E. H. Wilson as a Botanist*

by Richard A. Howard

Wilson after 1911

Although Wilson referred to a “written agreement with Harvard until April 1, 1911,” “a tacit understanding that I remain with them until all the collections are distributed,” and “the offer from Harvard of a permanent post” (Wilson, letter, November 12, 1910), none of these can be confirmed in the available records. Sutton (1970, p. 249) stated that “Sargent felt conscience-bound to provide for him professionally when he limped back from China.” Wilson did need further medical treatment both in England and in Boston, and the abrupt return required much physical and psychological adjustment. “The Wilson family tried to adapt to the United States while living in a modest apartment in Jamaica Plain near the Arboretum. Wilson could not make up his mind about the United States [and never did become a citizen]; Ellen Wilson, for her part, liked neither America nor Americans. Wilson soon became accustomed to the new environment and began to enjoy the benefits of his reputation” (Sutton, 1970, p. 250). He was in popular demand as a speaker with his “stereopticon illustrations,” and Sargent, recognizing the value of the publicity for the Arnold Arboretum, encouraged him to

* Continued from Volume 40, p. 138.
Ernest Henry Wilson standing on the steps of the Administration Building of the Arnold Arboretum, Jamaica Plain, Massachusetts.
write popular articles and to give lectures. Wilson did contribute to the study of his collections, but it is obvious that Alfred Rehder dominated the work, handling nomenclatural problems and especially the German literature with greater interest and facility than did Wilson. Wilson wrote numerous popular articles based on his explorations of China and also calling upon his experiences at Kew and subsequently at the Arnold Arboretum. The Bulletin of Popular Information issued by the Arboretum beginning in May, 1911, contained unsigned articles until Sargent's death in 1927. The information in many of the notes is probably attributable to Wilson, and the phrases are often repeated in Wilson's later, signed articles. Former staff members recall that Wilson dictated to a secretary as he rode or walked around the grounds, and such material was published in the Bulletin.

Both Wilson and Sargent had field knowledge of Japan, its flora, and the plants under cultivation there. In 1914 an arduous field trip was still out of the question, but Wilson did accept Sargent's plan for a special trip to Japan to study the plants under cultivation. Sargent had less difficulty soliciting funds for this trip because of Wilson's reputation, and Wilson was permitted to take his wife and daughter along. Wilson's field books reveal trips primarily along railroad routes, and they are dominated by entries from various botanical gardens and by records of cultivated plants. Two of his publications for the Arnold Arboretum, The Cherries of Japan (1916) and The Conifers and Taxads of Japan (1916), resulted from his observations on this trip. When World War I broke out, Sargent was in England. He cut short his planned trip and returned to Boston, where he wrote to Wilson, suggesting that he abandon the original plans for traveling to adjacent islands and return home soon. Wilson arrived in Boston in April, 1915. Sutton (1970, pp. 256, 257) reported Wilson's frustration, resentment, and bitterness over his isolation and his inability to enlist or serve in the war effort in a useful way:

Wilson's patriotism ran deep and frustration blurred his judgment. Before the war Rehder and Wilson had been close friends. Now, although the professional dialogue continued amiably, Wilson — under pressure from his wife — discontinued their social relations. . . . Rehder, a scholarly, gentle person, was apolitical, and it was some time before either he or Mrs. Rehder understood why the Wilsons mistrusted them.

Rehder may have been "apolitical," but he was strongly pro-German throughout his career. Sargent clearly had a personnel problem: "Sargent became conscious of Wilson's irritability and restlessness, and these influenced his decision to send Wilson on a new collecting expedition even though the fighting was still in progress" (Sutton,
In January, 1917, Wilson left again for Asia and the Bonin Islands before spending six months in Korea in 1917. In 1918 he collected in Formosa for four months and then returned to Korea via Japan. He returned to Formosa in the late fall of 1918. Apparently his leg no longer bothered him, for the schedule he kept was arduous. He collected over 3,000 numbers in remote places and exposed over 600 photographic plates, primarily on the flora of Japan. It was during this trip that he assembled from nursery sources the collection of Kurume azaleas that become known as the "Wilson Fifty." Those plants not hardy in the Boston area were kept by Sargent at Holm Lea and by the Ames family in North Easton. They were forced for exhibition at the spring flower shows of the Massachusetts Horticultural Society and other organizations; during nearly fifty years of exhibitions, they won prizes on each occasion.

Wilson's exact title at the Arboretum during this period is not recorded, although in one article he refers to himself as "Dendrologist, Arnold Arboretum." In 1916 he received an honorary Master of Arts degree from Harvard, and in 1919 he was appointed Assistant Director of the Arnold Arboretum, without limit of time. In this capacity he made one more trip to the Pacific area. This lasted from July of 1920 until September of 1922, during which time Wilson visited Australia, New Zealand, Tasmania, India, Ceylon, Kenya, Rhodesia, and South Africa. He took few photographs on these trips — in fact, he had commercial photographs sent back to the Arboretum. He sought specific conifers for study, but his collection numbers for this period are incomplete, overlapping, and confused, and many specimens are without numbers. No introductions of seeds or living plants were made, as far as can be determined. The trip has often been described as a "public relations effort" to permit Wilson to be introduced to the staff of various tropical botanical gardens. A series of reports from each area visited was published in the Garden Magazine (1923-24) under the title of "Travel Tales of a Plant Collector," and the subject matter became chapters in his two-volume work Plant Hunting (1927a).

Sargent died in 1927. The University filled the gap by appointing Professor Oakes Ames as Supervisor of the Arnold Arboretum and chairman of a standing committee on the University's botanical collections. The title of Director of the Arboretum was abandoned, and Wilson was given the new title "Keeper of the Arboretum." Only after Wilson's death was the title of "Director" re-established for the Arnold Arboretum.

Wilson died October 15, 1930, in an automobile accident near Worcester, Massachusetts, while returning from a trip to Montreal. The accident was blamed in part on the weakness of his leg so badly injured in China.
Above: Oo-ryong-too, on Dagelet Island, off the northeastern coast of Korea (June 1, 1917). Below: The Bonin island of Hah-jima, from Naga-hama with Muko-jima on the horizon. Wilson collected in this area on April 27, 1917. Photographs by E. H. Wilson.
Wilson's Collecting Localities in Asia, 1914–1919

1914

February. Japan. Tokyo (3).\footnote{The day(s) of the month, where known, are indicated in parentheses after the locality.} Undated: Kagoshima; Shitogo, Yakushima.

March. Japan: Kinishima (9), Kagoshima (17); Nagasaki (18); Tokyo (20) Undated: Kai, Kamo, Kusakabe, Muji; Sakurajima, Sano; Shigotomi, Togo, Yoshino.

April. Japan: Tokyo (15), Kyoto (26), Tokyo (30). Undated. Hachioji; Gotemba; Hakoue, Hatogaya, Joshibo, Kasuga-yama, Koganei, Kyoto, Meguro; Miyanoshita, Nara; Ongata; Totsuka-mura.

May. Japan: Kamakura (11); Fuji (14), Nikko Mts. (23), Chuzenji (31). Undated: Enoshima, Kasukae, Kanazawa, Sanjo-hara; Subashiri, Tatebayashi, Urami Falls.

June. Japan: Chuzenji (5), Tokyo (6); Mitsumina, Mt. Chichibu (9); Mt. Ontake (15), Mt. Fuji (20); mountains near Yumoto (28). Undated: Kofu, Nantai-san; Rokugome, Yoshida.

July. Japan: Nikko, Matsushima (2); Matsushima to Noboribetsu (6), Hakkaeda and Yama to Tokyo (10), Asama (18); Adzuma (22); Morioka to Hakodate (22), Osisna (27); Yezo Fuji (30); Kutchan to Sapporo (31). Undated: Furo-zen, Lake Onuma, Mt. Moiwa, Mt. Teine; Wadamura.

August. Japan: Sapporo to Otaru (1), Otaru to Saghalien (2), Saghalien (9), Otaru to Sapporo (10), Kushiro (15); Abashiri (17), Rubishibe (20), Oketo (25), Sapporo (26); Hakodate (30). Undated: Bihoro, Kamizaima, Kusuo, Odomari; Sakaihama, Yachigashira.


October. Japan: Aomari (3); Hakkoda (5), Lake Towada (8), Odate (9); coolee trip to Chokai-san (9), Adzuma Mts. (11). Yumoto (20), Lake Chuzenji (29); Tokyo (30), Nagoga (31). Undated: Jimba, Konseitoge, Kurozawa, Nikko, Onsenga-take; Mt. Onate, Sanjo-hara.

November. Japan: Mt. Ontake (5); Gotemba (6); Mt. Fuji (9); Tokyo (10), Kobe (16); Shikoku and return to Kobe (23), Osaka (25); Miyajima (29), Kobe (30). Undated: Higashi-kawa; Lake Yamanaka; Nagoya, Nishinogawa; Shigar-yama; Sugi.

