

Leadership of the Patent Office 1836-62

PRIOR to the agricultural appropriation of 1839, the government had made several sporadic attempts to encourage plant importation. In revising the tariff regulations in 1816, Congress permitted foreign plants and trees to enter duty-free. Efforts were made in 1822 to use the Mall, an area of 200 acres between the Capitol and the Washington Monument, as an experimental farm for propagating new seeds and plants. Dufour and Perrine had received land grants to carry on their work, and a committee on Agriculture was created in the House in 1820 and in the Senate in 1825.

The grant of 1839, however, was the first significant Federal achievement in the field of agriculture. It called for an appropriation of \$1,000 from the Patent Office funds to aid in collecting and publishing agricultural statistics and for the collection and distribution of seeds. Known as the Agricultural Division of the Patent Office, the new bureau came under the jurisdiction of the State Department. This work of handling new seeds and plants was considered a function of the Patent Office because of the department's concern with new discoveries and inventions.

ELLSWORTH FAVORS PLAN

Oliver Ellsworth, head of the Patent Office during this period, was instrumental in securing the appropriation of 1839. In the first *Annual Report* of 1837, Ellsworth recommended the establishment of a "depository" for new varieties of seeds and plants until they were distributed. Introductions brought in by the Navy had often failed for the lack of a regular means of distributing plant materials left with customs collectors. Although no immediate action was taken by Congress, Ellsworth continued to receive and

distribute improved varieties of wheat, corn and other seeds. Distribution of the seeds was done under the postal frank of friendly members of Congress. This was the beginning of the congressional practice of free seed shipments to constituents.

In January of 1839 the chairman of the Committee on Patents in the House wrote Ellsworth for information on the collection and distribution of seeds and plants and the gathering of agricultural statistics. Ellsworth strongly advocated an appropriation for this work. President Van Buren also recommended the appropriation in order to widen the scope of the Sixth Census by the collection of agricultural information. Ellsworth's testimonials from farmers, particularly those regarding improved Indian corn, had made evident the benefits to be gained by planting better varieties. The appropriation was passed in the Act of March 3, 1839. (1) Because it focused Federal attention on the place of agriculture in our economy, this act led to the establishment two decades later of a Department of Agriculture.

WORK OF THE PATENT OFFICE

During his term as Commissioner, Ellsworth solicited the aid of the diplomatic corps and the Navy in collecting seeds for the Patent Office. The farm press recognized him as a benefactor and credited him with making great efforts to secure new plants. (2) The original appropriation was duplicated in 1842 and increased gradually in succeeding years until 1848, when the bureau received \$3,500 for its annual budget. A tariff act in 1842 further encouraged plant introductions by exempting foreign garden seeds from duty. (3)

The Patent Office *Report* of 1845 praised consuls abroad for procuring seeds and information, and requested more funds to continue purchases. Difficulty in establishing agencies abroad for the collection of new seeds had hindered the work of introduction, and varieties frequently had been distributed to parts of the country where they could not grow.

A record distribution of more than 60,000 packages of seed was made in 1847. Some of these seeds were presented by the Minister of Agriculture and Commerce in France, through the efforts of Alexandre Vattermare, promoter of international plant exchange. C. F. Hagedorn, the Bavarian consul at Philadelphia, imported seeds from his government. The Bavarian Government had re-

quested him to establish an exchange of plants between the Royal Botanic Garden and the botanical garden in America. (4) By 1848, more than 250,000 packages of seeds had been dispersed, and reports of poor seed germination, which became common in later years, were being received.

The Patent Office *Reports* of 1847-48 indicate that the government wanted more information on wheat, especially imported varieties. *Multicole rye* was imported from France in 1843 for trial, and the Commissioner of Patents attempted to get enough seed of the *Mark Lane Express* barley from England to distribute. That same year, the Patent Office planned to distribute seeds of some very hardy varieties of Hungarian tobacco procured by Charles L. Fleischmann. The attention of the public was also invited to a new, successful Turkish tobacco.

AGRICULTURE UNDER THE DEPARTMENT OF THE INTERIOR

A Congressional Act in 1849 transferred the Patent Office from the Department of State to the new Department of the Interior. With this, the reorganized Agricultural Division of the Patent Office achieved enough prominence to make a separate *Annual Report* of its activities. These reports continued until the work was absorbed in 1862 by the newly created Department of Agriculture.

