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Palms in the Microclimates of the San Francisco Bay Area

WARREN J. DOLBY

5331 Golden Gate Ave., Oakland, CA 94618

When one considers that the San Francisco Bay Area lies in approximately the same latitude as Wichita, Kansas; Evansville, Indiana and Washington, D.C., it is remarkable that any palms grow in the area. It is even more remarkable to find not only hardy palms such as *Phoenix*, *Trachycarpus* and *Washingtonia* but also tall *Arecastrum*, *Archontophoenix* in flower, and *Howeia* heavy with ripening fruit. All of these palms will not necessarily be found together, however, for this is a very complex region with more microclimates for its size than any other part of North America.

The U.S. Department of Agriculture's hardiness-zone map places the San Francisco Bay Area in zone 10. This is the same classification as is given the southern half of Florida, the southernmost tip of Texas, and coastal southern California. There is a gap of more than 200 miles between the zone 10 area of southern California and the appearance of zone 10 again around San Francisco Bay. There is also a small area of zone 10 on the north side of Monterey Bay about sixty miles south of San Francisco. As will be noted below, these pockets of tropic and subtropical climates have influenced the attitude toward palms in the San Francisco area.

The placement of San Francisco in zone 10 is misleading, however, because the climate is not very similar to southern Florida and Texas. What the regions have in common is a lack of frost. There are many places in the hills overlooking San

Francisco Bay that never see a white frost. The lowest temperatures ever recorded in San Francisco have been in the high 20's (F) in a freeze during the 1930's. This part of zone 10 differs from other parts in the lack of heat. It is a mostly cool area that may be likened to tropical highlands. Nights are generally in the 50's (F) and daytime temperatures rarely reach above the 70's (F). In the city of San Francisco the average high for the warmest month—September—is 68° F, while the average low for the coldest month—January—is 45° F.¹ Summers in San Francisco are cooler than in any other major city in the USA. In some years February has had more days over 70° F than has June. Mark Twain is supposed to have observed that "The coldest winter I ever spent was one summer in San Francisco." And attributed to actor W. C. Fields is the assertion that "San Francisco is the only place where you can freeze to death while sitting under a palm tree smelling your roses." Anyone visiting San Francisco during the summer and anticipating summer heat is likely to be disappointed; warm weather comes in September and October and sometimes surprisingly in January or February.²

San Francisco's climate is classified as

¹ January average low temperature for Los Angeles is also 45°.

² At this writing in January 1984 there have been two weeks with daytime temperatures in the high 60's and 70's in San Francisco and temperatures reaching over 80° in outlying areas.



1. California's coastline bulges westward.

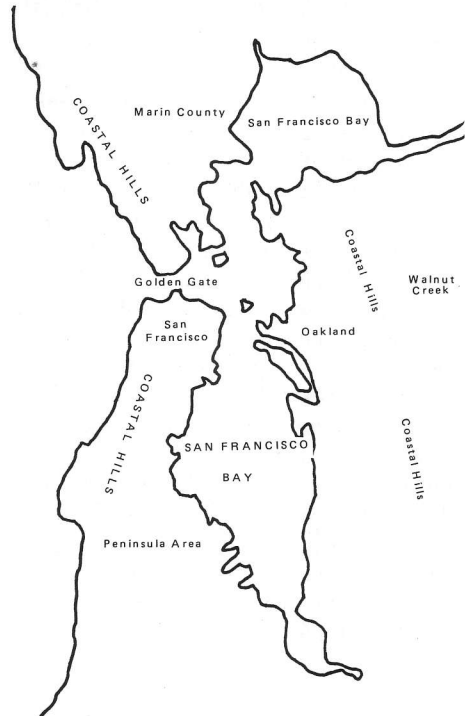
Mediterranean or Dry Summer Subtropical. It has a dry summer alternating with a moist winter, receiving about 21 inches of rain mainly between October and April. On the Koppen system of climate classification San Francisco is ranked as Csb, or cool summer Mediterranean. Several geographic factors operate in the San Francisco Bay Area to orchestrate its truly unusual climate. These are (1) its position on the west coast of North America, (2) the adjacent ocean current, (3) the prevailing winds, (4) the complex system of hills, and (5) the great bay.