December. Japan: Kaga-san (3), Nara (7), Kyoto (10); Tokyo 11, 24); Yokohama (29), Tokyo (31).

1915


Arrival in San Francisco (22), Boston (29).

1917

January. Started trip to Asia.

February. Liukiu Islands.


May. Bonin Islands: Ani-jima (3); Chichijima (3); Hachijo-jima (6). Korea: Ajore Station, Yamaguchaki ken (17); Seoul, prov. Keiki (21); Nam-san prov. Keiki (23), Ka-zan, near Suigen, prov. Keiki (24); Hoko, prov. Kesho (29), Dagelet Island (30). Undated: Sango.


August. Korea: Sempo, prov. S. Kankyo (1); Chemulopo, prov. Keiki (7); Fu-nei (14); Sha-yunei, prov. N. Kankyo (15); Mogan, prov. N. Kankyo (16); Jyosohyo, prov. N. Kankyo (17); Enshamen, prov. N. Kankyo (18); Yuyyo (19); Sohyo (20); Engan (23); Setersuri (Snow Mts.), prov. N. Kankyo (25); Tumen-Yalu, prov. N. Kankyo (29-31). Undated: Kankyō Ho; Hokudo.

September. Korea: Tumen-Yalu, prov. N. Kankyo (1, 2); Keizanchu (4-12); Chechun to Shinkari, prov. S. Kankyo (14); Laoling (17), Eiko (18-23). Undated: Kanin; Koshukoyu; Nanchatongu; Rynsan, Shanshui, Sinkabachin, Shinyu, Shobo; Yeiko River.


1918


February. Formosa: Takao, prov. Tainan (20); Bamshoru (21); Anping (23); Kagi, prov. Kagi (24). Undated: Arisan; Funkiko, Hso-gei-han; Keitao; Shakorio.

March. Formosa: Mt. Noko, prov. Nanto (2); Horisha (9); Lake Candidateus (10); Taihoku, prov. Taihoku (17-27); Chosokei (30); Urai (30). Undated: Housha; Jukirin; Keelung; Koken; Mt. Kiraishiu; Mt. Taihei; Musha, Naiwsheizan; Nama; Parisha; Sekitei, Shirin; Sokei; Sozan; Tahken; Tentana.


May. Japan: Nishi-kirihima (4); Osaka (8); Yamamoto, Ikedo (8); Hakorno, Gotemba (11). Undated: Nishi-kirihima; Yokkaichi.

June. Japan: Fuji-san (12); Subushiri (12); Onada (17). Korea: Keijyo, prov. Keiki (22); Kongo-san, prov. Kogen (30).

July. Korea: Diamond Mts., prov. Kogen (2); Miroku-ho, prov. Kogen (6); NW. Korea, prov. N. Heian (28-31); Ping-yang, prov. S. Heian (29). Undated: Chinnampo, Chojanji; Heiko; Hichecanbo Peak; Hyokunj; Kishi; Kokai; Makaen-an, Mt. Miraku, Mochuri; Shinchindo.


October. Formosa: Sekitei, prov. Taihoku (10), Sozan (11); Arisan, prov. Kagi (16-31). Undated: Funkiku, Keitao; Mt. Morrison; Mungetsu; Rinkiko; Rinnai.


December. Formosa: Horisha, Lake Candideus (3-7); Island of Tanshima, Japan Sea (23).

1919

March. Arrival in Boston (17).

Wilson's Itinerary for 1920–1922

1920

August. England, Scotland.
September. Australia.
October. Australia: Perth (21).
November. Australia: Albany (6); Goolgardia to Widgremooltha (22).

1921

February. New Zealand.
March. New Zealand.
Tasmania: Hobart (17).
April. Tasmania.
Australia: Melbourne (22).
May. Australia.
June. Australia.
India: Calcutta (19).
August. "India" (Pakistan): Rawalpindi (14); Srinagar, Kashmir (15);
October. India: Calcutta to Madras (1).
Ceylon: arrival (6). Undated: Colombo; Manaar; Peradeniya, Ragalla.
November. India. Bombay (4).
Kenya: undated.

1922

February. South Africa.
April. Departure from Cape Town (7).
May. Arrival in London (31).
June. England: Dawyck (9); London (19).
July. France: Paris (5); Les Barres (17).
    England: Wisley (21), Hillier Nursery (28); Cambridge (28).
August. England: Kew (11); departure from Liverpool (15).

Wilson in the Field

Wilson left little information about his method of operation in the field. What can be gathered from occasional comments in his writings and diaries does not give a complete picture of what was needed to live and travel as he did during the eleven years from 1900 through 1910. In *Plant Hunting* (1927a, Vol. 1, p. xxv) he stated the necessary qualifications:

Like any other vocation, plant hunting calls for certain qualifications on the part of those who essay the task. First and foremost it is a work of youth, for it takes a heavy toll of strength and endurance, patience and enthusiasm. A sound constitution and an eminently sane mind are fundamental requisites. An optimistic temperament and abundance of tact are essential in dealing with the difficulties and delays incident upon travel and the idiosyncrasies of native peoples. The more knowledge the hunter has of plants already in cultivation, of gardening, and of botany, the greater the chance of success. Some business acumen, ability to mingle freely and pleasantly with all sorts and conditions of men are added qualifications of no mean order. But above all else tact and a sound physique are needed in the rough and tumble of plant hunting.

In his first published article, in *The Field, The Country Gentleman's Newspaper* (CVI: 109. 1905), Wilson recommended western China for the sportsman: “Leaving aside the cost of outfit, which should be procured in England or America, £500 would amply cover a sportsman’s expenses for one year in the country. This sum would include first class fare from London to Shanghai and return. The journey could even be done for £400 if strict economy were enforced; on the other hand many pounds could easily be expended.”

Wilson’s first major report of his travels was entitled *A Naturalist in Western China, with Vasculum, Camera, and Gun, Being Some Account of Eleven Years’ Travel, Exploration, and Observation in the More Remote Parts of the Flowery Kingdom* (1913). The vasculum, adopted from his early training in Europe, is a metal case carried over the shoulder and opened by a cover hinged on the long side. Plant specimens are carried in it all day without being crushed; in the evening they are sorted and dried in plant presses. Wilson’s photographic equipment will be mentioned later. The gun, according to available photographs, apparently was never more powerful than a double-barreled shotgun, “12 bore” as he described it. It was used
for acquiring birds "for the pot" or, on one trip, for skins and pelts. Zappey, who accompanied Wilson in 1908–9, carried a rifle suitable for downing larger animals. Wilson's party commonly had soldiers along, and there is some indication that their guns were used for hunting.

One chapter in *A Naturalist in Western China* is devoted to the subject "Methods of Travel: Roads and Accommodation." On page 22 of Volume 1, he stated, "In the regions with which we deal there is nothing in the nature of wheeled vehicular traffic save only the rude wheel-barrow in use on the Chengtu plain. There are no mule caravans and scarcely a riding pony is to be found. For overland travel there is the native sedan-chair and one's own legs; for river travel the native boat." The sedan-chair is mentioned frequently: "I travelled mostly on foot but had with me a light sedan chair made of rattan and my Boy or principal servant was similarly favored. A sedan chair is an outward and visible sign of respectability without which no traveller is properly equipped. In those days it was of far more importance than a passport, for it inspired confidence and insured the respect of the people. Whether one rode in it or walked was immaterial; the important thing was its presence" (Wilson,
Wilson was riding in his sedan chair in 1910 when the landslide occurred and he suffered a compound fracture of his leg. He fortunately left the chair before it was carried over the cliff. Wilson once wrote (1913, Vol. 1, p. 198) that although he slept in a hut of spruce boughs, “my boy preferred to pass the night in his chair.” Four coolies of Wilson’s entourage were engaged to carry the botanist and his “Boy” in the sedan chairs.

“One should have with him an outfit comprising bed, bedding, victuals, cooking paraphernalia and insect powder” (Wilson, 1929, p. 19). On several trips Wilson made his headquarters at Ichang and purchased a boat to be used as a residence. On the second Veitch expedition he had a boat named “Ellena” after his wife; on the two trips for the Arnold Arboretum, the boat was named “The Harvard.” Ichang was a fairly busy commercial port, with customs officials and missionaries in residence. The two small rooms that made up the accommodations on the boat were confining, especially when plants were being worked up or stored. He found warehouses to store his collections, and he enjoyed the hospitality of many of the residents who spoke English. His indebtedness for their friendship is indicated by the number of species dedicated in compliment to them. “While travelling overland in China it is not possible to use tents and one has perforce to make use of such accommodations as the country affords. The Chinese do not understand tents, and it is unwise to try innovations in a land where people are unduly inquisitive” (Wilson, 1929, p. 19). The local accommodations, invariably called “hostels” by Wilson, were occasionally “fair” or “pleasant,” but more often than not unpleasant, dirty, “ridden with hungry tormenting fleas,” leaky, muddy, smelly, noisy, and sometimes “undescribable.” At Wang-tung-tsao “we found lodgings for the night.... The inn is beautifully situated in a grove of bamboo and cypress. but is poor and abominably stinking. Really, it is a pity that such a vile house should defile such a charming spot” (Wilson, 1913, Vol. 1, p. 81). At Lao-tang-fane the single room had “a long row of ‘bunks’ built along one side, with benches for the accommodation of loads on the other.... Skins of serow and budorcas served as mattress on the bunks or settees” (Wilson, 1913, Vol. 1, p. 132). At Shihcu’uan Hsien he was “glad to escape from the malodorous, vermin infested inn” (Wilson, 1913, Vol. 1, p. 120). At Hsin-chia-pa the inns were unacceptable to Wilson, and a high-handed solution was described: “We happened on a decent farmhouse, which we commandeered. The owner being away, his wife was at first sorely afraid, but in a couple of hours her confidence was gained and all was well.... We parted excellent friends with our hostess at Hsin-chia-pa, a trifling present and 400 cash (5 pence) made her extremely happy; her thanks were both genuine and profuse” (Wilson, 1913, Vol. 1, p. 89).