The chief concern of the Agricultural Division continued to be the introduction of seeds and plants. Charles Mason, Commissioner of Patents from 1853 to 1857, proved unusually resourceful in this work. Mason felt more keenly than his predecessors the need for a vigorous program of plant introduction. The *Report* for 1854 showed that earlier commissioners had allocated a considerable share of their appropriations to the work of plant dissemination. But Mason felt that the prime object in expending this money was "the introduction and naturalization of new and useful vegetable products, hitherto unknown in the United States." Mason believed that "the advantage resulting from the introduction of a new commodity of average utility for consumption or commerce is of more value to the country than the acquisition of a new province."

The *Report* for 1861 reflected the attitude of another commissioner who favored plant introduction. D. P. Holloway, who was also a prominent agricultural editor, spoke out for this work

because "great diversities of heat and cold, aridity and moisture, desolation and extreme productiveness, these very contrasts open up a wide field for scientific investigations, to ascertain what crops and modes of culture are best adapted to all these diversities." The commissioners also urged that the vitality and productivity of plants propagated by buds or cuttings should constantly be increased by the dissemination of new seed stocks.

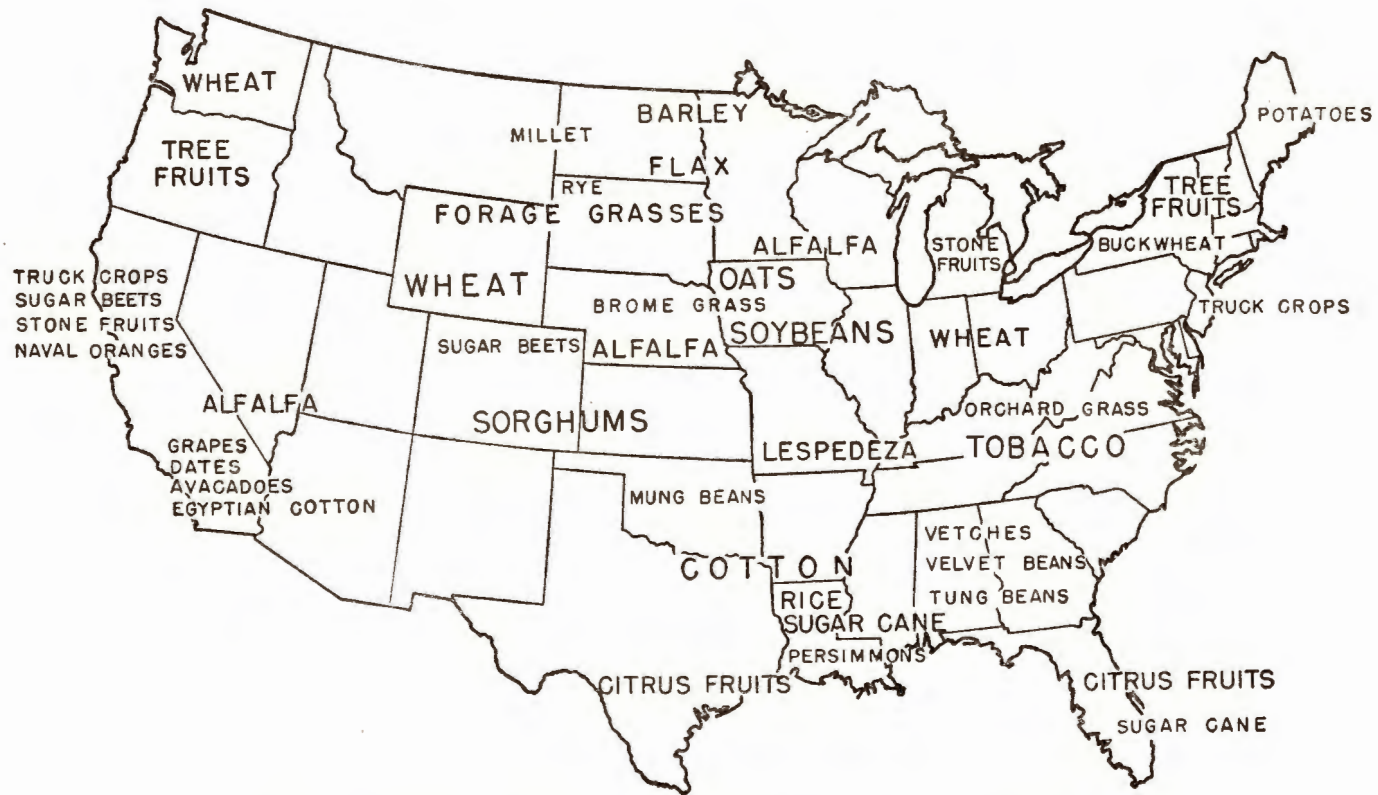
Foreign Seed Buyers—Among those plants commanding the interest of the Patent Office, tea and the Chinese sugar cane received the greatest emphasis. An agent of the office went to Europe in the fall of 1854 to procure seeds of grains, grasses, and leguminous plants direct from the growers. At the same time, the dissemination of choice varieties found within the United States was not neglected.

