu Bo

## CHAPTER 2

# The Open Door

*In ornamental trees, shrubs, and herbs, suitable for outdoor cultivation in the British Isles, China is the richest country in the world. Our indebtedness to China may in a measure be realised if an imaginary attempt be made to expunge from our gardens all the plants she has given us.*

E. H. WILSON<sup>†</sup>

THE FIRST AND MOST FAMOUS of the missionaries to investigate the botany of China in the nineteenth century was **Père Armand David**, one of the most accomplished naturalists ever to visit the Far East. As well as collecting a multitude of new plant species during his extensive journeys into unexplored areas of China, he also discovered new birds, mammals, reptiles and insects. He kept comprehensive journals in which he noted in fascinating detail the minutiae of his journeys. Colourful descriptions of the people he met, the places he stayed and the food he ate were accompanied by precise details of the geological changes in the landscape and soil, together with notes on some of his most remarkable zoological and botanical finds. These included the giant panda and Père David's deer, together with several new monkey and bird species, while gardeners all over the temperate world are familiar with plants such as *Buddleja davidii*, *Corydalis flexuosa* and *Davidia involucrata*, the dove or handkerchief tree.

Armand David was born on 6 September 1826 in Espelette, a small town in the Pyrénées-Atlantiques in the far south-west corner of France. It is an area that prides itself on its Basque heritage and, in later years, Armand David always said that he owed his stamina on his long journeys in China to his upbringing as 'a true Basque'. His father was a doctor and keen naturalist and as a boy Armand delighted in accompanying his

father on visits to patients in the surrounding countryside, looking, listening, asking questions and discussing everything he was told, eager to discover the laws which governed the wonders of nature which he saw around him. At school, he proved an outstanding pupil, devoting himself to languages, especially to Latin – the language of scientific description – and to natural sciences such as botany, ornithology and entomology. He noted later that it was some years before he understood what his fellow pupils found to enjoy in books other than the volumes of natural history with which he filled his own spare time.<sup>2</sup>

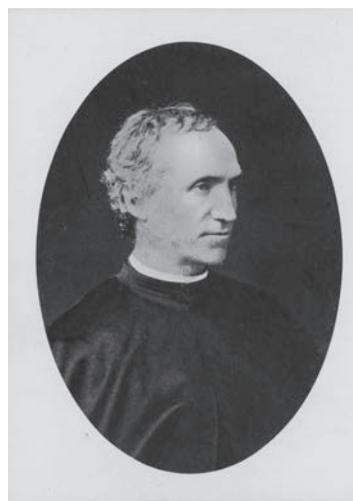


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LEFT

*Prunus davidiana* flowering in its native habitat.

ABOVE

Père Armand David.

ABOVE

Alexander von Bunge.

A promising career as a zoologist or botanist seemed to lie before him but, even before he finished his studies at the Grand Séminaire at Bayonne, Armand David felt called to the priesthood and he later wrote that his greatest ambition had always been to share in the work of the missionaries who had tried for three centuries to win over the teeming populations of the Far East for Christianity. This vocation led him, in 1848, at the age of twenty-two, to enter the Congregation of the Mission, an order of missionary priests based in Paris, whose members were known in France as Lazarists, and more commonly elsewhere as Vincentians after their Patron, St Vincent de Paul. The Lazarists had taken over the Jesuits' role in Beijing and had also been given responsibility for converting north-east China, so the young Armand David hoped that he would be sent out to China without delay. However, his superiors had other plans for him and his proficiency as a naturalist led them to appoint him to one of their colleges in Savona on the coast of northern Italy as a lecturer in natural sciences. He now had a congenial occupation in pleasant surroundings and yet he wrote to his superiors in November 1852 saying that he could not stop dreaming of the Chinese missions and that for a dozen years he had been driven by the wish to die while working for the salvation of non-believers. His pleas had no effect and even after he was ordained to the priesthood in March 1853, he had to remain in his teaching post. It was not until October 1861, when he was thirty-five, that the order for which he longed arrived: he was to be sent out to Beijing with a group of his confrères to found a school where he would teach science.<sup>3</sup>

Père David returned to Paris to prepare for his departure. There, he was taken to meet Stanislas Julien, a Chinese scholar and member of the Institut de France. M. Julien immediately recognised in Père David a man of uncommon abilities and introduced him to several members of the scientific establishment, including the zoologist **Henri Milne-Edwards**, who was head of the Muséum d'Histoire Naturelle, and **Joseph Decaisne**, director of the Jardin des Plantes, the botanic garden connected to the Muséum. They realised immediately that Père David's enthusiasm and knowledge presented them with an unprecedented chance of acquiring zoological and botanical specimens from an area about which they had very little accurate information, and each specialist seized the opportunity to present him with a list of their most pressing requests.