Wilson’s “bed” and “bedding” are never explained. Presumably, a folding camp cot was used, for he referred to his bed having been
brought in late by a coolie. He carried “oil sheets,” which were used to cover native beds or to protect Wilson from the leaking roofs at night.

In spite of his comment on tents, Wilson apparently did “camp out” on occasion. At Tatien-lu,

We selected a convenient spot nearby on which to pitch a tent for ourselves. Whilst I acted as family doctor my companion and the two men in good health attempted to fix up the tent outside. . . . Meanwhile rain, hail and sleet descended in torrents. After a half-hour’s struggle, the rain and wind conquered, and the task of rigging the tent outside had to be abandoned. There being no possible place to sleep inside, free from rain, the only thing left was to fix the tent inside the house, the floor of which, owing to the absence of part of the roof, being already a quagmire. At length it was put up somehow, our beds were arranged beneath it, and oil-sheets placed over the top, as the thin cloth did not pretend to be waterproof. . . . (Wilson, 1906, p. 100.)

Wilson’s party was often large; one of his photographs showed 24 people. He generally depended on local inns or hostels to supply meals and accommodations, and he rarely wrote of food or food sup-
plies. The expeditions from a base such as Ichang, Tatien-lu, or Sungpan were generally of two or three weeks' duration. One 1904 expedition to Sungpan took 52 days. On a trip to Shenei in 1907, the party ran out of supplies and had to double back. At Yu-yu-tien "travellers furnish their own food supplies, since nothing is obtainable at the hostel except, perhaps, some green vegetables in minute quantities" (Wilson, 1913, Vol. 1, p. 178). Wilson employed a cook, but I have not encountered in his notebooks any description of either his meals or his tastes in food. Farrington (in Wilson, 1931, p. 26) commented, "He told once of his difficulties in getting accustomed to Chinese food, especially certain chickens which have black bones. He had a fondness for birds' nest pudding, and he said that eggs which had been kept for two years in Chinese fashion were none too bad." He wrote of the taste of pheasant and of ships' biscuits and tea for breakfast.

Of all the locales Wilson visited, he appears to have been enthusiastic about only one. Of Sungpan he wrote (1913, Vol. 1, p. 144),

Did Fates ordain that I should live in Western China I could ask for nothing better than to be domiciled in Sungpan. Though the altitude is considerable the climate is perfect, mild at all times, with, as a general rule, clear skies in Tibetan-blue. During the summer one can always sleep under a blanket, in winter a fire and extra clothing are all that is necessary. Excellent beef, mutton, milk and butter are always obtainable at very cheap rates. The wheaten flour makes a very fair bread, and in season there is a variety of game. Good vegetables are produced such as Irish potatoes, peas, cabbages, turnips, and carrots, and such fruits as peaches, pears, plums, apricots, apples, and wild raspberries. Nowhere else in interior China can an Occidental fare better than in Sungpan Ting.

James Veitch asked Wilson in an early letter if he wore Chinese clothes. Photographs of him in the field always show him in western dress: occasionally he is shown with a field-type jacket, otherwise in a seemingly heavy suit including a vest. He wore a hat, leather puttees fixed with leather straps, and heavy shoes; he once referred to the fruits of *Heteropogon* as capable of penetrating the tongue of a "shooting boot."

Veitch wrote that field glasses were being sent to him in 1900. Wilson recorded the distances he traveled and indicated that 20 miles was an average day's trip. In his field books he recorded distances in *lis*, a Chinese unit of measure equal to one third of a mile. He carried a pedometer (among his mementos, still set for a 35-inch stride). He had two compasses, as well as an altimeter made by Negretti and Zambra that he referred to as an "aneroid" when he gave altitudes
at various locations. Once Wilson cited a thermometer reading of 36°F, suggesting that he had a thermometer. Presumably he had axes or saws, for he reported felling large trees to obtain cones and removing slabs of bark from larger trees.

In letters to Veitch and to Sargent, he often reported on his health. An illness of 22 days in 1907 he attributed to a bout of malaria. On another occasion he suffered from “ague, brought on by a chill.” He also wrote, “The magistrate sent me word that he was suffering from pains in the stomach and vomiting, and would be grateful for some medicine to relieve his suffering. I sent him some Epsom-salts and an opiate. . . . A traveller gets many such requests for medicine, and I have generally found quinine, Epsom-salts and opium pills most useful cures, for which the people were always grateful” (Wilson, 1913, Vol. 1, p. 192). He also noted that he “acted as family doctor” to his men who suffered frostbite and snow blindness on a trip from Tatien-lu (1906, p. 101). Although he published notes on Chinese medicinal plants, he made only one personal reference: “The dried rhizome of Coptis chinensis is an all-round medicine and particularly valued as a stomachic. . . . Personally I can testify that it makes an excellent and appetizing bitters” (Wilson, 1929, p. 319).

Wilson appears to have kept a great many notebooks in the field. His diaries are available for parts of all of his trips except the first one for Veitch. They are not complete and rarely fill an entire notebook, suggesting that he frequently started a new book for a new trip. The entries in his diaries are in pencil, while most of his plant records are in ink; his writing is difficult to read. He kept a separate record book for seed collections for Veitch, but for the Arnold Arboretum seeds, specimens, and photographic records are frequently combined in one ledger. Wilson also referred in letters to his “book of records of photographs,” but this has not been found. A few of his separate books of financial records are available. On most trips accounts were not kept in detail, but on some occasions he was explicit as to items for his “Boy,” coolees’ wages, expenses for his collectors, and one record of a Christmas gift.

Wilson’s task was to collect seeds and botanical specimens. Nothing is known of his equipment for these purposes while he was employed by Veitch. At times Wilson collected in a vasculum, transferring the specimens to a press to be dried. On June 28, 1907, he wrote to Sargent, “I worked with nine presses and a thousand driers and I can assure you changing specimens every night meant work.” Earlier (1906, p. 27) he had written, “My collections grew apace and it took all hands three hours changing papers.” No photographs have been located showing how Wilson dried specimens. He used wire-frame presses that he made himself, or had made in China. The end frames were secured with chains and tightened by readjustment to a hook on the opposite frame. Wilson used thin blotters without ventilators; the paper containing the specimens must have been acquired
in Shanghai. On February 15, 1919, Sargent wrote to Wilson that Purdom "is not taking any paper for drying specimens with him as you didn't and as I understand there is no difficulty in getting such material in China." Dr. Shiu-ying Hu told me that, as a student in the Natural History Museum in West China Union University, Cheng- to, Szechuan, she used the press frames, blotters, and drying paper Wilson had left behind. Dr. Hu recalled that the type of paper Wilson used was not then available in that region of China, and she felt that he must have brought it with him. When Wilson's specimens were dry, the packages were wrapped in oiled paper for storage and shipment.

Wilson also preserved fleshy fruits in "Chinese spirits" and returned some of this material to the United States. There is no indication where he obtained the bottles or spirits, or how this material was sealed.

One often gets the impression that Wilson was a loner and did not have company beyond members of his staff. Although he did not speak or read Chinese, as far as can be determined, he said that an interpreter was not necessary if there was a good "boy or principal servant." On each of his trips, he acquired a dog for company, and although the breed cannot be determined from the photographs available, one was referred to as a "spaniel." None of the dogs was identified by a name. Wilson (1913, Vol. 1, p. 249) referred to the need to carry them across narrow bridges or up ladders when ascending Mt. Wa. Wilson had field companions who can be identified only by the dedication of new species to them: Dr. William Kirk, "a keen lover of nature and the collector's companion on many rambles" (Meliosma kirkii); Rev. J. Moyes, of Tatien-lu, "companionship on one long and interesting journey in Eastern Tibet" (Rosa moyesii); Mr. W. C. Haines-Watson, "my friend and travelling companion" (Rhododendron watsonii); Mr. G. Houlston, "my companion on many a delightful ramble in the Ichang neighborhood" (Rhododendron houlstonii); and of course W. R. Zappey, the zoologist who was associated with Wilson during his 1907-09 trip (Prunus zappeyana). No specimens are recorded as joint collections, and none of his Chinese collectors are acknowledged on the field labels.