D. J. Browne, agricultural expert, made two trips to Europe to procure seeds from reliable sources, and spent large sums of money with the principal foreign seed establishments. This buying program was severely criticized by dealers in America, and a Senate committee's investigation followed. Browne's activities were above criticism, however, and his work in Europe makes him our first accredited agricultural explorer.

As in earlier years, considerable attention was directed to viticulture in conjunction with experiments to promote a domestic wine industry. Temperance, the argument ran, would be encouraged by substituting wine consumption for distilled and "factitious" liquors. An assemblage of citizens from most of the states and territories met at the Patent Office on January 3, 1859. They supported the program, and resolved themselves into an "Advisory Board of Agriculture of the Patent Office."

New Plants From Asia—The vast vegetable resources of eastern Asia received much attention during the nineteenth century as sources of new plants for America. In 1856 the minister to China was requested to procure seeds and plants up to the value of \$1,000. The similarity of the climate of the eastern United States and regions of Central Asia led the commissioner to believe Chinese crops would thrive in America. Long a rich source of plant life, Central Asia was still an unexplored region and appealed to gardeners because of its rare plants of high value.

The Navy brought sugar cane cuttings from islands in the Pacific area, but the amber sorgo, tea, and many other plants



GENERAL CULTIVATION AREAS OF IMPORTANT CROPS INTRODUCED INTO THE UNITED STATES.

came from China. For improved varieties of the common field and vegetable crops the Patent Office turned to Europe. England and France were considered sources of improved varieties of bread grains, but after 1850 the search was extended, and small grains were procured from Poland, Algiers, and the borders of the Black Sea.

DISTRIBUTION OF SEEDS

By 1850 more than 80,000 packages of seeds were being distributed annually, although the budget for *all* agricultural activities was only \$4,500 per year. Congress first made specific provision for collecting and distributing seeds in 1852, and in 1854 increased the annual appropriation for agricultural work to \$25,000. (5)

This increased appropriation during Mason's term made it possible to enlarge the program of distribution, and in 1861 2,474,380 packages of seed were sent out, including 15 varieties of garden and 230 of flower seeds. Mason proposed to send many small packages to a large number of people. He believed this policy would give the new plants a better trial in every section, and the laws of chance would place them in many conscientious hands. Mason secured his mailing lists by requesting postmasters to send him the names of persons likely to give the seeds a fair trial. Agricultural societies requested seeds for distribution among their members. The legislature of South Carolina appropriated \$5,000 a year for experiments with plant materials.

Seed Firms Employed—With more funds at its disposal the Patent Office for a time was able to send its own agents to Europe in search of seeds instead of having to depend entirely upon the Navy and the State Department for help. In 1855, however, arrangements were made with the seed firms of Vilmorin-Andrieux in Paris, Charlwood and Cummins in London, Ernest Von Spreckelsen and Company in Hamburg, and William Skirving in Liverpool to supply foreign seeds. The French and the English concerns continued to fill large seed orders for the government for more than ten years.

Congressmen continued to assist in seed distribution by sending parcels to their constituents, and would not limit the benefits of the system to experimentation. Consequently, many of the seeds distributed were those of the ordinary field and garden crops. The government purchased large quantities of these common

seeds from European firms for distribution, and in 1856 flower seeds were also sent out. Congress appropriated \$75,000 for agriculture in 1856, and a report of the purchases made with this money show that the bulk of it was spent on seeds of the commonly-grown crops.

Imported seeds were admitted duty free by the Treasury Department, and they came in so frequently that Mason requested that a general order covering all such shipments be issued so that the Patent Office would not have to make out a separate authorization on each shipment.

