

11.89 times more expensive. So if we multiply the 1940 sales by 11.89 and divide it into the total sales of 1985 we approach the approximate growth of the industry. There are many other factors to consider, but this will give us a rule-of-thumb estimate. It appears the nursery industry has grown 2.45 times the 1940 figure, disregarding inflation.

Horticulture has been a wonderful vocation for me. Although I might have made more money in some other field, I would have missed the fun and fellowship of men and women like IPPS members. Of all the organizations that I have belonged to over the years, there are none that I hold in higher esteem than the International Plant Propagators' Society with its motto, "To Seek and To Share."

LITERATURE CITED

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PLANT PRODUCTION BEHIND "THE REDWOOD CURTAIN"

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The geographical area referred to in this article includes only a portion of the internationally famous "Redwood Empire" of the state of California. But, it is a portion that is particularly unique. Rhododendrons, heathers, azaleas, and pieris thrive in this area.

The boundaries of this Northern California area include the entire coastline from Point Arena to Cape Mendocino. This is a land area resembling a bench. The ocean is to the west and a mountain range is a few miles to the east. Summer temperatures rarely exceed 75°F and the coldest winter temperatures normally do not drop below 15°F. A great portion of the area directly along the coast will not even have a frost. Giant redwoods [*Sequoia sempervirens* (D. Don) Endl.] have grown in this area for thousands of years.

Before the turn of the century, this entire coastal area was a vast grove of prime redwood. (Strangely, however, the initial major forest crop was tanbark.) In this area there were formerly many major lumber companies. Only a few survive today, the most promi-

ment being the Georgia-Pacific Corporation with a large mill in Fort Bragg. Previous owners of this mill were Boise-Cascade and the founding company, Union Lumber. This latter company was among the first firms in the area to produce woody plant material. They did have a tree farm of sorts, traces of which can yet be detected within the city of Fort Bragg. The person in charge of this early venture was Robert Cahoon, graduate of the University of Edinburgh, Scotland, and a former staff member of Kew Gardens, London. He experimented with many plants, including heathers, hollies, and cotoneasters. Evidence of his personal interest in these plants can be found scattered throughout the town of Fort Bragg, in the yards of some of the early homes built close to the big lumber mill.

Today, the area has nearly a dozen nursery growers-producing plants for shipment into the San Francisco Bay Area and for sale to the visitor traffic which swarms to the Mendocino area to inspect the quaint houses, view the beautiful coast, and enjoy the cool weather. Among these growers are Fee's Rhododendrons, Descanso Nurseries, Lauer's Rhododendrons, Hopper Nursery, Heritage Rose Gardens, Richard's Nursery, Anderson Valley Nursery, Sherwood Nursery, and Fuchsiarama. The latter is an established retail grower specializing in fuchsias, operated by Howard and Linda Berry. Their trade is nearly exclusively from the inland area of the Sacramento Valley. Other retail growers and their specialties are: Heartwood Nursery, general ornamentals and camellias; Hare Creek Nursery, ornamentals including bedding plants; and Annabelle's, specializing in fuchsias, pelargoniums, and orchids.

But at first there was only the internationally famous Cottage Gardens Nursery of Eureka, California. Founded in 1913, the complete story of this great nursery would take many pages. We will simply refer to them as the pioneer commercial grower on the north coast of California. Founded by the Ward family of New York—and intended as a source for plant material for their Eastern retail nursery—the nursery was nurtured by the Causen brothers of Eureka, Ron and Otto. The Wards were initially lumber people from the Eureka area but the family relocated to the East Coast. Thus, the development and selection of material and marketing were left to the Causens, undisturbed by the firm's owners, who remained on the East Coast. Initial production included yews, boxwood, and bulbs. Cottage Gardens was the first firm in the west to successfully grow commercial crops of tuberous begonias from seed. Their techniques were later adopted by other growers in California located in the Monterey Bay area. But the success for which the firm is nationally renowned was in the growing of rhododendrons and azaleas. With both crops Cottage Gardens established a quality that represented the finest produced, and today nearly all growers in the west are conscious of being continually compared with the perfection Cottage Gardens achieved. The cultivars they selected to grow

became the popular list and the sizes they finished became the standard sizes.

All of Cottage Gardens' azaleas and rhododendrons were grafted. And interestingly, they developed a system in Eureka whereby they prepared Christmas forcing azaleas that were completely dormant by early October of each year. By judicious pinching and reversing the normal growing procedures, they produced vegetative growth during the winter months and allowed the plants to go dormant during the summer months. This was accomplished without the benefit of refrigeration or growth retardants. Much of the material was shipped to the San Francisco Bay area to wholesale florists. Some of the larger firms received as many as 15,000 rhododendrons a year. Cottage Gardens also had a fling at camellias and introduced the famous *Camellia reticulata* cultivar, 'Captain Rawes' to the trade.