Wilson's publications rarely revealed his feelings concerning his nomadic life. Veitch had warned him that he would be lonely and that he must keep up his spirits by hard work. Of a trip to the Chen-to Pass (14,500 feet) on June 19, 1904, Wilson did write (1906, p. 101), "We crossed the Chen-to Pass in a blizzard of snow and sleet. I shall never forget that day. It was the hardest, roughest and most exhausting one I experienced during the while of my five years wandering China. . . . As I look back on that day I marvel that we were not all frozen to death. As it was, several of the party were badly frost-bitten and 11 suffered from snow blindness. It was many weeks ere we fully recovered from the effect of the passage."
The vegetation at 2,000 feet altitude on Quelpaert Island, Korea, showing Quercus glauca and Q. glandulifera. Dr. N. Nakai, who accompanied Wilson, is seated on the boulders in the foreground. Photograph taken November 2, 1917, by E. H. Wilson.
Sargent's letters to Wilson were less frequent than Veitch's had been but usually concerned matters more related to the expeditions. For example, "I suppose by this time you are in the field and I hope that you are enjoying yourself. Write when opportunity offers, although do not let writing interfere with the real work unless you have something it is necessary to say" (Sargent, letter, April 18, 1907). Wilson did inform Sargent of each trip when it was planned and again when it was completed. His trips of 1908 were to new and difficult country. He reported the trip to Mt. Omei and Mt. Wa as having been profitable, "but owing largely to bad weather, desperately hard and uncomfortable. I never want to hear of, much less see that region again" (Wilson, letter, October 11, 1908). In a letter written on September 3, 1910, only days before the accident that broke his leg, Wilson wrote, "I am certainly getting very tired of the wandering life and long for the end to come. I seem never to have done anything else than wander, wander — through China."

**Wilson as a Photographer**

In an early letter (December 11, 1899) James Veitch wrote to Wilson, "The camera I have not sent as I feel sure you will do better in Hong Kong; have a quick look around and buy one — preferably an American. I also do not think you should use plates — films are much handier and give most excellent results and the roll can be changed in broad daylight. I have used such and find that though not the best for highest art photographs for all general purposes they are suitable." On July 9, 1901, he wrote again: "I am sorry to hear about your camera, you are indeed unlucky. I was more fortunate and only had my Kodak go wrong once." Gardeners' Chronicle (37: 337, 382, 383. 1905) published several photographs to go with Wilson's article "Leaves from My Chinese Note-book," which reported on his 1903 trip. Similar to prints from Wilson's later trips, these photographs are marked "Gardchron" and "W. J. Welch, Sc." but are not credited to Wilson. If they were taken by Wilson, they would be the film negatives taken on the first of the Veitch expeditions. Wilson later (1913, Vol. 1, p. 129) wrote, "My first journey over this highway was, as mentioned before, in 1904. At that time I had no camera.

Sargent, however, wanted a good photographic record of the plants that Wilson saw and introduced, as well as of the countryside and the vegetation. In a special issue of *Arnoldia* commemorating the 100th anniversary of Wilson's birth, Peter J. Chvany (1976) reproduced many of Wilson's photographs and related how even Miss Willmott encouraged Wilson to acquire a camera and take pictures. Wilson had a Sanderson whole-plate field camera, with bellows and a stout wooden support tripod custom made, and he carried it in three heavy boxes. On the trips for the Arnold Arboretum, he also took along a roll-film camera on which he took some personal pictures. Sargent wrote to Wilson, "I hope you won't forget the photo-
The hamlet of Ping-ling-shih in western Szechuan, 3,150 feet altitude, with Mount Wa-wu in the background. Photograph by E. H. Wilson. September 8, 1908.
graph business which seems to me important, as we ought to get
from this expedition all possible information about the Chinese flora”
(Sargent, letter, October 11, 1906). On April 21, 1907, Wilson wrote
Sargent, “I took fifty Kodak photos of different subjects and these
have been forwarded to England to be dealt with by Ingalls”; on
August 13 Sargent replied, “I did see some of the proofs of your
photographs. These seemed to me to be promising although, as you
have already heard, some change in exposure will have to be made.”
By the middle of 1908, Wilson had mastered the camera. He wrote,

Photography formed an important part of the journey
just completed. With the large camera I took twenty dozen
plates. I have had two dozen of these developed and the re-
sults were most gratifying. Whilst the bulk of the photos
are of trees and other floral subjects, a fair sprinkling show-
ing scenery are included, enough to give an idea of the gen-
eral appearance and configuration of the country.

The Kodak continues unsatisfactory. A consignment of
films ordered from England to be sent via parcel post have
got lost somewhere. As the few remaining old films are ap-
parently useless I shall have to leave the Kodak behind on
future trips. However the larger camera is working well
and I have heaps of plates and the need for the Kodak is
small. (Wilson, letter, August 27, 1908.)

Chvany (1976) describes well the effort Wilson made in the field
197) stated, “Photography in the forest is no mere pastime. It took
over an hour on three occasions clearing away brushwood and
branches so as to admit of a clear view of the trunk of the subject.
I secured a dozen photographs, which entailed a hard day’s work.”
In February Wilson reported,

On the last trip I secured 11 dozen photos with the big
camera, practically all of them showing winter aspect.

Today with the full plate camera I have taken 57 dozen
plates. I hope to manage three dozen more and thus com-
plete 6 gross. As I wrote you before, from experiments
made from time to time there is good reason to believe,
failing accidents, that these photos will turn out well. The
trick before me now is to get them home safely. (Wilson,
letter, February 2, 1909.)

While Wilson was preparing to leave China, he wrote Sargent
from Ichang,

I have this day shipped to E. J. Wallis of Kew, three cases
each containing 20 dozen undeveloped plates. These 60
doz. photos represent the work of two seasons with the
large camera. A correct record of every plate has been kept and I anticipate no difficulty in correctly naming every photo. Trees largely predominate but scenery and objects of interest generally have not been forgotten. I have instructed Wallis not to commence developing until I arrive home, which will be soon after the arrival of the cases. If these plates reach Wallis in the condition they should, and all is as I anticipate, I think you will appreciate the unique collection of photos which in themselves should form not the least important result of the expedition. I have worked pretty hard at this photography business, and if anything goes wrong with these plates I vow I will never attempt to handle another camera. So soon as I know how the plates are turning out in Wallis' hands I will write you for instruction. (Wilson, letter, March 8, 1909.)

Wilson worked with Wallis and saw to it that the plates were developed individually. In June, 1909, he sent prints to Sargent, even though his records of the subjects had not yet reached England. His enthusiasm grew as more were developed, and apparently Sargent, too, was pleased. Wilson wrote in July,

Acting on the suggestion contained in [your letter] of July 13th, I yesterday called on the Director of Kew with very happy results. I took along a couple of dozen photos and made known your wishes. Colonel Prain said, “Certainly Kew would like a set, but what would the price be?” This I answered was a matter for arrangements between your good selves, but I presumed it would be about the ordinary market rate. On looking through the photos the director was highly complimentary in his remarks and told me to inform you “that Kew would be glad to acquire a set at any cost.” . . . From the enthusiastic remarks of Col. Prain and Dr. Stapf it seems probable that the more important continental herbaria would purchase sets of these photographs. Personally I think it reasonable to suppose that the different herbariums receiving sets of our dried plants will be glad of the opportunity to acquire a set of photographs which will so materially increase the value of the herbarium specimens themselves . . .

The whole of the photos are now developed and nearly all are “spotted” and numbered with “running numbers” in sequence. In all there are exactly sixty dozen (720) negatives. Of these 80% are purely botanical, practically all trees with a few shrubs, herbs or forest-scenes. Of the remaining 20% about half are birds and mammals and should be of much value to Mr. Thayer and others with similar in-
terests. The other half are general, i.e., scenes, architecture, porcelain and bronzes, and a few figures illustrating phallic worship. With the exception of about half a dozen of personal interest only, there is not a photo but what some scientific institution or another should be glad of. (Wilson, letter, July 2, 1909.)

In looking at Wilson's photographs of a "bag of pheasants after a day's shoot" (in Chvany, 1976, p. 81), or of more than fifty ducks hung on a bamboo boat, or of a large number of dead animals, one must keep in mind that these were taken when Zappey was along collecting for the Museum of Comparative Zoology. The day's hunt was probably not for the pot but for science. Zappey brought back 3135 birds, skins of 370 mammals, and specimens of various reptiles and fishes, which since have been distributed to many museums as specimens for scientific study. Wilson appears to have kept the photographic record of the collections. Several chapters and many plates in A Naturalist in Western China are devoted to the zoological collections.