SEED DISTRIBUTIONS CURTAILED

Following Mason's term as commissioner, the work of the Agricultural Division was subject to the alternate expansion and retrenchment of its budget caused by political changes. In fact, Mason felt it necessary to temper the generosity he had displayed earlier. Individuals receiving seeds were reminded that they were public servants, working for the common good. Free seed distributions had caused some persons to look upon the Patent Office as a common seed store for planting their vegetable gardens. Mason, who was charged with collusion with seed dealers, felt that the government should take care lest the people come to look upon it as a fountain of favors and benefits. His criticism did not become valid, however, until the government quit confining itself to the introduction and distribution of new and important plants.

Economy measures in 1859 cut the appropriation for the Agricultural Division so much that only projects already under way could be continued. Commissioner William D. Bishop recommended that the money be used only to distribute varieties not previously introduced. There was also the problem of government competition with industry. Actually the seed distributions by the Patent Office had promoted the sales of commercial seed firms by calling the farmers' attention to the utility of fresh plant stocks and a variety of crops. However, the government did not wish to compete with the efforts of the seed dealers who by this time were established in all the principal cities.

SEPARATE CROP HISTORIES

TEA CULTIVATION

For many years growers pondered the question of raising tea in America in order to relieve the dependency upon foreign sup-

pliers. They believed that if this important staple could be produced at home, it would improve the balance of trade and national self-sufficiency. A new crop industry would employ more labor, increase the national wealth, and add diversity to southern agriculture.

First Plantings—The first known tea grower in America was Andre Michaux, the French botanist. Michaux set out tea plants around 1800 on the banks of the Ashley River, about fifteen miles from Charleston. *Niles' Register* reported in 1823 that genuine *Hyson tea* had been successfully cultivated in North Carolina from a viable seed found among tea leaves. This is surprising, since at a later date it proved impractical to import viable tea seeds because they frequently turned rancid during the long ocean voyage. In November of the same year, a large bed of tea shrubs was reported growing in Louisiana, and *Niles' Register* recorded that a specimen of Southern tea was found to be palatable and refreshing.

Even at this time there was some doubt about the success of tea growing in America due to the large amount of cheap labor needed for its cultivation. Tea said to compare favorably with the best China varieties was reported in Louisiana in 1825. The successful cultivation of the tea plant for more than fifteen years in South Carolina was announced in 1828. Such reports were not widely available, however, as evidenced by the fact that the editor of the *Genesee Farmer* hoped in 1837 that some enterprising shipmasters would introduce tea from China.

Government Interest—America's desire to grow tea grew out of the successful cultivation of the plant by the British East India Company in the middle of the nineteenth century. Dr. Junius Smith was the first to experiment seriously with tea growing for agricultural and commercial purposes. He selected a farm in the foothills of western South Carolina as the preferred climate for the tea plant, and in 1848 imported plants of seven-years' growth from London and India. The Patent Office took an immediate interest in Smith's work and recorded the introduction in anticipation of the future interest this "enterprising projector" would arouse. Smith also promoted his own publicity through the farm papers. The Department of the Interior asked the Navy to secure some tea seeds from the East Indies in 1851, but the effort did not succeed.

FORTUNE HIRED TO FIND TEA

In a report on plants worthy of introduction, Commissioner Mason listed tea as being desirable for home consumption. Many people believed that American growers could compete successfully with the Asiatics for the tea market. America had new machinery for processing tea, a plentiful supply of skilled and cheap slave labor, and superior transportation facilities. An article in the *Annual Report* for 1855 described the Chinese methods of cultivating and harvesting tea. As interest in the subject grew stronger, Mason engaged Robert Fortune, a plant explorer, to obtain tea plants from China.

Fortune had already acquired a reputation for his services to the British Empire, exploring for three years in the interior of China and collecting seeds and plants for the London Horticulture Society. He also had been employed by the British East India Company in 1848 to procure tea seeds from the Himalaya region, and this was the beginning of a successful tea industry in northern India. Fortune is also remembered for the many varieties of the chrysanthemum he sent to Europe, which later found their way into American gardens.¹

At the request of the Patent Office, Fortune sailed from England for China in March, 1858. He wrote from Shanghai that he had made arrangements with natives for large supplies of seeds and plants at the proper season. Commissioner Joseph Holt, who was Mason's successor, hoped through Fortune's efforts to be able to found a new agricultural industry in the South. Meteorological and geological studies were made to determine the areas most similar to the native environment of the plants to be imported.