The coastline of California does not run north and south, but bulges westward and then continues in a decidedly southeastward direction. This places San Francisco in a position more than 200 miles farther west than Los Angeles, and thrusts its shoreline into the cool California current which flows northward from Japan, across the Gulf of Alaska, and then southward along the coast of North America to finally reach California. The temperature of this current is always in the 50's (F), being somewhat warmer in the winter than dur-

ing the summer. The cooler summer temperatures are due to an upwelling of colder waters to the surface.

The prevailing winds along the California coast are from the west, and thus must pass over the cool currents before striking the land. In the summer, air blowing across the Pacific is warm and moisture laden until it strikes the cool offshore waters. There it is chilled and fog forms. All during the summer months a wide bank of fog lies along the coast. Almost daily it invades the San Francisco Bay Area pouring in like cotton through the Golden Gate and other gaps in the hills. It is not experienced as a ground fog, but as a high fog cutting out the sun, cooling the area, and appearing as a low cloud mass.

The coastline of California is characterized by ranges of parallel hills. In most places the hills rise directly from the ocean



2. San Francisco Bay and surrounding areas.

as cliffs, alternating with valleys, and extending inland as a mass up to sixty miles wide. Some of these coastal valleys are famous for their agricultural development, as the Salinas and Santa Clara Valleys to the south and the grape growing Napa and Sonoma Valleys to the north. In the San Francisco Bay Area these hills manifest themselves as three distinct parallel ranges forming a corrugated barrier about forty miles wide. The first range cuts through the San Francisco peninsula and Marin County to the north; Mt. Tamalpais at 2,606' is the highest peak. The second range inland and east of San Francisco Bay forms the background for such cities as Berkeley and Oakland. The mountains are higher in the south and culminate in the highest peak in the Bay Area, 4,206' Mt. Hamilton, east of San Jose. The third range lies still farther inland and is dominated by Mt. Diablo at 3,849'.

Beyond Mt. Diablo lies the great Central Valley of California—over 400 miles long and walled in on the east by the Sierra Nevadas, the highest mountains in the forty-eight adjacent states. This mighty mountain range, along with the Cascades to the north, diverts polar air masses from rolling down into California and producing the periodic deep freezes so frequently experienced in the eastern half of the continent.³ The coast ranges and the Sierra Nevada create a benign Mediterranean climate for the Central Valley. For example, oranges are grown commercially as much as 200 miles north of San Francisco, and Redding at the north end of the valley—at exactly the same latitude as Philadelphia—delights the traveler from the north with his first sight of California palms—streets lined with *Washingtonia*.

A major gap in the coastal hills—the Golden Gate—allows the ocean to flow inland and fill up the “valley” between

the first two ranges of hills to form San Francisco Bay. This is a large shallow body of water over sixty miles long and in some places ten miles wide. The bay acts as a great thermostat, warming the winters and cooling the summers of the lands adjacent to it, giving the area some of the most equable temperatures anywhere. It is through the Golden Gate that the winds and fogs rush in during the summer time; other smaller gaps in the hills also act like doors left open for more winds and fog to blow through. The hills and the flow of fog through the gaps produce many microclimates. One area may be covered with fog while a few blocks away the sun is shining—temperature differences may be as much as 20 degrees. Real estate agents speak of property as being in pneumonia gulches or in banana belts. As one moves farther inland in summer, and farther from the effects of the cool ocean and the fog, the weather becomes warmer. The land over each range of hills takes on a different mood. It is impossible in July to experience temperature changes of one degree per mile. One can get on the BART commuter train in Daly City near the ocean where temperatures may be in the fifties and get off the train less than an hour later at Concord near Mt. Diablo and find the temperature at 95 or 100 degrees. In fact in the San Francisco area one can pick almost any summer temperature one desires from the cool coast to the hot interior and all the variations in between. In the winter, however, similar but reverse conditions prevail. Around the bay there may be no sign of a frost, but in the inland valleys night-time temperatures may drop into the low twenties.