By November of 1909, the first of Wilson's excellent photographs had been used in a publication. W. J. Bean, in writing "Garden Notes on New Trees and Shrubs" (Kew Bull. 1909: 351-357. 1909), reproduced two photos with the acknowledgment, "By kind permission of Prof. Sargent, Arnold Arboretum, photographs of Tapiscia [sinensis Oliv.] and Tetracentron [sinensis Oliv.] taken by Wilson in China are reproduced on the accompanying plates."

Although Wallis made additional prints from the glass plates, we have no idea how the final sets were prepared. An announcement on the inside back cover of Plantae Wilsonianae (Sargent, 1913, Vol. 1, part 3) offered 850 photographs 8.5" × 6.5" for $425, or $.50 each.

His confidence renewed by the success of his photographic efforts, Wilson offered to expose the remaining plates on plants at Kew and at Coombe Wood. Wilson also took many striking photographs during his 1914 trip to Japan, and a smaller number on his later trips to the Liukiu Islands, Australia, and Africa, but apparently none in India or Ceylon.

Wilson's Publications

James Veitch did not encourage Wilson to submit notes for publication during his field work; in fact, he warned him against the practice. However, Veitch bragged in print about the expedition and the plants being introduced and often quoted Wilson's comments and observations. Wilson's first writing appears as an abstract from a letter to Veitch (Gard. Chron. 34: 50, 1903). He then had travel articles in the Gardeners' Chronicle for 1905; these extended a full year. Off the topic of plants, he wrote "Western China: A Field for the Sportsman," which appeared in The Field, The Country Gentleman's
A massive Ginkgo biloba, 50 feet x 30 feet, growing in the garden of the Zanpuku-kuji Temple Azabu, Tokyo. The tree is extinct in the wild, but has been preserved in temple gardens such as this. Photograph by E. H. Wilson, 1914.

Newspaper, describing and recommending the ideal hunting localities and the game that could be procured as trophies.

A set of the dried specimens collected by Wilson on the trips for Veitch was presented to Kew. W. B. Hemsley and Wilson (1906, p. 147) noted, “It was hoped that eventually the whole collection would be systematically dealt with. Before, however, this undertaking could be complete, Mr. Wilson had to take up duties that rendered it impossible for him at present to continue his share of the work.” This was the project that later became Plantae Wilsonianae under Sargent’s editorship.

With Hemsley, Wilson published an article on “Some New Chinese Plants” in 1906 and one entitled “Chinese Rhododendron: Determinations and Descriptions of New Species” in 1910. In the latter the authors stated (p. 101), “Towards the end of 1906 and just previous to his departure on a third mission to China, Mr. E. H. Wilson devoted a considerable amount of time to the determination of the magnificent dried collections of Rhododendrons made on his two previous journeys, while Mr. W. B. Hemsley afforded him as much assistance as it was possible to give in unofficial hours.” In these works Wilson supplied the field observations, while the Latin descriptions were initialed by Hemsley.

Wilson then made two trips for Sargent and in 1911, hampered
by his injured leg, turned to writing both horticultural notes and botanical descriptions. Sutton (1970, p. 249) commented,

Sargent encouraged him to return and work over his herbarium with a view to publishing an account of his collections. Wilson as a collector was one thing, as a taxonomist he turned out to be quite another. For him the intellectual adventure of painstaking research with dried specimens and books could neither replace nor equal the thrill of finding living plants in the open field. Moreover it had been a long time since he had done any serious work in classification. The project evolved into a six-year task, resulting in the volumes called _Plantae Wilsonianae_, a treatment of the ligneous species Wilson collected in China. Sargent acted as editor, and other people, Alfred Rehder in particular, collaborated in the effort. Even a casual glance through _Plantae Wilsonianae_ reveals that Rehder did a great share of the work, and that Wilson's contribution was correspondingly small. Rehder wrote 44 articles to Wilson's twelve and they did 47 more together. Evidently Wilson was quite willing to let Rehder assume the burden of preparing the nomenclature.

It was during these same six years that Wilson continued his contributions to the _Gardeners' Chronicle_, began to submit articles to _Horticulture_ and to _Garden Magazine_, and published _The Vegetation of Western China_ (1912), the two volumes of _A Naturalist in Western China_ (1913), and _Aristocrats of the Garden_ (1917). In addition, he wrote many articles on such topics as the cherries of Japan, the conifers and taxads of Japan, and the history and botanical relationships of the modern rose. Wilson's horticulture articles number at least 263 and are grouped in Rehder's (1930) account of Wilson's life (for example, "30 shorter articles contributed to vol. xix-xxxii, 1914-1921"). Many of these have been indexed for the Torrey Card Index, but others should be sought if a biography of Wilson is ever attempted.

Many of Wilson's books are collections of articles and essays published in slightly different form elsewhere. His observations combined his knowledge of the plants in the field with the experiences of Veitch and Sons and the Arnold Arboretum in propagating and growing the plants. His scientific writings covered many facets as well. The early interest of Maxwell T. Masters, who had contributed treatments of the gymnosperms for Forbes and Hemsley's enumeration of Chinese plants in Wilson's collections, may have increased his attention to this special group of woody plants. Sargent was particularly interested in the conifers and gave special instructions to Wilson to collect specimens, extra cones, and seeds. Wilson's first trip for the Arnold Arboretum was to accumulate such material. Wilson wrote
to Sargent of his success and failure regarding the conifers in 1906: "If Mr. G. R. Shaw ever intends to deal with the Chinese pines he had better finish off the Mexican ones within the next two years. Since he has studied this genus so closely I should be grateful if he would give me some hints as to what are the important points to note. At present I observe the general appearance of the tree and the nature of the cones, leaves, buds and bark. Are there other points of specific value that should be noted?" (Wilson, letter, April 19, 1907). The notes that Shaw sent, as mentioned in a letter to Sargent, are not available (Wilson, letter, July 21, 1907). Shaw included some information on the pines of China in his monograph The Genus Pinus, published in 1914. Subsequently, Wilson wrote The Conifers and Taxads of Japan (1916). In the paper "Taxads and Conifers of Yunnan," Wilson (1926, p. 37) commented, "During the years 1922–23 Mr. J. F. Rock collecting in Yunnan under the auspices of the National Geographic Society made a large collection of Taxads and Conifers he met with. A set of these was presented to the herbarium of the Arnold Arboretum. Naming this collection has afforded an opportunity to identify other material in this herbarium collected in Yunnan and enables me to present a review of the Taxaceae and Pinaceae of the whole province." In 1928 Wilson did the same for the groups in Rock's collection from northwestern China and northeastern Tibet. In fact, Wilson made special studies of Juniperus procera in Kenya, and Podocarpus and Widdringtonia in South Africa, and later on gymnosperms of New Caledonia. Wilson was asked by Sargent to collect particular gymnosperm material for two American specialists, J. M. Coulter and E. C. Jeffrey, and he supplied seeds, specimens, and wood.

It is of interest to note that Wilson learned of root nodules on the conifers in New Zealand. He stated in Plant Hunting (1927a, Vol. 1, p. 231), "My attention was directed to the presence of tubercles on the roots of Taxads and Conifers by Capt. L. MacIntosh Ellis, the director of forests. Later I found that their presence was known to others but the significance does not appear to have been grasped by anyone but the director of forests and no investigation of this phenomenon had been attempted." Wilson said the tubercles were analogous to those on the roots of leguminous plants, and he thought that they might be the controlling factors in the rate of growth of taxads and conifers in New Zealand, and in the success or failure of these plants when placed in ordinary garden soil. Wilson's extensive observations have been overlooked in recent publications on mycotrophy in plants.

Early in his career Wilson wrote a few short papers on economic plants, and he devoted special chapters to the subject in his books on China. The extensive collection of photographs taken in Japan of the damage done to the vegetation by adjacent fumaroles and volcanic vents suggested that he might have had articles on the subject
in mind. Likewise, he kept extensive notes on fluviatile shrubs; these were never incorporated in his writings. He wrote on forestry and forestry practices and on the relationships of the vegetation of eastern Asia to that of eastern North America — especially after he found a new plant, *Symphoricarpos sinensis*, the first representative of that American genus in Asia.

Wilson wrote floristic descriptions of areas he visited in China, and these were incorporated in many of his books. The Bonin Islands were largely unknown to the Western world when he visited them, and Wilson's 1919 account, "The Bonin Islands and Their Ligneous Vegetation," is still regarded as an excellent treatment. He wrote of the Island of Formosa (1922, 1930) and of its flora and authored a phytogeographic sketch of the ligneous flora of Korea (1920); both accounts have been reproduced for special studies by governmental departments during the last two decades. During his visit to Korea in 1917, Wilson was apparently asked to give a lecture on the vegetation to the local branch of the Royal Asiatic Society. The lecture was published in the transactions of the Society (1918) and also led to one of the first listings of common and scientific names (in the three parts of "Arboretum Corense," prepared by Mark N. Trollope, Bishop in Korea). Trollope (in Wilson, 1918, appendix) wrote,

> As I listened to Professor Wilson's lecture, it seemed to me that some such step as is here taken was necessary to bring home to us who live in Chosen the interesting facts which he had to teach us. . . . The course I took was the simple one of collecting twigs and branches of all the common trees and shrubs I came across, affixing to them labels with the vernacular names given to them by Choseans and then asking Professor Wilson to identify them and supply their proper botanical equivalents. . . .