Fortune sent tea and camphor seeds to the Patent Office and entrusted two cases of plants and seeds to the *Nabob* bound for New York. These cases contained specimens of *indigo* tea, the *soap bean*, and the *grass cloth* plant. Apparently deciding that the plants needed no further expert attention, Holt dismissed Fortune before he could return to America.²

The tea seed, which was shipped in Wardian cases, flourished,

¹ His various explorations are described in his three books: *Three Years Wandering in the Northern Provinces of China* (1847), *A Journey to the Tea Countries in China* (1852), and *Yeddo and Peking: A Narrative of a Journey to the Capitals of China and Japan* (1863).

² Fortune expected to be paid six months' salary for this sudden change of mind on the part of Holt.

and had grown to a height of eighteen inches when taken from the original cases in Washington.³

Distribution of Tea Plants—In 1859, 30,000 well-rooted tea plants were ready for distribution to southern growers and to gardeners in the North who had greenhouses. The Patent Office expected to continue supplying these plants in order to give tea cultivation a fair trial over a period of years. Some growers were optimistic enough to hope that the substitution of steam power and machinery for hand labor in the preparation of tea might eventually make it an article of export.

The dissemination of tea plants was a prominent part of the work of the Agricultural Division until the Civil War halted communication with the South. The Department of Agriculture continued to propagate the plants after its formation in 1862, and efforts to introduce the tea plant were not given up until recent years.

SORGHUMS FOR SUGAR

During the decade preceding the Civil War, the production of sugar from sugar cane declined sharply while prices and per capita consumption of the product were steadily increasing. This was due in part to the rapid degeneration of sugar cane importations—which had to be supplanted with new cuttings periodically. The annual consumption of cane sugar in America reached 822 million pounds in 1855, and more than half of this had to be imported. Sugar beets were considered impractical for our economy because their cultivation required a lot of cheap labor. Maple sugar production had increased, but it failed to make any appreciable difference in the shortage of native sugar.

Chinese Sorgo—To step up sugar production, the Patent Office turned to the sorghums as a substitute for the sugar cane. The Chinese sorgo and other sorghums aroused more interest than any other single plant introduction during the nineteenth century be-

³ The use of Wardian glass cases for transporting plants great distances at sea came to be widely practiced soon after the discovery of their principle by a London physician, Nathaniel B. Ward, in 1829. The Wardian case is simply a closed glass case that protects plants from various unfavorable conditions. It protects them from impure air, salt spray, cold air, and high winds. It maintains constant humidity and moisture in the soil, because it permits only negligible air circulation. With the advent of transportation by airplane, the Wardian cases have become largely obsolete.

cause of their wide adaptability and variety of uses. Chinese sugar cane, identical with the black amber cane commonly sowed today as a hay crop in Texas, was first referred to by the Patent Office in its *Report* of 1854 as the "Sorgho Sucrè." This was the French name for a variety sent from northern China in 1851 by the French consul at Shanghai. At the request of his government, the Count de Montigny had forwarded a collection of plants, seeds, and cuttings to the Geographical Society of Paris. The seeds were sent to the director of the Marine Gardens at Toulon.

According to the accounts, only one cane seed of the entire lot sprouted, and the survival of this plant was accidental. Such lore is rather common in the early history of the migration of crops into different lands. It springs, no doubt, from the fascination of such stories of the chance survival and reproductive capacities of plant life.

The Patent Office took an immediate interest in the French sorgo when it heard that the juice of the plant could be processed to make sugar, that three crops might be taken from the same ground in one year, and that it could be used as a forage crop. The French also had hoped that the new plant would supersede the sugar beet in the production of sugar and alcohol.

First Introductions—Credit for the introduction of the new sorgo belongs to D. J. Browne of the Patent Office, who brought over from France about 200 pounds of the seed in 1854. D. Redmond, editor of the *Southern Cultivator*, also obtained some of the seed about the same time from the firm of Parker, White and Gannett of Boston. He planted a few ounces in the spring of 1855 and distributed seed from this crop throughout the South. Redmond therefore claimed credit for introducing this cane into general cultivation in the South.

Another claimant for the honor of having been the first to introduce the cane to America was William R. Prince, head of one of the leading seed and plant businesses of the time. Prince's claim that he brought the cane in a year before either Browne or Redmond is accepted by Peter Collier, in charge of sorghum experiments for the Department of Agriculture during the 1880's.