All these climate variations give rise to a broad and at times confusing array of horticultural potentials. There are basically four major horticultural climates in the San Francisco area. There is first the area along the coast not protected by a range of hills. Golden Gate Park is in this area. Here it is too cool for tomatoes to

³ In spite of the Sierras the area does get an occasional deep freeze as in 1972, 1949, 1937.

ripen, oleanders will not flower, but fuchsias grow into small trees, calla lillies are naturalized, tree ferns from New Zealand and Australia grow to great size and the *Metrosideros* trees that line the streets, send out aerial roots and produce masses of red bloom in the summer.

A second zone is found in areas farther inland and protected from the fogs that pour in through the Golden Gate and Alemany Gap. An example is the Mission District of San Francisco. This is where geraniums grow into shrubs, where one finds datura and jasmine, bougainvillea, lemons and the flame-colored *Eucalyptus ficifolia*. And here too are palms, mainly common hardy varieties, but there is a street lined with *Brahea* and one finds too the occasional *Howeia*. The area is generally too cool for *Washingtonia* to grow well; however, *Phoenix canariensis* seems to thrive.

Across the bay, and north in parts of Marin, and south into the bay side of the San Mateo peninsula is the third recognizable horticultural zone. This is a warmer area—farther removed from the influence of the ocean and the fog, and because of the moderating influence of San Francisco Bay, receives little frost in the winter. Gardens here may include strelizias, hibiscus, bananas, tibouchina, eucalyptus and jacaranda. In warmer spots one can raise avocados and limes and, in the same garden, apples and pears. Winter brings blooms of acacias and camellias. The palm grower has a wide choice in this area. Heat loving palms grow slowly but he can grow fine specimens of *Archontophoenix*, *Arecastrum*, *Chamaedorea*, *Phoenix roebelinii*, and even *Caryota*. *Parajubea* fruits in this area and palms from the tropical highlands have enticing potential.

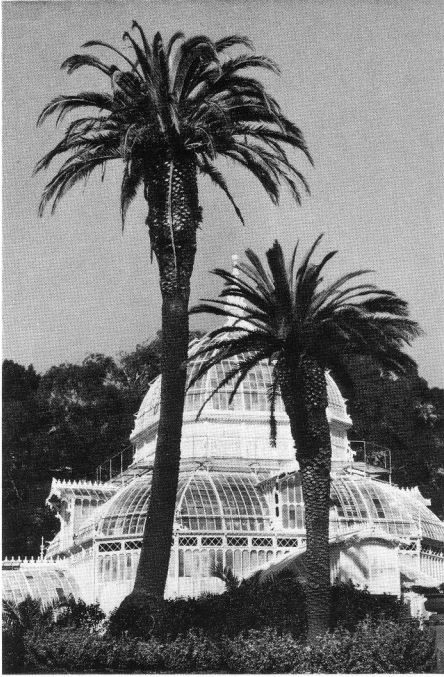
Over the hills in Contra Costa Country and to the north in Solano and Sonoma Countries is the hot summer area. Winters may be too cold for hibiscus, jacaranda and flaming eucalyptus, but one finds the summer heat just right for the



3. *Howeia forsteriana* producing inflorescences and fruit in San Francisco. Photo by E. Charles Cornell.

oleanders that line the freeways; crape myrtle blooms and oranges ripen. Hardier palms grow luxuriantly. Heat-loving palms which may languish near the bay rejoice in this climate. Here are found magnificent *Brahea*, *Sabal*, *Trithrinax*, *Jubaea*, *Butia* and such rarities as *Nannorrhops*. Palms are used more freely here and in the Central Valley and one encounters great lines of *Washingtonia* and *Phoenix canariensis*.