In an obituary of E. H. Wilson published in the *Journal of the Arnold Arboretum* in 1930, Alfred Rehder supplied a bibliography of Wilson's writings. Two articles related to ragweed or hay fever plant especially in the Gaspé Peninsula were listed as "not yet published." No further reference has been found to them, and no manuscripts are known.

The following articles were unknown at the time or were omitted in error:


1931. If I were to make a garden. iv + 295 pp. Stratford Co., Boston.

The final item was edited from Wilson's manuscript after his death in 1930 and was published with a foreword by Richardson Wright, a tribute appraising Wilson's work by Edward I. Farrington, and "Vale — In memoriam," by Edward Loomis Davenport Seymour.

**Wilson's Dedications**

Wilson's first book, *A Naturalist in Western China*, he dedicated to his wife. The revised version, *China, Mother of Gardens*, he dedicated "to my alma mater, the Royal Botanic Gardens, Kew." *Aristocrats of the Garden* he inscribed, "To Garden Clubs, the most potent forces in garden-making in America, with homage and respect"; and *Plant Hunting*, "To those of every race and creed who have labored in distant lands to make our gardens beautiful."

Five new genera were based on Wilson collections. Hemsley named one *Sinowilsonia*. Hemsley and Wilson created the genus *Hosiea*, by implication named for Alexander Hosie of H. B. M. Consular Service; Hosie was also commemorated in *Ormosia hosiei* with the notation "to whom we are indebted for much information respecting Chinese economic products." Rehder and Wilson named *Sargentodoxa* for Charles S. Sargent, and *Fortunearia* for Robert Fortune, a collector of Chinese plants between 1843 and 1861.

The majority of the new species collected by Wilson were described and named by Hemsley and Wilson, or by Rehder and Wilson publishing either jointly or individually. The sponsors of Wilson's expeditions are well recognized in the large number of plants named for Veitch and Sons (e.g., *Mahonia veitchiorum*), Miss Willmott (*Lilium willmottiae*), Sara Choate Sears ("artist, lover and successful cultivator of flowers"; *Rhododendron searsiae*), Mary Shreve Ames ("a generous friend of the Arnold Arboretum and of its Chinese explorations"; *Rhododendron amesiae*), the Thayer family, of Lancaster, Massachusetts ("prominent in horticulture and generous in its support of the explorations in China undertaken by the Arnold Arboretum"; *Rhododendron thayerianum*), General Stephen Minot Weld ("former president of the Massachusetts Horticultural Society and a generous supporter of Wilson's expeditions to China"; *Rhododendron weldianum*), the Hunnewell family ("for two generations of
the Massachusetts family have devoted themselves to the cultivation
of these plants in their gardens at Wellesley ...”; *Rhododendron hun-
newellianum*), and many others. Mrs. Charles S. Sargent was com-
memorated with *Lilium sargentiae*, while *Rhododendron wilsoniae*,
“one of the most beautiful and distinct of Chinese Rhododendrons”
he “named in compliment to my wife.” *Rosa murielae* was “named
for my daughter Muriel.”

His field companions were not forgotten (Dr. William Kirk —
*Meliosma kirkii*; Rev. J. Moyes of Tatien-lu — *Rosa moyesii*; W. C.
Haines-Watson — *Rhododendron watsonii*; G. Houlston — *Rhododen-
dron houlstonii*), nor were his aides in other lands (Mr. J. C. Wil-
liams, of Caerhays Castle, Cornwall, “the first amateur to appreciate
the horticultural value of Rhododendrons of western China; in his
garden the best collection of these new introductions is now to be
found” — *Rhododendron williamsianum*; Mrs. W. J. Tutcher, of Hong
Kong, “to whose husband I am indebted for assistance and kind hos-
pitality during my several visits to the island” — *Rhododendron
tutchereae*; W. B. Hemsley, who helped to identify much of Wilson’s
early material — *Rhododendron hemsleyanum*; and Mr. H. Spooner,
“who very largely assisted in making up my collections into sets for
disposal to different herbaria” — *Rhododendron spooneri*).

A singular dedication was made to Mr. Y. C. Wong, of Ichang, “a
cultured Chinese gentleman, who rendered me signal services during
the whole of my stay in China” (*Rhododendron wongii*). Missionaries
who helped Wilson were commemorated: Rev. Henry Openshaw, of
Szechuan (*Rhododendron openshawianum*); Mrs. Shelton, wife of
Dr. Shelton, missionary at Tachien-lu (*Rhododendron sheltoniae*);
and Rev. B. Ririe, of Kiating (*Rhododendron ririei*). *Rhododendron
wiltonii* was “named in compliment to Mr. E. C. Wilton of H.B.M.’s
Chinese Consular Service, in 1900 Acting Consul at Ichang, as a
mark of appreciation of numerous kind offices during that trouble-
some year.” The most heartfelt dedications must be *Rhododendron
davidsonianum* and *Photinia davidsoniae*, for Dr. and Mrs. W. Henry
Davidson, “in grateful recognition of the important services which
he rendered to me after my serious accident in the early autumn of
1910.” Camillo Schneider named *Berberis mouillacana* “at the re-
quest of Mr. Wilson ... for Dr. Mouillac, a distinguished French
Army Surgeon, at one time in charge of the Ecole de Medicine &
R.C. Hospital, Chengtu, in appreciation of valued services rendered to
him during the autumn of 1910” (Sargent, 1913, Vol. 1, p. 371).

The Numbers on Wilson’s Specimens

The instructions Wilson received from the Veitch firm for the 1899–
1902 and the 1903–05 trips have not been located. Veitch at first did
not put emphasis on the preparation of voucher specimens, and he
certainly did not encourage collection of the general flora. However
Wilson’s specimens proved to be of high quality, and Veitch displayed
them with pride at an exhibition in London (Veitch, 1903a). At the Arnold Arboretum, there are no field books of Wilson's first expedition and only a diary account in two small notebooks of the second trip. Apparently Wilson sent in his letters lists of seeds, plants, or cuttings dispatched to the Veitch firm; when the lists were received, a record was entered into a ledger. Wilson dispatched herbarium specimens to the Veitch firm at different times, and these were also recorded — although in a separate listing. Two copies of these records from the Veitch firm are in the library of the Arnold Arboretum. The numerical lists of herbarium specimens occasionally have cross references to the seed lists (e.g., "seeds") or to specific numbers (e.g., 517) in the seed lists. Although the lists are in numerical order, there are no dates given and the field localities are not in a logical sequence. The books suggest that the Veitch firm placed no importance on dates or exact areas of collection. As has been pointed out, many of the plants described from specimens grown from Wilson's seeds have only general localities such as "China," "Western China," or "Szec-huan," without number or date.

When preparing herbarium specimens in the field, Wilson jotted some brief notes on small slips of paper, one or rarely two inches square, sometimes giving a date and/or place. These have been attached to some of the mounted herbarium specimens distributed by the Veitch firm. Similar slips (but not always with comparable data), in Wilson's handwriting, are on sheets in the Arnold Arboretum herbarium acquired in exchange from the Department of Parks and Forestry in Hong Kong. It appears that Wilson was not consistent in his notations.

For his trips for the Arnold Arboretum, Wilson received instructions from Sargent. As indicated in the letter of December 28, 1906, reproduced earlier in this paper, Sargent asked Wilson "to undertake to dry six sets of all woody plants, . . . to make specimens of any plant of which you gather seeds, or of herbaceous plants which appear to you to be new or to present special interest either from a scientific or horticultural point of view." For the numbering system, however, Sargent's instructions were not clear:

I think you agree with me that it is important to devise some system of numbering specimens and seeds by which the seeds can be correctly and quickly referred to the numbers of the herbarium specimens. Probably the plan we have discussed of giving each genus temporarily, at least, a separate series of numbers will prove effective. If this is done, I should suppose it would be possible to give the herbarium specimen and the seed the same number, and later when the sets are made up for distribution the plants can have a new series of numbers independent of the seed numbers which would be for our convenience only. . . . It
Left: Herbarium specimen of Actinidia chinensis, the kiwi fruit collected by E. H. Wilson in 1901. A comparable specimen was in the display prepared by the Veitch firm for the Royal Horticultural Society Show. Right: A specimen of Actinidia chinensis collected by Wilson in 1907 for the Arnold Arboretum.

is desirable to photograph as many trees as possible, provided the tree photographs can be named. Some system of numbering referring to the herbarium specimens would be therefore needed for the photograph in case of trees which you do not know (Sargent, op. cit.).

