California is the leading center of commercial herb cultivation in the United States, and one of the most important world producers. Emphasis in the state today is on culinary herbs although in the past medicinal, ceremonial and ornamental herbs were also important. The California industry has a fragmented structure which can be divided into four categories: (1) aromatics, which are used as flavoring agents by commercial food processing companies or sold directly to the consumer; (2) vegetable additives, such as garlic, onions and chives—old-time herbs that are today commonly classed as vegetables—used by commercial food processors but not sold retail; (3) seeds which are cultivated and sold in small packages for home use; and (4) potted/live herbs sold to the consumer in individual containers.

The development of the herb industry in California can be traced far back into the state's native and European history. It is this historical development, divided into several periods, which is described here.

Native Indian Uses and Early European Contacts

The native Indian use of herbs was not as well recorded in California history as it was in other parts of America. Only occasionally were the local plants identified and their uses described in early accounts. In part this can be attributed to several factors; the general lack of botanical expertise of early explorers, a very different type of colonial settlement from that on the East coast, less interest in the natives and their herbal practices, and the rapid decline of native populations.

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The records do, however, provide a general idea of native medicinal, culinary, and ceremonial herbal practices. Herbs were gathered or collected wild by the California Indians; they had no domesticated plants and practiced no agriculture. While all tribes used herbs, the number employed varied greatly from one tribe to another. Sweet lists more than 60 useful herbs commonly found in California while Barrett and Gifford report more than 65 medicinal plants alone used by the Miwok Indians of northern California.

The early European explorers in California were primarily interested in discovering riches and treasure, and although they recorded little of the Indian's herbal knowledge and practices, they were not totally oblivious of the local flora. Pedro de Unamune in 1587 discovered herbs in the vicinity of Morro Bay which appeared to be chamomile, pennyroyal, and thyme, and in 1602 Sebastian Vizcaino found plants which "seemed" like rosemary and "other fragrant and wholesome herbs" at San Diego. Following Vizcaino's visit, California was to have practically no European interest for the next century and a half.

**Spanish-Mexican Period**

The beginning of herbal development in California coincided with the founding of the first Spanish mission in 1769. During the following several decades, detailed studies were made by European botanists and naturalists who accompanied many of the voyages to the New World. This information was deemed useful for the development of future trade, possible settlement, and scientific study. The earliest contacts were limited to major ports—Monterey, Santa Barbara, and San Diego—but as inland communications expanded so did the areas of collection and study.

Among the early plant collectors were Collignon with the French expedition of La Perouse in 1786, Thaddeus Haenke with the Spanish explorer Alejandro Malaspina in 1791, and Archibald Menzies with the George Vancouver expedition in 1793. In the 1830's David Douglas of the London Horticultural Society made the first comprehensive study of California's native plants.
Many of these early contacts also resulted in the introduction of new plant species into California. Commonly, specimens were brought from Europe or were collected at one port and exchanged at another. Thus, plants and seeds from Europe, South America, Mexico, and the Far East arrived periodically. Although few records were kept of those exchanges, the La Perouse expedition was a notable exception. Its purpose was to investigate the new land and to exchange seeds and cuttings with the Spanish and Indians. A large variety of live plants and many different seed species were brought from France and supplied generously to the missions at Monterey, Santa Barbara, and San Buenaventura. Included with the orchard trees, grapes, and seed for field crops, vegetables, and flowers, were numerous herbs.

It was, however, the efforts of the Franciscan missionaries that most directly led to herb cultivation in California. They made use of some native herbs, but generally they cultivated species with which they were already familiar. In addition to some seeds brought with them, the Padres acquired many more from ships, such as that of the La Perouse expedition, and by importing desired seeds and cuttings from Mexico by land. Indeed, as early as 1786, a courier was sent from Mission San Gabriel Arcangel to Sinaloa for this purpose.

Through mission records, letters, diaries, and journals of travelers, it is possible to identify the various herbs cultivated in the mission gardens and fields. The common herbs included spearmint, costmary, marjoram, oregano, basil, anise, tansy, pennyroyal, fennel, chamomile, thyme, and rosemary. By far the majority of herbs were grown for culinary and medicinal uses. A few were cultivated for their aroma, others were used for dye, fiber, detergent, and some for ornamental purposes. The importance of the mission herb garden is well stated by Walker: "A garden was one of the essential parts of each California Mission, from it came the kitchen herbs, flavors, foods, fibers, dyes, medicines and oils which sustained life for the entire mission community."