### First botanical explorers in China

Before Père David's arrival in Beijing in 1862, what little was known about the flora of north-east China was due to the efforts of Russian enthusiasts. Russia was the only Western power to have had access to northern China prior to 1842, as it was allowed to maintain a permanent Legation in Beijing; and **P. V. Kirilov**, physician at the Legation from 1831–1841 was the first to use the opportunity to investigate the flora of the region. He collected plants in the plains around the city and explored Po Hua Shan, the famous Mountain of a Thousand Flowers in the Western Hills: and his collections included an unusual herbaceous clematis, *Clematis tubulosa*, which has since become an ornamental garden plant.<sup>4</sup>

The Legation personnel was changed every ten years and **Alexander von Bunge**, a talented botanist, took advantage of the change-over in 1830/31 to travel to China. He collected plants in Inner Mongolia and explored the mountains and plain around Beijing, before returning to his home in Dorpat (Tartu) in Estonia where he became Professor of Botany at the University. When he came to examine his collections, he was able to publish descriptions of some 330 new species. This was remarkable, as he had made his collection in the space of a single six-month visit: botanists could only speculate about the number of species he might have discovered had he had more time. Bunge also distributed duplicates of his specimens to the great botanical institutes of Europe so that other botanists could familiarise themselves with the new plants.<sup>5</sup>

At the time, the flora of coastal China was much better known to Western botanists and gardeners, as British enthusiasts and collectors working for the East India Company had been sending plants back to Britain since the early eighteenth century. These efforts were given fresh impetus in 1842 when Britain secured access to several Chinese ports at the end of the first Opium War. The Horticultural Society in London took immediate advantage of the new freedoms by sending **Robert Fortune**, a professional plant-hunter, out to China. The four prolonged collecting trips he made in the next twenty years resulted in the introduction of the majority of traditional Chinese garden plants to Britain.<sup>6</sup>

Fortune also explored inland areas and collected some of the region's hitherto completely unknown wild plants, but it was an amateur botanist called **Henry Hance** who put efforts to



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investigate the native flora of the Chinese provinces to which Westerners now had access on a more regular footing. Hance joined the British consular service in China in 1844 and, as an enthusiastic and determined plantsman, took full advantage of the newly-acquired freedoms to conduct botanical explorations in Hong Kong, and the provinces of Guangdong and Fujian. He had a great advantage over Fortune as he actually lived in the area he was exploring and was not limited by the time constraints of a fleeting visit. This was an advantage later shared by the missionary-botanists: they lived in the areas they were investigating and could return to particular sites again and again, building collections up over several years to provide a comprehensive picture of the native flora. In 1861, Henry Hance was promoted to the position of vice-consul at Whampoa (Huangpu), the busy customs post for Guangzhou, and soon found that he had little free time for botanising. Nevertheless, his new position gave him an excellent opportunity to meet merchants and traders, as well as other British officials, and he encouraged all those with an interest in botany to send him plant specimens from the areas they visited, or to which they were posted. In this way, Hance was able to establish connections with amateur collectors throughout southern and eastern

China, who explored their own localities and then sent their carefully-dried specimens back to him to be identified. He published descriptions of any new plants in widely-read botanical journals, which swiftly brought them to the attention of botanists in Europe and America.<sup>7</sup> Hance's connections with collectors were so good that when he died in 1886, his herbarium contained around 22,500 specimens and included almost all the plants then known from China.

### Père David's first discoveries and their introduction to cultivation in the West

It was apparent from Fortune's discoveries and from those made by Hance and his colleagues, as well as from the plants collected around Beijing by Bunge and Kirilov, that China had an extraordinarily rich native flora. Botanists began to long for a chance to penetrate even further into the unexplored interior of the vast Chinese Empire, long known as the Flowery Kingdom. Hence the excitement of Joseph Decaisne and his colleagues in Paris at the thought that Père David's sojourn in Beijing might lead to a raft of new botanical discoveries. Père David was just as eager to start exploring, although he soon discovered that the plain around the city was too intensively cultivated to yield





LEFT  
Emil Bretschneider.