Wilson began his numbering sequence anew for the Arnold Arboretum, and three ledgers preserved in the Arnold Arboretum library are important in assembling data on Wilson collections. One record book, AA #39526, is a numerical list (1–1474), representing the 1907–09 trip; on the flyleaf it bears in Wilson's own hand, "E. H. Wilson, % British Consul, Ichang, China." Identifications are given in Wilson's hand and are incomplete (generally to family or genus, rarely to species). No dates are given although localities are commonly grouped. There are references to some herbs collected for Miss Willmott and to other plants collected for the "Agric. Dept.,” Messrs. Farquhar, and Veitch, with a few for “prof. Sarg.” The sequence of the plants entered in this ledger suggests that at first general collecting was done, with the specimens numbered and pressed in random order. At about number 1000 Wilson seems to have changed his system. Collections after this point apparently were grouped by genera before numbers were assigned (thus, for example, numbers 1400 to 1435 are mostly species of Salix from nonadjacent areas). Why this change in system took place is not revealed in any of
The label prepared for the specimens collected by Wilson for the Veitch firm. Very little information was given on the label and additional data is often in Wilson's field books.

A comparable label for specimens collected for the Arnold Arboretum in 1907, contained a greater amount of information.

Wilson's or Sargent's letters. Possible answers are that Wilson accumulated specimens from several trips and numbered them at one time, or perhaps that his collectors arrived from different areas and their collections were sorted to genus, numbered, and entered in the records.

The second portion of this ledger contains numbers 4000 to 4464, representing the 1910 trip, and duplicates the published Field Notes (Wilson, 1911). There are frequent notations in these entries that plants are being sent, and the numbers do not represent herbarium specimens.

A second ledger in the Arnold Arboretum library (AA #39525) has the primary entries in Wilson's hand but does not seem to have been carried in the field. The numbers run from 1 to 3817. Entries
1 to 1474 are as in AA #39526; however, the descriptive details often vary in order and amount. The numbers above 1475 are generally grouped by family or genus. The listing is annotated in a variety of hands, with the complete scientific name, the authority, and an occasional reference to the place of publication.

This ledger does not contain the numbers between 3817 and 4000; the second portion also repeats the names published in Field Notes, numbers 4000 to 4462, but with identifications entered for the majority. There is an initial column designated as “no. of sets,” with numbers 1 to 11 apparently indicating the number of duplicates. Where no number appears in this column, the collection may have been a unicate or, since the material is often not completely identified, propagating material sent to the Arnold Arboretum. Throughout this ledger there are some scattered references to photographs. The 1910 trip represented by the second half of the ledger ended abruptly for Wilson when his leg was broken and he was incapacitated for twelve weeks. He did record in a letter that his men continued to work in his absence, and there are collections numbered from 4463 to 4744, mostly all identified, and grouped by genus or family but from a variety of locations.

A third ledger in the Arnold Arboretum library (AA #39611) is entitled “Numerical lists of seeds [Nos. 1 to 1474, 4000 to 4462] collected on his Arnold Arboretum expeditions to eastern Asia 1907–1908, 1910, which were planted in the arboretum nurseries.” Although the numerical sequence is complete, not all numbers have entries. Wilson’s seeds were sent to Sargent at irregular intervals and were distributed by Sargent, probably by number and with incomplete identification, before the associated herbarium specimens were shipped to Boston at the end of Wilson’s expedition. Wilson’s seeds, when grown at the Arboretum and planted out as living specimens, may also carry new serial accession numbers; the field numbers and accession numbers are cross-referenced in the Arnold Arboretum. Today plants grown from seed and sent to Kew or Edinburgh (and possibly to other places) often carry only the Wilson seed number and may lack details as to origin. It would be possible, but not at all an easy task, to associate Wilson’s seed numbers with herbarium vouchers, work out the details of location, and obtain the original field data for the plants that he introduced. Other columns in this ledger indicate that the seeds or seedlings were plants in several different locations at the Arboretum: greenhouse and frames, Dawson nursery, Curtis nursery, overlook nursery, Peter’s Hill nursery, the shrub collection, and the Arboretum collection. For the 1910 collection an additional column is designated “Prof. Sargent,” and the entries include herbaceous plants that apparently were grown only at Holm Lea.

During the trips to China for Veitch and for the Arnold Arboretum, Wilson attempted to collect the same plant in flower and in fruit. In
Above: The isotype specimen of *Rhus wilsoni* Hemsley. Wilson's original field "ticket" is 2 inches square. The printed labels of the Veitch firm did not give specific locations and rarely had sufficient space for an annotation. Below. The printed tags with strings that Wilson attached directly to the specimens collected on later expeditions for the Arnold Arboretum. A date stamp and a numbering stamp appear to have been carried in the field. The small rectangular tag was attached by Wilson to a specimen collected in Kenya in 1921.
Plant Hunting (1927, Vol. 1, p. xxvi) he noted, "The plant hunter having found his plant must abide the proper season for securing ripe seeds, roots or small plants, or failing these, wood for cuttings or scions. His quest may be found in blossom in spring or summer when it must be marked down for another visit in the autumn. Often several visits are necessary before the actual season of harvest is determined." Wilson indicated in his letters that often a specific plant might be marked, and that either he or a collector returned to the plant and presumably collected herbarium specimens in fruit, as well as the seeds and fruits. Thus, many of Wilson's herbarium collections bearing a single number will reveal on data slips dates of May and September or July and October of the same or even different years. If the collector returned to the marked plant, the flowers and fruits may represent the same plant. However, the frequency with which Wilson's collection numbers have subsequently been superscripted (e.g., "a," "b," "c"), or have been cited "in part" or "fruit only" in Plantae Wilsonianae and other publications, indicates either that the collector did not locate the original tree, or that if he did, he did not confine his collecting to one plant, and a mixed collection has resulted. Furthermore, there is evidence that some of Wilson's numbers cited "in part" and those with superscripts are deliberately mixed numbers collected from widely separated locations. For example, in the case of Acer Henryi Pax, "No. 424, in part" has been given to specimens taken in "Fang Hsien," "Changyang Hsien," "Patung Hsien," "north and south of Ichang," and "Hsing-shan Hsien" (Sargent, 1911, Vol. 1, p. 97). These collecting localities in western Hupeh cover an area of roughly 120 square kilometers. The reason for this unorthodox assignment of numbers is unclear.

The seed or propagating material sent back to the Veitch firm was grown, and the plants were often exhibited. Such living material is the basis for the botanical descriptions of many species cited as "Wilson," without number, date, or locality. A few names that we have been able to check in the Kew herbarium were not represented by any specimens attributed to either Veitch or Wilson.

During his first two trips, Wilson sent dried collections to Veitch at intervals. Wilson wanted the identifications reported to him, but James Veitch often wrote that he had not yet had time to work over the material. Eventually Herman Spooner of the Veitch firm may have been given the task of identifying the collections. A letter that Spooner sent to Wilson commented on the fact that he could not associate the living specimens at the Coombe Wood nursery with the names placed on the herbarium sheets. Wilson dedicated Rhododendron spooneri to Mr. H. Spooner, "who very largely assisted in making up my collections into sets for disposal to different herbaria."

Hemsley and Wilson (1906, p. 147) reported, "The first set of this collection [1899-1902 and 1903-05 trips] was very generously presented to the Herbarium at Kew by Messrs Veitch." Earlier, however,
M. T. Masters (1903, p. 267) had written, "The following enumeration comprises the names of the Coniferae collected in various parts of southwestern and central China by Mr. E. H. Wilson, on behalf of Messrs James Veitch and Sons. Seeds of most of the species were gathered, and the seedling plants are in cultivation in Messrs Veitch’s nurseries. Mr. Wilson’s specimens are excellent...." Concerning *Picea ajanensis* Fischer, Masters (1903, p. 269) commented, "Mr. Wilson collected numerous cones of this species so that the hesitation expressed as to the identity of the specimens collected by Dr. Henry and Abbé David need no longer be felt." Five of Wilson’s seed collections, when grown to flowering condition, were illustrated in *Curtis’s Botanical Magazine* for 1903. In the same year Henry (p. 100) stated, "I only had the opportunity of seeing part of Mr. Wilson’s dried specimens — the lot collected by him in his first year at Ichang."

Between 1906 and 1908 a large number of species were described by the Kew staff and others in the series "Decades Kewensis, Plantarum novarum in Herbario Horti Regii Conservatarum," which appeared regularly in the *Kew Bulletin*.

Some of Wilson’s earliest gatherings at Laokai, which he made while he was en route to see Henry, were spores of ferns. There is no conclusive evidence that herbarium specimens were gathered; however, when plants developed from the spores, these were sent to H. Christ in Switzerland for identification. This association with Christ was continued during Wilson’s trips for the Arnold Arboretum.