The missions, from the beginning of the period until secularization in 1833, were the prime source for herb cuttings and seed for both the established residents in the nearby pueblos,
presidios, and ranchos, and the new settlers. Even after the missions were abandoned during the Mexican Period (1821-1848), herbs were still gathered from their untended gardens.

During this period many of the new arrivals were United States citizens who brought with them favored herb seeds, and thereby contributed to California's herbal heritage and development. These people had a long history of herbal practices dating to the earliest colonial settlements in the 17th century. They also had a rudimentary knowledge of commercially grown and processed herbs derived from the operations of the Shakers and the mint growers of the early 19th century who are credited with initiating the herb growing industry. In California, however, herb cultivation remained the garden-type; no commercial production occurred during the Spanish-Mexican period.

Early American Period

This period begins with California's statehood in 1850 and continues into the early 20th century. It was a time of rapid change in the state; the population increased considerably, the agricultural potential of the state was realized, cultivation of many new crops was begun, and the foundations of commercial agriculture were established. However, this new activity did not yet include commercial herb production. The status of agriculture in California was recorded in an 1856 publication by the California State Agricultural Society. That report indicated no commercial cultivation of herbs in any of the agricultural districts of the state, but did list some herb processing. In San Francisco one individual harvested and processed the thousands of acres of wild mustard which were considered a nuisance in that area. Reference was also made to the manufacture of peppermint essence by a local company in San Francisco, but from imported oil. The only mention of herbs was in terms of "kitchen garden" cultivation.9

While cultivation and use of herbs on an individual basis prevailed throughout most of this period, it is possible to identify several ethnic groups who made special use of various herbs. The Chinese, coming in large number from the 1850's through the 1880's, carried on an extensive medical practice with herbs--a
practice that still continues in several of California's larger cities. Most of their herbs were imported from the Orient although a few local species were occasionally collected. None, however, were cultivated on a large scale. Germans, Irish, and French, also grew and processed their favorite culinary and medicinal herbs for non-commercial use.

Although one unsuccessful attempt at growing peppermint was recorded as early as 1887 by Landing,\textsuperscript{10} little else appears to have occurred in the late 19th-early 20th century. In fact, there tended to be an overall decline even in home cultivation and use of herbs at that time. This was in response to the increasing urban growth, which left little space for gardens, the growth of the synthetic-chemical drug industry, fears created by many dangerous patent medicine herbal compounds, and a developing food industry which began to replace some home food processing in which herbs had been commonly used.

The overall herbal situation in California was indicated by a report in 1912 published by the California State Board of Forestry which identified those vegetable drugs obtained in the state. It was found that less than 10 drug plants were acquired on a regular basis and that these were gathered or collected wild rather than cultivated. This same report indicated that limited production in the state was due to the much cheaper foreign imports. It concluded, however, that "the familiar garden herbs and pot herbs used medicinally and for culinary purposes can certainly be grown successfully, if not profitably" in California.\textsuperscript{11} Listed were more than thirty plants considered potentially important for cultivation: they included the mints, sage, thyme, caraway, fennel, coriander, chamomile, valerian, burdock, horehound, pennyroyal, and rosemary.

One indication that some interest still existed for herb cultivation was the development of experimental gardens at several state college campuses by the California State Department of Agriculture. This, of course, was not commercially oriented but it does mark an academic interest in cultivating economic plants including herbs.
20th Century Herbal Expansion

Probably the key reason for the growth and development of commercial herb cultivation in California was the shortage of imported drug and oil products during World War I. The need for those materials— at any cost—spurred many farmers to begin cultivating herbs for drugs and oil. Although foreign imports were re-established after the war, resulting in a substantial reduction of domestic production, several areas in the state continued to grow herbs on a commercial basis. During the 1920's and 1930's the major centers were in the San Joaquin Valley, Sacramento Valley, and in Southern California. Most herb acreage was devoted to peppermint. The plantings were small, averaging five to ten acres. Some farms increased in size during the 1930's and by the early 1940's a few farms recorded several hundred acres of peppermint under cultivation. The majority of growers, however, ceased herb cultivation after only a few years due to numerous problems. These included high production costs, weed control difficulties, and competition from foreign sources. In the case of peppermint, cultivation was difficult because California is drier during the summer than mint producing areas in the East and Pacific Northwest. Owing to this difference, more distilling equipment was necessary to process the entire crop in order to preserve the valuable oil. In addition, it was found that the California crop grew somewhat more slowly than did those in the East, resulting in increased production costs, particularly that of labor.¹²