Photo Credit: Kew Archive

BELOW  
*Syringa villosa*. (Bot.Mag. (1929) No.9284)



much of botanical interest, and the neighbouring hillsides were completely deforested. Père David also visited other missions and, in September 1862, travelled north of the Great Wall for the first time when he visited a Lazarist mission at Xiwanzi, about 48 km (30 miles) north-east of Zhangjiakou. The following summer he was able to spend several months exploring the mountains west of Beijing, including Po Hua Shan.<sup>8</sup>

It was during this time that he first collected specimens of *Tilia mongolica*, the Mongolian lime, which was introduced to the West from the Beijing area by Dr Emil Bretschneider, the physician at the Russian Legation.<sup>9</sup> **Emil Bretschneider** was an enthusiastic botanist and from the moment he took up his post in Beijing in 1866, he devoted every spare moment to investigating Chinese plants. As well as studying Chinese botanical texts, he began researching the European discovery of the Chinese flora and in 1898 published the results in a comprehensive two-volume history that remains the definitive work.<sup>10</sup> He also collected seeds of several local plants to send back to various botanical gardens and, in this way, seeds of *Tilia. mongolica*, which he had collected on Po Hua Shan, reached the Jardin des

Plantes in Paris in 1880. In 1882 Bretschneider sent *T. mongolica* seeds to the Arnold Arboretum, the arboretum in Boston connected to Harvard University. Staff at both these gardens were very successful in raising plants from the seeds, and their skill provided botanists interested in the Chinese flora with a chance to study living examples of newly-discovered plants. Botanists can tell a great deal from well-dried plant specimens but having living material to examine is invaluable, especially when trying to understand and identify new species and work out the relationships between unfamiliar plants. The *Tilia mongolica* tree raised in the Jardin des Plantes flowered for the first time in 1896 and in 1904, some of its seeds were sent to the Royal Botanic Gardens at Kew in London. One of the trees derived from this initial sowing still flourishes at Kew and at 14 m (46 ft) is now recognised as a Champion Tree. *Tilia mongolica* is a handsome hardy lime and as it does not suffer from the honeydew secretions that affect many European species it is often planted as a street tree in north-west America. Its leaves are smaller and more attractive than those of many other species of *Tilia* and it has the best autumn colour of any lime as the foliage turns golden yellow.<sup>11</sup>

One of Bretschneider's consignments contained a new lilac, *Syringa villosa*, which first flowered in the Jardin des Plantes in 1886.<sup>12</sup> Although Bretschneider introduced it to cultivation, specimens of this lilac had already been collected by P. V. Kirilov and Père David, and also by an even earlier collector: **Père Nicholas le Cheron d'Incarville**, the first French missionary to collect plants in China.<sup>13</sup> Père d'Incarville was a Jesuit priest who lived in Beijing from 1741 until his death in 1757, and he made several plant collections which he sent back to France. At the time, communications between China and Europe were poor, and some of his consignments never reached France, and even those that did arrive in Paris seem to have been largely ignored by the botanists to whom they were sent. Nevertheless, the specimens had been so well prepared that when Père d'Incarville's forgotten collections were examined by the botanist Adrien Franchet in 1883, some 149 species from Beijing were recognised, including *Syringa villosa*, one of the handful of his specimens that had already been described.<sup>14</sup>

Bretschneider had also sent seeds of *Syringa villosa* to the Arnold Arboretum and in 1889 this newly-introduced lilac was featured in the illustrated American weekly magazine *Garden and Forest*, as 'an ornamental plant of the first class'.<sup>15</sup> **Charles Sprague Sargent**, Director of the Arboretum, had founded *Garden and Forest* in 1888 as a way of ensuring that American gar-