Today, Cottage Gardens is under new owners and is in the process of moving to the Napa, California area where the firm will specialize in tropical plants. Ron Causen, now a very senior citizen, still resides in Eureka in a house on property next to the old nursery. He feels that one of his most innovative accomplishments was the discovery that field-grown rhododendron plants could be satisfactorily transferred into containers and grown on to market size. Thus, while specializing in field-grown stock, they recognized the commercial convenience of container-grown plants, not those lifted and stuffed, and developed one of the first systems for this type of growing.

While Cottage Gardens has to be regarded as the first large commercial operation, and had no trouble maintaining this stature until the facility was sold in the late 60's, a pioneer commercial grower from southern California, a graduate of Cal Tech, and what is equally important, an apprentice at the famous Coolidge Rare Plant Gardens in Pasadena, California, John Druecker established what was to become the second largest nursery "behind the redwood curtain." Cal Tech graduates were not particularly sought after when John graduated in the early 1930's. He felt that a better opportunity was in the field of horticulture and soon went to work for the Coolidge establishment, at that time a recognized institution and perhaps the leading nursery in all of southern California, if not in the West. The pay was not notably good. On occasions it was "in kind." John came north in 1936 with plant material to establish his own nursery. He settled in the Fort Bragg area and his first efforts at commercial production were with forcing azaleas. This effort was not completely successful and during these early years of hard work, John and his wife Helen barely stayed solvent. By 1945 John had developed an interest in rhododendrons and aggressively sought new cultivars. Following the lead of Theo Van Veen of Oregon, he built a greenhouse with a mist system and commenced

propagating the new cultivars he had acquired. Successful at propagation and growing, John developed a most interesting marketing system. He was aware of the success of the elegant rhododendron plants being distributed by Cottage Gardens Nursery, but he felt that a market must exist for well-grown but smaller material, at a lesser price. He developed a system of bed growing, under lath, of plants which he lifted after 2¼ years and offered as balled and burlapped material. His best customers were those firms which purchased material from Cottage. John always contended that Cottage Gardens was his best sales representative.

His success and good fortune in marketing his plants allowed John to leave the Fort Bragg area for months at a time during the winter and vacation in Mexico. During the time he spent in Mexico, he managed to do much plant exploring and, incidentally, made the acquaintance of other plant explorers which led to the discovery of several new species. A mahonia John found in Mexico was named after him, *M. "Drueckerii."*

John's procedure for propagation of rhododendrons was standard, though at the time he commenced his work it was all very new. His cuttings were stuck in late summer under mist. And because the climate in the Fort Bragg area is really not very stressful, John was absolutely confident that his new automatic system would take care of itself. The secret, John attests, was a new electronic controller which responded to intensity of light. This, plus the help of a few friends who "looked in", helped John to depart by Thanksgiving each year and be away for 90 days at a time. This practice continued for 27 years. Today, John is recognized as one of America's leading rhododendron plant breeders with twelve cultivars introduced to the commercial trade.

At present, John Druecker is retired, though his nursery continues to operate as Lauer's Rhododendrons, under the ownership of Mae Lauer.

At about the time that Cottage Gardens chose to discontinue production of rhododendrons and azaleas in the early 1960's, Descanso Nurseries commenced construction of a branch location in Fort Bragg. Descanso, like John Druecker, was also from southern California. Today, this nursery has approximately ten acres in production of a combination of plants, including rhododendrons, pieris, hydrangeas, heathers, daphnes, and other material that performs well in areas where summers are cool and winters are mild.

While it may appear that growers who have established commercial operations "behind the redwood curtain" have primarily been from southern California, several of the leading growers in the area moved over from the timber industry to the plant industry. Bill Fee and Bud Richards were both professional woodsmen. Fee's Rhododendrons was established in 1974 after Bill voluntarily retired

from timber activities. His specialty is rhododendrons which are grown at his nursery of approximately three acres. He propagates all of his stock and, like Descanso, grows all of his plants in containers. A unique feature of Fee's operation is a water-saving irrigation system in which all plants of two gallon size and up are placed under spray stakes.

Bud Richards, a former professional woodsman and only recently retired from the Georgia-Pacific Corporation as superintendent of their greenhouse range at Fort Bragg, where seedling forest trees are raised, established his commercial nursery in 1955 while continuing to work in the woods. Initially, he produced rhododendrons, but his interest was soon attracted to deciduous azaleas which he grew from seed. After nearly 25 years of growing azaleas, Bud has developed his own strain of plants which he grows from his own selected seed parents. The feature of Richard's Nursery azaleas that is most noteworthy is that they require a minimum of winter chilling, and produce extraordinary large flowers in rich colors.

Two women growers operate commercial rhododendron nurseries in the Fort Bragg area—Mae Lauer and Lucille Hopper. Lauer's Rhododendrons was established in 1980 after purchasing the nursery from John Druecker. It remains on the original site alongside of Highway 20 leading into the town of Fort Bragg. The nursery site remains essentially unchanged from the day when it was operated by John Druecker, except that Mae Lauer no longer grows her plants in beds. All of her stock is container-grown. And like Fee's operation, she has developed an extensive system of spray stakes for watering her one gallon container plants which are the specialty of her nursery. Lauer is also an advocate of the use of "willow water" as a soak for cutting material and the incorporation of alfalfa meal in her potting and canning mixes. The willow water is manufactured by pulverizing the stems and foliage of willow trees and forming this into a brew. Cuttings are then soaked for a period of 8 to 12 hours in this mix prior to sticking. Lauer claims extraordinary success with difficult-to-root cultivars of rhododendrons such as 'King George' and others. The addition of alfalfa pellets (without molasses) to the potting/canning mix aids root development, claims Lauer. The alfalfa mix is used at a rate of no more than 5%.