World War II had much the same effect on domestic production as did the First World War. Foreign imports were cut or severely reduced and emphasis was placed on self-sufficiency in herbal drugs and oils. One of the most significant programs in this period of rapid development was the Drug and Associated Economic Plant Project funded by the California Legislature for "the study, experimentation, and cultivation of herbs during the emergency created by the war."¹³ The importance of this program, and its anticipated value to California and the United States, can be seen in an optimistic statement which proclaimed that California had the herb growing potential for making "the United States practically independent of foreign sources for any substance now essential to our civilization."¹⁴ Several already
existing farm operations in the Sacramento Valley, San Joaquin Valley, and Southern California were incorporated into the program and many experimental plantings were established throughout the agricultural regions of the state.

Many of the initial crops harvested represented the primary source of seed for later plantings. By 1944, production had reached commercial proportions and included over 1,300 acres of mint and 300 acres of coriander in the southern San Joaquin Valley and Imperial Valley. Total sales at that time exceeded $200,000, and shortly after the war, rose to over $1 million. This was, however, considerably short of equalling the pre-war cost of imported herbs which had been over $32 million. ¹⁵

In 1946 the Legislature authorized additional funds to continue the program for two more years for "the production of herbs and plants for applied research in the production of resins, gums, and oils for medicinal and other purposes...." The Act concluded that:

Experiment and research have shown that many plants and herbs of medicinal, perfume, and other commercial value which were formerly imported from foreign countries may be produced in California. This Act provides for planting and the cultivation of such herbs and plants on a scale sufficient to demonstrate to agriculture and industry the value and commercial practicability of such production.¹⁶

In addition to experimental and commercial work, considerable research went into related aspects of herb growing--weed control, development and improvement of machinery and harvesting methods, improvements in cleaning and drying techniques, and reduction of hand labor. By 1947 commercial production was recorded in almost half of the counties in the state including Trinity, Mendocino, Colusa, Lake, Butte, Yuba, Yolo, Sacramento, Contra Costa, and Sutter in the north, Mariposa, Tuolumne, Fresno, Kern, San Joaquin, Merced, and Kings in the San Joaquin Valley, Santa Clara and Monterey, and in the south Santa Barbara, Los Angeles, San Bernardino, Riverside, Imperial, and San Diego. Among the herbs cultivated were over a dozen for oil and nearly two dozen of the condiment-type (culinary). The latter included oregano, French thyme, French marjoram, summer savory, sweet
basil, peppermint, spearmint, sage, rue, coriander, caraway, dill, borage, anise, fennel, sweet cicely, winter savory, fenugreek, rosemary, tarragon, chervil, and parsley. The emphasis on culinary herbs represents an important change in the program since commercial production of these herbs was to become the major type of herbal cultivation in California. In June 1948, the Legislature failed to appropriate new funds for the project, and efforts by numerous farm groups and other interested organizations to establish a permanent, state supported, bureau to carry on the work were unsuccessful. The reason given for canceling the program was the same as in the past: the availability of cheaper foreign herbs.

While not all present California commercial herb growing can be traced or attributed to the program, its influence on the overall growth of the industry, and especially that of culinary herb production, was significant. Among the contributions were creation of public awareness of herbs and the need for certain critical drug and oil products in industry, development of new methods and techniques of cultivating and processing, and demonstration that herbs could be cultivated successfully on a commercial basis in California.

The commercial growing of herbs in California has continued to expand in the intervening years since World War II, with the distinct categories mentioned earlier emerging. The industry's future appears to be assured as evidenced by recent interest in herbs and herbal products. Although herb farming represents only a small part—less than one percent—of California's large agricultural industry, the state continues to rank as the leading center for herb cultivation and processing.

NOTES