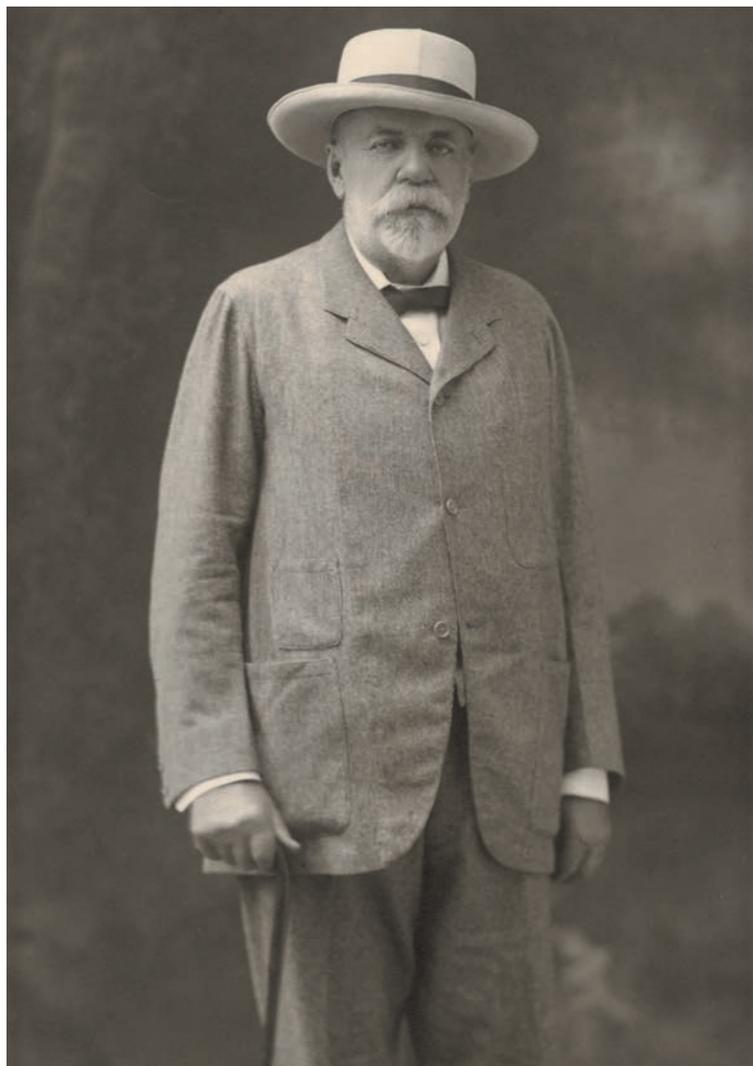


Photo Credit: President and Fellows of Harvard College, Arnold Arboretum archives

LEFT  
Charles Sprague Sargent.

RIGHT  
Adrien René Franchet in later life.

deners knew about the latest developments in horticulture and forestry, and it included regular reports on the new introductions from China. In Britain, articles on new plant discoveries and their cultivation were found in magazines like the *Gardener's Chronicle* and *The Garden*, while periodicals such as the *Flore des Serres* and the *Revue Horticole* kept French horticulturalists up-to-date. These reports aroused considerable interest, but although receiving dried specimens of hundreds of new species was very exciting for botanists, plant enthusiasts were more interested in living plants. As it became clear that the flora of China contained a wealth of plants that could be grown in temperate climates, nurserymen and gardeners in the West longed to grow them and find out if they were garden-worthy. To this end, prominent nurserymen in France encouraged those in China to send them seeds from the new plants, and Bretschneider responded enthusiastically. One of his correspondents was **Victor Lemoine**, the French nurseryman, who successfully raised *S. villosa* at his premises in Lyon, and offered it in his 1890 catalogue, albeit under the name *Syringa bretschnideri*, a synonym of *S. villosa*.



Photo Credit: Kew Archive

### Adrien Franchet at the Muséum d'Histoire Naturelle

It was not just Père d'Incarville's specimens that had to wait for Adrien Franchet to describe them but also those collected by Père David. Even though French botanists were very excited by Père David's finds, none of the botanists at the Muséum were particularly familiar with the temperate flora of eastern Asia – and Père David's collections demanded the attention of someone with specialist knowledge. Their time came when the remarkable botanist **Adrien René Franchet** joined the Muséum in 1880, and it is fair to say that without his invaluable efforts in working on the collections made by the missionary-botanists who feature in this narrative, their names would today only be known to a few specialists. Franchet was a true enthusiast whose devotion to botany had begun when he was a boy and had begun to learn Latin and collect flowers under the aegis of the local priest. His enthusiasm for plants was so great that when he was twelve his mother had apprenticed him to the local pharmacist, as plants were then the basis for virtually all medicines, and she thought this might be a suitable career for the budding botanist. Young Adrien, though, used his new freedom from regular school hours to spend virtually all his time botanising and rarely appeared at the pharmacy. This happy situation could not last and a month later Adrien found himself back at school, although botany continued to monopolise his spare time. After completing his studies, Franchet became a teacher but when he was twenty-three the Marquis de Vibraye offered him the post of curator at his chateau at Cheverny, with responsibility for the renowned collection of archaeological and geological exhibits housed there. Franchet accepted with alacrity but continued to botanise whenever possible, focusing on collecting French plants; and as he purchased those that he could not collect himself, he eventually created an almost complete collection of the French flora. He began to prepare an account of the flora of his home département, Loir-et-Cher, which was published in 1885.<sup>16</sup>

While at Cheverny, Franchet also worked on a large collection of Japanese plants made by his friend Dr Ludovic Savatier, who had lived for a decade in Japan, and they published a major two-volume work on the Japanese flora in 1875 and 1879. The Marquis' death in 1878 meant that Franchet had to look for a new post. Professeur **Édouard Bureau**, the director of the herbarium at the Muséum d'Histoire Naturelle, had been considerably impressed by Franchet's work on Japanese plants and engaged him, in 1880, to identify Père David's collections. This eventually resulted in Franchet's majestic publication *Plantae Davidianae ex Sinarum Imperio*, published in two volumes, in 1884 and 1888, in which he described all Père David's botanical discoveries. In 1886 Franchet was given an official position as an instructor at the Laboratoire des Hautes-Études attached to the Chair of Botany, and he remained at the herbarium for the

Bot. Mag. 6801.