In spite of the fact that so many species of palms can be grown in the San Francisco Bay Area, palms are not widely planted. One can travel considerable distances without seeing the silhouette of a palm on the horizon. There are several noteworthy plantings, however. Most tourists are impressed by the great *Phoenix canariensis* growing in Union Square in downtown San Francisco. The new Nie-



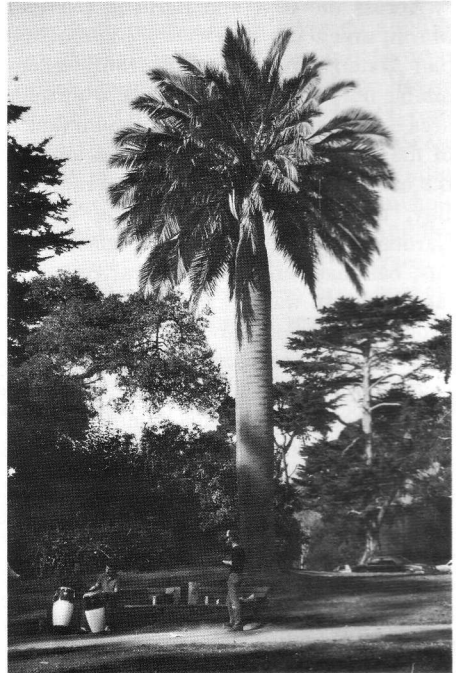
4. *Phoenix canariensis* is the most frequently seen palm in the San Francisco area. These are near the conservatory in Golden Gate Park. Photo by E. Charles Cornell.

man-Marcus store has even incorporated these trees into its logo. Dolores Street on which San Francisco's old Mission Dolores (1776) is located is lined with *Brahea*, *Washingtonia* and *Phoenix* species. The Presidio military base has some fine old palms and there are a few in Golden Gate Park at the conservatory and at the museum science-academy complex. Again most are *Phoenix* species with several newly planted *Butia* originally given by the Palm Society for another site. One splendid palm in Golden Gate Park is the grand old *Jubaea* staged on a lawn across from the conservatory against a background of evergreen eucalyptus trees. It is worth a detour just to admire this splendid tree.

South of San Francisco one notes more

palms on the horizon, again mostly *Washingtonia* and *Phoenix*. None are used in highway landscaping, most are in private gardens or around a hotel or restaurant striving for a tropical panache. The great planting south of San Francisco is at Stanford University where palms were used lavishly in the original landscaping nearly a century ago.

In the area across the bay from San Francisco around Berkeley and Oakland there were more palms in the past than there are now. Berkeley at one time had entire streets lined with palms. Remaining in Oakland is a magnificent quadrangle of tall, old *Washingtonia* that can be seen for several miles. After Francis M. (Borax) Smith made his fortune with the Twenty Mule Team Borax Company in Death Valley, he moved to Oakland and built his



5. *Jubaea chilensis* is infrequently planted but is well adapted to the area as shown by this well-grown specimen in Golden Gate Park. Photo by E. Charles Cornell.

estate on a low-lying hill with a commanding view of the bay. He lined the perimeter with palms. The house is long gone, but most of the palms remain and they have now been designated by the city as an historical treasure.

South of Oakland there is a wonderful old planting around Mission San Jose. Here are mature and well-grown *Phoenix rupicola*, *Brahea* and several long avenues of *Washingtonia*.

The outstanding palm planting in the entire San Francisco area is the palm garden developed by the Northern California Chapter of The Palm Society in Lakeside Park in Oakland. This is the largest project ever undertaken by a chapter of The Palm Society. Located adjacent to a lake as part of a larger garden center, the garden has an even more benign climate than other parts of the East Bay. The Palm Society chapter engaged Alan Fernandez of Miami, Florida to design the garden. After approval by the city of Oakland, The Palm Society was given free hand to develop and maintain its palm garden. Over sixty-seven species have been planted and the chapter has twice been cited by the mayor for its achievement. The garden will be formally dedicated at the Biennial Meeting of The Palm Society in August 1984.