Among problems affecting growers in the Fort Bragg area is locating material to use as a growing medium. Years ago growers' needs could be satisfied by harvesting the abundant supply of leaf mold that was always available. But as the wooded areas have become populated and access to the forest area where the leaf mold abounded is restricted, other materials were investigated for trial.

Locally, the lumber mills either burn their waste to generate power or manufacture "chips" which are trucked out of the area to other specialty mills. After much trial and error, the use of fir bark in

the approximate size of $\frac{1}{8}$ by $\frac{1}{4}$, blended with $\frac{1}{4}$ minus grade has proven to be most satisfactory. Ironically, this material must be trucked in from as far away as 350 miles, as there is no reliable local source.

Heritage Roses of Branscomb, California is owned and operated by Virginia Hopper and Gary and Joyce Demits. Their specialty is old-fashioned or "found" roses grown on their own roots. Heritage Roses offers up to 250 plant cultivars. Two years are needed to produce a crop. Plants are lifted the second winter after planting. Distribution of the Heritage Roses is retail mail order, with shipments made world-wide. This operation is quite unique for several reasons. First, their list of roses includes only plants from the 1900 to 1940 era, with some even earlier. Also, the location of the growing area is unusual in that it is in the cool fog belt of the north coast.

Howard Siebold, a retired hydraulic engineer and plant breeder, has achieved great distinction in his efforts to produce outstanding new tuberous begonia cultivars from seed. The internationally famous White Flower Farm, a mail order firm, has long relied on Siebold's distinctive material. His most recent efforts have resulted in the creation of fragrant tuberous begonias of which he has produced ten to date.

We have already mentioned that professional woodsmen in the area have turned to horticulture. One other is Bob Standley, owner and operator of the Noyo Tissue Culture Lab. Standley, a long-time sawyer in his family-owned shingle mill, has recently purchased the Noyo Tissue Culture Lab, founded by Dr. Hans Burkhardt, a former Cal Tech professor. Under Burkhardt, the lab specialized in custom tissue propagation of orchids. Dr. Burkhardt also invented a growing medium for the tissue culture of redwood trees which the forest industry considers a most noteworthy achievement. Standley intends to specialize in the production of tuberous begonias, particularly the new fragrant cultivars developed by his neighbor, Howard Siebold. The lab will continue working with orchids, lilies, and perhaps other new plant materials being developed by the several active hybridists and plant breeders of the area.

The largest grower on the coast behind the "redwood curtain," is the Georgia-Pacific Corporation. Their greenhouse range at Fort Bragg produces 2,000,000 trees each year. Most of these are used in Mendocino County for reforestation. The coastal redwood is the primary crop though about 400,000 Douglas fir are also grown. Mike Peterson is the manager of the Fort Bragg Tree Nursery. He reports that a primary interest of Georgia-Pacific is the production of a "superior" redwood. The firm has made a selection of about 200 trees and these are currently being evaluated and tested at the University of California at Davis.

Mike, a graduate of Humboldt State in Forestry, is another

professional timber man who has personal interests in ornamental horticulture. Mike started his own nursery operation, Sherwood Nursery, in 1985 specializing in one gallon rhododendrons.

The Mendocino Coast Botanical Gardens just south of Fort Bragg on California Highway No. 1 was founded in the early 1960's by a retired southern California nurseryman, Ernest Schoeffer. He developed a 45-acre property into an attractive showplace and opened it to the public. Years later, Schoeffer sold the property and it was eventually acquired by the Mendocino Coast Recreation & Parks District and now leased to the non-profit "Botanical Gardens Preservation Corporation." A board of directors was established which includes many of the people mentioned in this article. A professional manager, Chet Boddy, was hired to direct the operation. Boddy has been able to combine the talents of the directors, many of whom are horticultural specialists, with local landscape architects such as Gary Ratway and with a large group of enthusiastic volunteers who do planting, weeding, grooming, tree work, etc. The Botanical Gardens is not funded in any manner. It must pay its own way for development and maintenance. And with the magnificent display of perennials, many of which are new to the trade, in a landscape setting of rhododendrons, azaleas, and camellias, the Gardens has attracted many visitors and much acclaimed attention.

The Gardens boasts of the largest heather collection on the north coast, a large ivy collection, and extensive planting of rhododendron species. This past year, the number of visitors to the Gardens exceeded 25,000.

This overview of horticultural activities and opportunities "behind the Redwood Curtain" was prepared with the view in mind of demonstrating the adaptability of this remote area to commercial horticulture and how it is possible for those with determination and vision to accomplish a satisfactory degree of success.