6801



AB. del. *Clematis tubulosa* var. *Hodkeri*.

rest of his life, concentrating on identifying and describing the Muséum's increasing collection of Chinese plants.

Plant classification was Franchet's particular skill as he was a systematic botanist, specialising in identifying and classifying plants in accordance with strict rules based on their form and structure. As Franchet examined the dried plants collected by the missionary-botanists, many of which had never been seen before, he had to work out what these new plants were and how they were related to existing plant groups, and then consider where they best fit within the overall system of plant classification. Once he had determined the genus, he had to describe and name the new species. Some plants that Franchet examined did not fit within the circumscription of known genera and required him to create new ones to accommodate them. Among the new genera that he named were several that honoured the missionary-botanists, including *Delavaya*, *Fargesia* and *Souliea*. The descriptions were published in botanical journals so that other botanists could keep abreast of new discoveries.

Correct identification and classification depends on a wide knowledge of related plants and Franchet's familiarity with the Japanese flora gave him an important advantage when it came to working with the plants from China. His industry was just as important: the sheer volume of work he accomplished in classifying not only the hundreds of specimens collected by Père David but also the thousands sent back from China by later missionary-botanists was extraordinary and his diligence and determination simply cannot be overpraised. Those missionaries with a passion for botany such as Pères Delavay, Farges and Soulié who arrived in China after 1862 were lucky that they were dealing with a botanist of Franchet's calibre, as it was through his labour that so many of the plants they discovered were examined and described. Even the finest and most interesting collections will languish in obscurity if no botanist is available to work on them – as did Père d'Incarville's plants, and those of Père David before Franchet's arrival.

### Botanical puzzles

Even though the majority of Père David's specimens had to wait for Franchet's arrival in 1880, the seeds he collected for the Jardin des Plantes were sown straightaway and when he finally returned to France in 1876, he discovered some eighty-odd plants that he had introduced growing in the garden.<sup>17</sup> One of them appeared to be *Clematis tubulosa*, an herbaceous clump-forming clematis with upright blue, hyacinth-like flowers that he had found to the north of Beijing in 1863.<sup>18</sup> As we have

seen, it was originally discovered by P. V. Kirilov in the 1830s, and then introduced to the West where it became popular as a late-flowering border plant. Joseph Decaisne did not believe that Père David's introduction was the same as the *C. tubulosa* plants already growing in the Jardin des Plantes and considered it a completely new species, which he named *C. davidiana* in honour of its discoverer. The argument over whether *C. tubulosa* and *C. davidiana* were the same continued to exercise French botanists but by 1881 Decaisne, who had carefully examined the various Asian herbaceous clematis cultivated in the Jardin des Plantes, felt confident that *C. davidiana* was definitely different from *C. tubulosa*.<sup>19</sup> Franchet disagreed, deciding in 1883 that Père David's plant was merely a variety of *C. tubulosa* that he called var. *davidii*, although he did wonder later if it might be a form of *C. heracleifolia*, another Chinese herbaceous species, and he called this variety var. *davidiana*.<sup>20</sup>

There is still disagreement on the question. In the *Flora of China*, the current account of all Chinese plants, the Beijing species is identified as *C. heracleifolia*, a species also found in Japan and Korea, and *C. tubulosa* is considered a synonym.<sup>21</sup> Horticulturalists, though, still maintain a distinction between the two species.<sup>22</sup> This well illustrates the complexities of naming and classifying completely new and unfamiliar species, even when living plants are available for comparison, and it shows just how difficult it can still be to resolve taxonomic problems when naturally variable species are involved.

Père David, even as he collected new plants, did not forget the list of botanical requests he had originally been given by Decaisne and he spent much time searching for *Cedrela sinensis*, a tree that had first been described in 1830 from one of Père d'Incarville's specimens. Despite his efforts, Père David had to report to Decaisne that he had been unable to find fertile seeds or any young individuals that he could pot up. Unknown to either of them this species had actually been introduced to France from Japan in 1862, but the sapling had been wrongly identified as *Ailanthus flavescens* and it was only when it flowered in 1875 that botanists realised that it was not an *Ailanthus* at all but the *Cedrela sinensis* that Père David had been seeking. This emphasises the importance of cultivating new plant discoveries, as botanists can use living plants to check the accuracy of identifications based on dried specimens. Indeed, minds changed again and *C. sinensis* is now called *Toona sinensis*. Unusually for a member of the tropical mahogany family, *T. sinensis* is quite hardy.<sup>23</sup>

By the middle of 1863, the first of Père David's collections of



ABOVE  
*Astilbe davidii*. (*Bot. Mag.* (1903) No.7880)

animals, birds and plants had arrived at the Muséum d'Histoire Naturelle and the specialists there were delighted by the quantity and quality of Père David's specimens. **Henri Milne-Edwards**, the Director, immediately wrote to him, expressing their gratitude and praising the achievements he had made in so short a time. Milne-Edwards also arranged to send Père David enough money to fund his natural history explorations for another year.<sup>24</sup> Encouraged by the knowledge that his discoveries were proving of real benefit to French science, Père David spent five months the following year at Jehol (Chengde), north-east of Beijing, where the Qing emperors had their summer palace and hunting park. He returned to the same area in 1865 to continue his exploration of the principal mountains and valleys of the region.