A discussion of palms in the San Francisco Bay Area would not be complete without considering the attitude toward palms that seems to pervade the horticultural thinking of the area. A palm enthusiast will wonder why more palms are not used in public landscaping. Palms were more popular in an earlier era, but then slipped into disfavor. In the fourth quarter of the last century and up to the great earthquake of 1906 when San Francisco was the great metropolis of the West and the gateway to exotic Asia, Los Angeles was still a country town, and Florida was undeveloped and the southern U.S. was in the shambles of the post-Civil War era. At that time for many Americans San



6. Although rarely used as street trees, *Washingtonia* grow tall in warmer areas inland from the ocean. Photo by E. Charles Cornell.

Francisco was the great sub-tropical city, the place without snow. San Francisco celebrated its climate in the Midwinter Fair of 1894 and it planted palms. The rich with their grand houses and noble estates used palms as a symbol of their wealth and elegance. Real estate developers to lure the easterner weary of cold winters lined their developments with geraniums and palms.

By the 1920's, however, palms were losing favor. Perhaps it was due to the overplanting of huge palms like the *Phoenix canariensis*. Some observers feel it was a result of the rivalry that developed between San Francisco and Los Angeles as the southland developed and Hollywood was symbolized by palms. Even today one often hears the disparaging remark about the palm planting to the effect that "it looks too much like L.A."

It is interesting to note that some of southern California's notable palm plantings got their start in the San Francisco area. Huntington Botanical Gardens got some of its first palms from San Francisco. Mr. Huntington had a grand house on Nob Hill surrounded by palms. After the 1906 earthquake he decided to move from San Francisco. Owning a major interest in the railroad, he was able to have his palms dug up and transported by flatcar to his new home in San Marino where the palms were the beginning of the present outstanding botanical garden. When William Randolph Hearst was building his castle near San Luis Obispo, he needed palms and found that Berkeley (disillusioned with palms) was willing to let him remove tall *Washingtonia* from a tree-lined street and ship them south to his landscaping project.

No community in the Bay Area uses palms as one of the approved street trees. Palms are most frequently used to create a special effect, not as an element in the general landscape. Zoos will plant palms around the monkey cages; restaurants and hotels will use palms to create a south seas ambience if this be their theme. In 1939 San Francisco had a world's fair built on a man-made island in the bay. The theme called for palms and from all over the Bay Area people offered mature palms from their gardens. Contemporary observers recall the strange sight of barges of palms being hauled across the bay to Treasure Island. Today several fine alleys of these palms remain, and it is a particular thrill to a palm lover to stand beneath these palms and view the tall buildings of the city, Alcatraz, and the Golden Gate.

Another factor that may account for

the lack of enthusiasm for palms in the Bay Area is the discontinuity between this area and other parts of zone 10. There is no gradual edging outward of plants from the tropics. It is difficult to feel a continuity and as a result there is a widespread feeling that palms are not appropriate for the area. This feeling has validity, perhaps, as long as palms are associated mainly with the tropics.

Members of The Palm Society in northern California are gradually bringing a new awareness of palms into the San Francisco Bay Area, however. The tastefully designed garden at Lakeside Park will introduce many gardeners to small manageable palms. Palm Society members have given talks to horticultural groups, several work on park staffs, some are engaged in commercial landscaping. The Director of the Botanical Garden at the University of California at Berkeley was president of the local chapter of The Palm Society. Little by little Bay Area gardeners and landscapers are coming to take a second look at palms.

For the palm enthusiast the future is exciting. This seems to be a prime area for the introduction of palms from the tropical highlands. *Parajubaea* is found to grow more vigorously here than perhaps anywhere else in North America. *Ceroxylon* and the many other yet-to-be-introduced palms from the Andes fire the imagination of those who garden in the Bay Area. The day may come when the skyline is punctuated by the silhouettes of new palms that have found their particular home in some microclimate of the San Francisco Bay Area.