The Patent Office had about 175 bushels of the cane grown near Washington in 1855, and imported another 100 bushels from Vilmorin in France. *The American Agriculturist*, a leading agricultural journal in the North, assisted in disseminating the cane. Its editor, Orange Judd, distributed 1,600 pounds of seed in 1857

to some 31,000 subscribers to his magazine. Judd obtained his seed from Vilmorin in time to grow a 75-foot row in 1856. Two years later, Judd distributed 34,500 one-pound packages of the seed. (6) This work helped to extend cultivation of the cane to every portion of the country.

PROMOTION OF SORGHUMS

Five acres of land—the beginning of the Federal propagating garden—were set aside in Washington, D.C., for the production of cane seed. The first seed crop from this land was distributed during 1856-57. After this time the Patent Office did not make any more general distributions of cane seed because enough seed had already been given out to make them generally available. Subsequent distributions were mainly of special varieties, or else made for the sake of giving something free to the voters.

Value of Sorghos—Commissioner Mason actively promoted the Chinese sugar cane because he was enthusiastic over its many uses. It could be employed in the manufacture of sugar, syrup, alcohol, or beer. From the cane came a dye to make wool or silk a permanent red or pink. Livestock ate it avidly, either dry or green. The rapid growth and the amount of nutritious fodder produced by this cane could not be matched by any other crop grown on an equal space. It would also support large numbers of livestock for the production of beef, milk, and fertilizer. Interest in the Chinese sugar cane reached a peak in 1857. The possibility of its extensive cultivation—up to 25 million acres—as a partial substitute for Indian corn was foreseen.

D. J. Browne, in promoting the crop at a meeting of the United State Agricultural Society, saw its chief value as cattle fodder and prophesied that it would be revolutionary in this respect. Such promotion probably was necessary to counteract the skepticism of farmers who remembered the *Morus multicaulis* speculation. Its merits for certain uses were already well established, and a chemist worked for the Patent Office to determine the amount of alcohol and saccharine matter in the cane stalk. Experiments in sugar manufacture were already under way in Texas and other states.

The first recorded instance of the sorghum's recognition as drouth resistant is that of a farmer at Gonzales, Texas, who found it ". . .an important acquisition to our agricultural resources. It stands drouth better than any other plant that I am acquainted

with. Its introduction into this country must produce an entire revolution in our rural operations. Its culture will supersede that of Indian corn."

A cursory examination of the farm papers of this time quickly shows the interest current in the new crop and its value to almost every section of the nation. By 1857 the Patent Office had distributed 100,000 papers of seed, and other suppliers had furnished so much other seed that Olcott estimated 50,000 acres were cultivated in that year. The Patent Office reported in 1858 that the Chinese cane had proved especially successful in the southern, middle, and western states, and that an estimated 100,000 acres worth two million dollars had been planted that year.

African Sorgos—At the same time that interest in the Chinese sorgo was running high, another introduction of sorghums was made from Natal, South Africa. These sixteen varieties imported in 1857 were the most important group of sorghums ever brought to America. The man responsible for their introduction was Leonard Wray, a planter from England who discovered the varieties in South Africa and took them with him to Europe before coming to this country. (7)

Wray came to the United States at the invitation of Governor Hammond of South Carolina. A similar invitation had been sent to him by the Patent Office but was never received. Wray had applied to the Patent Office for a patent on his process of making sugar from sorgo. His arrival from Europe heightened the interest in the production of sugar from sorgos and increased the hopes of success. Wray at first intended to maintain a monopoly of his plants. Either he failed to do so, or saw that the attempt would not prove profitable. At any rate, his introductions came to be widely grown in this country. For three decades the Patent Office, state agencies, and individuals carried on expensive experiments with sorgos hoping to find in them the basis of a sugar and syrup industry.

MISCELLANEOUS INTRODUCTIONS

The vigorous efforts of Charles Mason to introduce new plants are well illustrated by the number of crop possibilities he considered and investigated. In his search for better varieties of the commonly grown grains, a dwarf variety of Indian corn called *Forty Days Maize* was re-introduced from southern Spain. It reputedly ripened in forty days in the Alps, and was to be tried in

the high valleys of America where other varieties did not succeed. This is the first instance in the United States of plant introduction for the purpose of breeding desirable qualities of the immigrant into the ordinary native varieties. This Indian corn was crossed with larger sorts to improve their taste and to hasten the time of ripening. A *Cuzco corn* from Peru was obtained through Vilmorin of Paris.