### Père David's explorations around Beijing

For the naturalist on expedition, evenings are as busy as the days and during Père David's journeys, each evening was fully taken up with tasks connected with the preservation of the day's finds. Freshly-collected plants are preserved by being pressed and dried between sheets of paper that must then be changed frequently to prevent specimens rotting off. This means that, on returning to camp, botanical collectors must first lay out the day's plant finds between sheets of paper, which are then stacked into piles and pressed flat with weights or installed in special presses, before they begin the delicate and time-consuming task of replacing the wet papers from previous collections with dry sheets, without damaging the fragile drying plant material. Labels and field notes also have to be written up.

In this narrative, the focus is on Père David's plant collections but, although he was a fine botanist, his personal preference was for ornithology and zoology and it should not be forgotten that his collections included large numbers of birds, mammals, reptiles and insects. This meant that, at the end of a day's collecting, as well as taking care of any plant finds, Père David also had to see to his ornithological and zoological specimens. As he commented in his diary:

One of the most unpleasant tasks of collecting natural history specimens consists in the necessity of doing disgusting taxidermic work immediately, when one needs rest and comfort, especially after a fatiguing day. As for me in particular, as a naturalist, I bear a double burden because I am not free from my religious duties.<sup>25</sup>

Preparing the feathered skins and fur pelts of birds and animals so that they did not spoil required considerable specialist knowledge but, while at the college in Savona, Père David had put together a large collection of natural history exhibits and this had taught him a great deal about taxidermy and the preservation of skins. These practical skills stood him in good stead during his extended collecting expeditions in China.

Collecting ornithological and zoological specimens involved killing the creatures, a necessity which Père David regretted, so he made it a rule never to kill an animal unless it was needed for his natural history collections. He delighted too much in the natural world to abuse it, saying that he found it, 'less distressing to feed [himself] with only rice or millet than to kill for the

table one of these poor creatures, who revel in life so joyously and do not harm nature, but on the contrary embellish it.'<sup>26</sup>

However, zoological expeditions meant that his guns were always to hand which probably saved his life when, during one of his excursions into the countryside around Chengde, he suddenly found himself facing eight mounted robbers, all armed and some bearing European weapons. Père David stood his ground and the robbers fled at the sight of his guns. He did not make much of his calm response to such incidents in the narratives that he later published, but his accounts attest to the quiet courage with which he faced the dangers of solitary travel in wild isolated country.

For the most part, though, Père David was able to explore the countryside surrounding Chengde without incident and among the plants he collected was one that is now recognised as a fine ornamental garden plant. He came across it in June 1864, while exploring a mountain slope, when he was attracted by clusters of vivid violet-rose plumes. As he got closer he realised that he was looking at the flower panicles of a splendid astilbe growing on the banks of a stream. The plant that Père David collected that day was initially described as *Astilbe chinensis* var. *dauidii*, as if it was a naturally occurring form of *A. chinensis*, but it was not until the professional plant-hunter E. H. Wilson sent seed back to Veitch's nursery in south London in 1901 that living plants were first raised in the West.<sup>27</sup> The astilbe grown by Veitch was considered so superior to *A. chinensis* that Augustine Henry, an Irish plantsman very familiar with the Chinese flora, decided it must be a separate



LEFT

*Carex siderosticta* 'Variegata' in summer at the Sir Harold Hillier Gardens, Hampshire.

species and, when he described it in the *Gardeners' Chronicle* in 1902, he gave it the name *A. davidii* in honour of its discoverer.<sup>28</sup> It is now known that *A. chinensis* is very variable and, as several different forms are found in the wild, botanists generally include them all under *A. chinensis*.<sup>29</sup> Horticulturalists, though, continue to recognise Père David's plant as a distinct variety because it is clump-forming like other astilbes, whereas *A. chinensis* is very vigorous with a running rootstock.