Following his trips for Sargent, Wilson was employed to work over the collections. Sets of specimens were selected and mounted, and labels were prepared. Wilson wrote in detail of the materials assembled on his third trip. The collections of 1907 had been in storage in Ichang, and those of 1908 were added to them. Wilson hired a boat in addition to "The Harvard" for the descent of the river to the coast and divided his collections between them. He wrote,

> I have this day shipped home the herbarium material collected during the two seasons the expedition has been in China. It is contained in twelve cases measuring 8½ tones [sic]. I have no accurate idea of the numbers of specimens but I think it must be the largest as it certainly is the finest and most complete collection I have got together. It probably contains some two thousand five hundred species in some twenty thousand sheets. With rare exceptions each species is replete with flowers and fruits, the specimens of barks of practically every tree have been preserved and I think you will find this collection of barks of interest and value. Collecting these barks has increased the work considerably but I believe it to have been time well spent.

In the cases of all plants with "fleshy" fruits and also with many having capsular fruits, a small packet of seed bearing the seed number is attached to its proper specimen. By
this means after the material is properly sorted you will be able to name every plant you have growing from the seeds sent without waiting for these plants to flower. [Sargent had written Wilson that not all seeds had been planted. Some seeds were retained for a second try or an emergency situation, or to enable later determination.]

With the exception of Pinus and Larix we have had ill luck in regard to seeds of conifers, but the herbarium material of this group and more especially of Pinus itself you will find exceptionally good and complete. In many cases I have been able to secure a hundred cones in addition to those on the specimens themselves. This per your letter of general instructions.

One specimen of every species bears a rough field ticket giving the necessary information not derivable from the specimen itself. More than this pressure of work has rendered impossible. The sorting, labelling and making into “sets” of this herbarium will be a big and I fear difficult task. It would be well not to have the cases unpacked until you have men ready to start on the task of making up the sets. The conifers should be carefully set aside in the general sorting and dealt with either first or last. The packages of cones should be set aside and on no account must one of these packages be opened until the conifers have been arranged in “sets.” The clue to the ticket in and/or on the packages of cones is to be found on the label of the corresponding specimens themselves. If by any chance the cones should get mixed I fear no earthly power can set them straight.

I much regret that want of time prevented the arranging of this herbarium material in such a manner that it could be as easily dealt with by anyone as by the person who collected it. (Wilson, letter, March 6, 1909.)

Later, Wilson wrote “Cases J.E.T. No. 14 contain two small boxes each marked Arnold Arboretum. These small boxes contain succulent fruits or various plants and certain coniferous material all preserved in Chinese spirit. Mr. Thayer will hand these over to you after taking possession of his own material enclosed in the same larger case” (Wilson, letter, March 26, 1909). When the sets of specimens were made, several collections of the same number were mounted and retained by the Arnold Arboretum. Thus, flowering, fruiting, or sterile specimens, juvenile foliage, aberrant growth forms, bark, or wood may all represent the same plant under one number, although the dates may be different. Some of the labels were written completely by Wilson, and each label carries slightly different details — as though it had been written for the particular mounted
An herbarium specimen of Taiwania, collected by Wilson in Formosa, represents an adventitious shoot from an exposed root. Wilson also gathered specimens of cones, vegetative but sterile branches, pieces of the bark, and wood from this tree. The label contains data entered on three different occasions.
specimen before him. In other cases, another person wrote the basic label, repeating the same data on each, and Wilson added only the determination. We retain no record in the Arboretum files indicating where sets were sent. It has been our experience, however, that other institutions did not receive multiple specimens of a single number and may, in fact, have only the flowering or the fruiting collection. Where these represent a mixed collection, the annotation or identification may be in error. To the present, not all of Wilson's plants have been identified, and material is found in the "indet" covers at the family or genus level without complete determinations. No complete numerical list is available for his collections.

It must also be kept in mind that Wilson employed a number of Chinese who collected for him; Wilson may have assigned his number to their material. It appears to be these collections that most frequently lack data on location, date, or characteristics. The fact that Wilson appeared to be in widely separated places on the same date may be due to his unacknowledged "collectors." An itinerary of his field travel can not be compiled from the serial collecting numbers, and it is dangerous to draw conclusions on possible associations of plants with adjacent numbers as being components of one floristic zone. Moreover, in the early field notes derived from the Veitch records, Wilson noted that he obtained some seeds and specimens from Henry on their initial meeting. These now bear Wilson numbers. Later, on leaving China in 1909, Wilson wrote to Sargent that he had acquired herbarium specimens from Fokien from S. T. Dunn (Superintendent, Botany and Forestry Department, Hong Kong, 1903–1910), and later a collection was made by a Chinese collector "and is unfortunately without labels. However we must consider ourselves fortunate in getting them at all" (Wilson, letter, April 12, 1909). The Dunn specimens are not known to me, but several "Ningpo" collections have been encountered — a few with Wilson's name and a few credited to MacGregor.

Wilson traveled to Japan between December 24, 1913, and February 29, 1915, and obtained living material, seeds, and herbarium specimens. These as well as photographs are recorded in two field books (AA #39527, #39528), with numbers starting at 6001 and ending with 7888. The Wilson serial numbers between 4744 and 6000 apparently were not used. For this trip and the following one Wilson used round or square tags printed or stamped with his name and number and attached to the specimen with a string.

A trip to Japan, the Liukiu and Bonin islands, Korea, and Formosa occupied Wilson in 1919, and his collections are represented by field books (AA numbers #39529, #39530, #39531, #39532, and #39533). Collections are numbered consecutively; again, however, they may be grouped by genus and thus can not be used to determine a chronological itinerary. Serial numbers 9634 to 9736 were inadvertently used twice for collections from Korea and Formosa.
In 1920 Wilson began a trip that included Australia, Tasmania, New Zealand, India, Ceylon, and East, Central, and South Africa. Only a few of Wilson's notebooks and diaries are available for these trips, and they are without serial accession numbers. One field book for Australia is in part a diary and itinerary and in part a numerical list of collections numbered from 1 to 507. A second book for this trip has lists numbered from 520 to 717 and a separate signature of small sheets with numbers from 700 to 799, indicating a repetition of numbers 700 to 717 within Wilson's Australian collections. Wilson did collect some specimens in Tasmania and New Zealand, but all of these are without collectors' numbers in the herbarium of the Arnold Arboretum. There is no evidence that Wilson collected specimens in India or Ceylon, although a partial diary account of that trip has been preserved. While in East and Central Africa, Wilson recorded his search for Juniperus procera in Plant Hunting (1927a). Various herbarium specimens from Kenya have been located, several bearing numbers 21 and 138 and others without numbers, suggesting that Wilson had still another numerical series for this trip. For South Africa, two lists of identifications have been preserved; these were made by Marloth of Wilson's South African plants and include numbers between 80 and 430 with many gaps. Wilson may well have had a different series of numbers for each country he visited.

In the third volume of Plantae Wilsonianae (Sargent, 1917, pp. 463–511), Rehder and Wilson published a list of "Numbers and names of specimens collected during the two Arnold Arboretum expeditions." A footnote indicates "this is a complete enumeration of all the numbers referring to woody plants; numbers omitted refer to herbaceous plants. For the numbers and names of Ferns see H. Christ, Filices Wilsonianae [in Bot. Gaz. 51: 345–359. 1911]." Under "other collections cited," Rehder and Wilson gave numerical lists of identifications for Wilson's Arnold Arboretum expedition to Japan, numbers 6029 to 7868; his Veitch expeditions to China, numbers 1 to 5186; and his Veitch expedition, seed numbers 98 to 1930. In the text Rehder and Wilson referred to the Arnold Arboretum collections as "Wilson No. " "Wilson Veitch Expedition No. " or "Veitch Exped. Seed # " (or "Seed No. ").

Wilson's collection or plants as cited in the literature of 1903–1910 are those of the Veitch expeditions, although that may or may not be indicated. In the literature after Wilson's 1907–09 trip for the Arnold Arboretum, it is often impossible to tell which set of Wilson's numbers was used without consulting the herbarium in which the specimen may be deposited.

Rehder and Wilson and the other contributors to Plantae Wilsonianae may have designated "type" or "co-type" for new species. The holotype designation was not then in use, and three, four, or more sheets in the Arnold Arboretum herbarium may be marked as "type" in either Wilson's or Rehder's hand. In a modern treatment of any
species based on Wilson's plants, the designation of a single specimen as a lectotype is required. In a few cases the situation is further complicated when a living plant associated with the original collection is involved. In the case of *Salix rehderiana* Schneider, the "type" is designated as the pistillate plant, collected April 24, 1912, and grown from cuttings of *Wilson 1403*. A sterile specimen of 1403 collected in November, 1908, is indicated as a "co-type"; a staminate specimen of the same number collected April 13, 1910, is also marked "co-type."

In the future it seems desirable to use a parenthetical designation after a Wilson collection — for example, *Wilson 123 (Veitch Exped.)*, *Wilson 123 (Veitch seed)*, *Wilson 123 (AA expedition)*, *Wilson 123 (E. Africa)*, *Wilson 123 (Australia)*, or possibly other, similar combinations.

**Wilson's Field Numbers in Summary**


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