Field Crops—*Bald barley* from Italy, *giant rye* from England, and various small grains from Poland, Algiers, and the borders of the Black Sea were imported for testing. Many legumes, forage crops, and grasses were obtained. The problem of improving southern pastures continued to interest farmers throughout the nineteenth century. As with a great many plants, no details are available about these importations. They were merely enumerated and their separate histories swallowed up in the experiments to find better crops.

From England the Patent Office obtained a variety of trefoil or clover, a *cow grass* or perennial clover, the *alsyke* or Swedish clover, a variety of red clover, two varieties each of *Perennial Ray Grass* and *fescue grass*, *Rough-stalked Meadow Grass*, and *Sweet-scented Vernal*. From France came two varieties of sainfoin and rape and specimens of *Vernal*, *burnet grass*, and *spurry*. A variety of alfalfa was brought from Chile.

In 1857 Wendelin Grimm, a German immigrant farmer, brought with him to Minnesota from Baden the valuable alfalfa to which he gave his name. This hardy type occupied over 700,000 acres in 1930. A white lupine from southern Spain and a yellow lupine from Germany were imported for forage and soiling.

M. B. Bateham, editor of the *Ohio Cultivator*, called attention to his importation of the *alsike clover* in 1839 from an agricultural society in Scotland which in turn had received it from Sweden. Like other farm papers, the *Ohio Cultivator* imported and distributed many field and garden seeds.

Vegetables—The Patent Office imported new varieties of peas and beans from England, France, and Germany in 1854. *Chick peas* and *lentils* came from Spain and France. Twenty-six varieties of turnips came from Charlwood and Cummins of London with the condition that they be distributed in every state and territory, and a report published on the results. The variety names resembled the descriptive names given to turnips by present day seedsmen.

Several varieties each of nearly two dozen familiar garden vegetables were imported from England, France, and Germany. Irish potatoes were again brought from England and Germany. The *Chinese yam* brought in from France was proposed as a substitute for the Irish potato because of the potato blight then raging. By 1857 it was well adapted and proved to be a possible substitute for potatoes. The Patent Office expected immediate adoption of the *earth almond*, or chufa, imported from southern Spain as a feed for cattle and hogs.

Opium—Import statistics were often used by the Patent Office to prove that certain items should be produced in the United States for the home market. One such suggestion was that opium be produced to supply the \$400,000 market in this country. A variety of the common or Opium Poppy was distributed in the South and proved easy to cultivate in that region. Directions for cultivating and processing the extract were printed and the experiences of growers related.

Liquorice roots were imported and distributed in the middle and southern states to supply the \$300,000 import market which existed. The *Report* of 1854 carried an article on the cultivation and preparation of the plant, and growers reported successful cultivation of the roots.

Grapes—The Patent Office printed long articles in support of the current experimentation with grapes. But failure of the European varieties caused growers to turn to the native grapes. Plant explorers were sent to Texas, Arkansas, and some of the northern states in 1857-58 to collect cuttings of native varieties for trial. Twelve thousand vines were ready for distribution from both foreign and native stocks in 1858.

The possibilities of growing figs and olives in the South were studied in 1859 and American consuls were to procure seeds and cuttings. Cork production would provide an auxiliary industry to wine culture. Thus wine, grapes, figs, cork, and olive oil were expected to become staple crops for the South.

Cork Oak—Acorns of the cork oak, an evergreen tree grown commercially in Europe and Africa, were secured from France in 1856 and from Spain two years later. The tree proved to be adaptable to the climate and soil of the southern states, and the acorns were considered a valuable hog feed. It was also considered essential that America free herself from dependence upon foreign sources for cork in the event that war might deprive the country

of its supply. Many of the plants failed to mature because they had been distributed indiscriminately, but those in the government propagating garden grew successfully.

Other introductions of this period include the seedless pomegranate of which 900 cuttings were distributed in 1859. Robert Fortune sent camphor seeds from China. Seeds of the carob tree, widely grown in Spain and southern Europe, were introduced in 1854. The Persian walnut came from France. An article of several pages containing information about the plant, and a long article listing many other plants is included in the *Report* of 1854. Many plants introduced in later years were first mentioned in this report in an effort to arouse interest in their cultivation and secure cooperation from travelers in foreign lands in securing specimens.

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