Another of the herbaceous plants Père David found during one of his forays around Chengde was *Carex siderosticta*, a creeping broadleaf sedge, that is widely distributed in northern and central China and also found in Japan. As well as sending plant specimens to Decaisne at the Paris Muséum, Père David also sent duplicates of many of them to Henry Hance in Guangzhou, who published descriptions of some of them, including *C. siderosticta*. One of the wild forms of the species is variegated and several variegated cultivars are now available, many originating in Japan where this handsome sedge has long been a popular ornamental plant.<sup>30</sup>

While exploring the hills, Père David came across a wild cherry that he had first seen in Beijing, where it was valued as a robust ornamental tree that flowers at the end of the long northern Chinese winter. Adrien Franchet believed it to be a new species of cherry that he called *Prunus davidiana*, but not all botanists agree with this and it has also been described as a peach and an almond.<sup>31</sup> Père David sent seeds to the Jardin des Plantes in 1865 from which eight trees were raised. These had flowered and fruited by 1872 but, in spite of this early introduction, *P. davidiana* is very rare in cultivation. Perhaps the problem is that as *P. davidiana* flowers so early in the year – sometimes even in mid-winter – its small white or pink flowers are frequently damaged by frost and although new flowers soon appear, it has never become a favourite.<sup>32</sup>

Père David also found two elms near Chengde. The first of these is *Ulmus macrocarpa*, the large-fruited elm, originally discovered by P. V. Kirilov and introduced to the Arnold Arboretum in 1908 by Frank Meyer, a Dutch plantsman employed as a plant-hunter in China by the US Department of Agriculture. The second, *U. davidiana*, was described by Meyer as, 'a medium-sized tree with a round, spread-out head; ...not a common tree at all. Grows in very dry and exposed localities.'<sup>33</sup>

As far as the botany department at the Muséum was concerned, Decaisne could not have been more pleased: not only had he received fascinating dried specimens but also fertile seeds. When he wrote to thank Père David, he explained why he attached such importance to the investigation of the Chinese flora: 'Chinese plants are of particular interest; as they originate in a climate which has much in common with that of France, almost all these plants can be grown here, either commercially, or for ornament, or simply as botanical examples...'<sup>34</sup>

Many of the plants that Père David collected had already been described by Alexander von Bunge, and one that Decaisne particularly wanted to acquire was *Xanthoceras sorbifolium*, an attractive shrub or small tree that had originally been discovered by Père d'Incarville in the eighteenth century. Père David had realised that fine trees and shrubs were often planted around the graves that dotted the countryside, as well as in the larger gardens, and it was among these ornamental plants that he found *X. sorbifolium*. He managed to acquire living plants and early in 1866, he gave them to M. Pinchon, one of the young secretaries at the French Legation, to take back to the Muséum. In June, he learned from Decaisne that they had arrived safely. The young plants were kept in the orangery at the Muséum for the first two years before being planted outside, where they flowered well, producing seeds in 1873. (A specimen derived from cuttings taken from one of those original plants in 1965 can still be seen in the Jardin des Plantes.) Keeping the precious newcomers in the orangery was an understandable but unnecessary precaution as *X. sorbifolium* is robust and will withstand cold winters.

It was not long before *Xanthoceras sorbifolium* was available commercially and gardeners were quick to appreciate the decorative qualities of this new shrub, which flowers in early spring when its white flowers, with yellow centres that darken to reddish-purple, appear at the same time as the young leaves. Reports in French and British horticultural periodicals were glowing and as *X. sorbifolium* is entirely hardy, thrives in hot dry sites, flourishes in poor soils and does not mind lime or chalk, it was no wonder that it was greeted as 'one of the most important introductions made during the last few years'.<sup>35</sup>

### Père David's success

As well-chosen and well-prepared specimens continued to arrive at the Muséum, it became clear to Milne-Edwards and his colleagues that in the missionary-priest they had found the ideal natural history collector. Père David had written that he would like to make further exploratory journeys but, as it was obvious that his opportunities to make scientific collections would always be limited by his missionary duties, the Muséum staff realised that a way had to be found to free him from these obligations. Milne-Edwards decided to enlist the Government's help and he asked Victor Duruy, the Minister for Public Instruction, to approach the Superior General of the Lazarists and make an official request for Père David to be allowed to continue with his natural history studies. The French government was only too pleased to help as it was felt that national pride was at stake: although scientists from different countries co-operated admirably in discussing and analysing the latest finds, they were still eager to ensure that their own countries were at the forefront of exploration and discovery, and the French were very



Above  
*Xanthoceras sorbifolium* in early  
summer.



RIGHT  
*Ulmus macrocarpa*.

Photo Credit: Roy Lancaster

conscious that current scientific honours in China lay with Britain and were keen to amend the imbalance. Père David himself felt this and was always eager to do as much as he could for France and not leave the Far East solely to English explorers.<sup>36</sup> The Superior General agreed to the Minister's request and permission was given for Père David to devote himself to natural history exploration. The decision was momentous and was to result in some of the most important discoveries ever made by a naturalist.

## Horticultural and Research Developments

### *Syringa villosa*

It has been said of Victor Lemoine that 'he probably gave more to horticulture than any other individual known' and in his case this is not an exaggeration.<sup>37</sup> Lemoine was a brilliant plantsman who seems to have had an intuitive understanding of plant breeding, and he seized the opportunity presented by the introduction of new Chinese species of lilac and then of *Deutzia* and *Philadelphus* to develop a series of fine ornamental hybrids and cultivars. The first plants that he turned his attention to were the lilacs and, from 1876 onwards, he initiated a series of complex crosses that eventually produced many of the large-flowered ornamental lilacs that we know today.<sup>38</sup> He was ably assisted in this work by his wife Marie-Louise and later by his son Émile (1862–1943) and one of the lilac species they worked with was *Syringa villosa*. As the staff of the Arnold Arboretum had recognised, *S. villosa* was already a fine ornamental plant, but the Lemoines were not satisfied and believed it could be improved. They did not cross it with any other species but, by

carefully selecting only the best plants from each generation of seedlings and then using these to raise new plants, they created some excellent cultivars, which are now classified under the name *Syringa Villosae* Group.

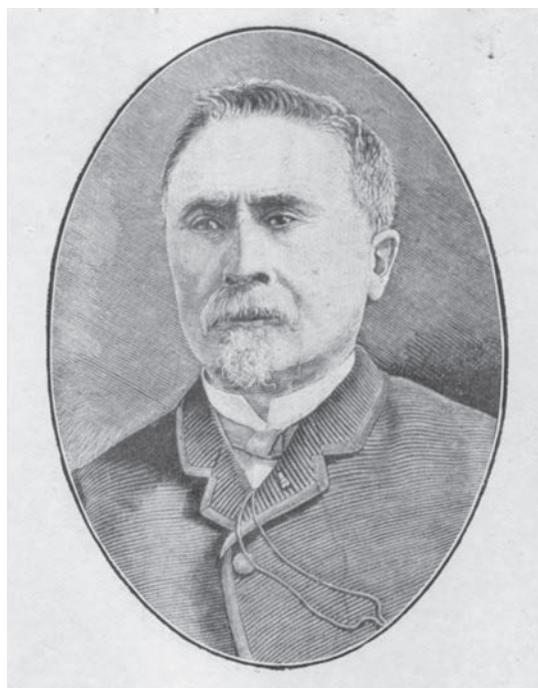
Louis Henry of the Jardin des Plantes was impressed by the early results of the Lemoines' breeding programme and he began crossing *Syringa villosa*, which produces pale pink flowers, with the dark-flowered European lilac *S. josikaa*, in an attempt to obtain deeper colours. By 1899, he had succeeded in raising a group of violet and purple hybrids now grouped under *S. x henryi*.<sup>39</sup> This and other hybrids developed from *S. villosa* are still being used by breeders today to develop new garden lilacs.<sup>40</sup>

### Astilbes

One of those who saw Père David's new astilbe growing at Veitch's Coombe Wood nursery thought it 'certainly the most remarkable hardy plant lately introduced', and a group of these tall astilbes in full flower is very beautiful.<sup>41</sup> At the time, all known astilbes had white flowers and the German plantsman Georg Arends (1863–1952) was so intrigued to learn of a coloured astilbe that he came over to London specially to acquire the new introduction. He then used Père David's find, along with three other Asian species, to develop the ornamental range of *Astilbe x arendsii* hybrids that are so familiar to gardeners today. Indeed, we owe almost three-quarters of all astilbe cultivars to Arends, who derived them all from his original *A. chinensis* var. *dauidii* plant.<sup>42</sup> As hybrids developed from *Syringa villosa* showed, the introduction of new plants from China provided Western nurserymen with an opportunity to breed new ornamental plants and, in several cases, the new cultivars and hybrids have largely replaced the original introductions in our gardens.

### Père David's *Ulmus* discoveries

The current importance of *Ulmus macrocarpa*, and especially of *U. davidiana* and its two varieties— var. *japonica* (long cultivated as *U. japonica*) and the recently-introduced var. *davidiana*— lies in their resistance to Dutch Elm Disease (DED), the fungus infection that has wiped out almost all European and American elms. Of all the Asian species, *U. davidiana* in all its forms seems to be the most promising for the breeding of new DED-resistant cultivars; and this potential is being studied at the Morton Arboretum in Illinois.<sup>43</sup>



RIGHT  
Victor Lemoine.

Photo Credit: Kew Archive

RIGHT  
*Astilbe x arendsii* cultivar in midsummer at the Sir Harold Hillier Gardens, Hampshire.

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