I. Evidence that the area is known by the proposed name.

The area sought to be designated is located at the southernmost tip of the San Francisco Bay and is surrounded on the east by the Diable Range of mountains and to the west by the Santa Cruz Mountains. The first inhabitants of the area were the peaceful Ohlone Indians who hunted and fished throughout the heavily-forested, fertile valley. In the 1770s Spanish adventurers and ranchers, impressed by the richness of the soil and the mild climate, explored and settled in the area. In 1777 and 1780, Franciscian Fathers chose the valley as the site of Mission Santa Clara de Asis and Mission San Jose. Vineyards were established by the Franciscians at both missions during that period for the production of sacramental wines.

During this period, Spanish Territiorial Governor's granted large parcels of land to loyal citizens and these ranchos became centers of population, producing most of their own food and growing grapes for the wines used in celebrations and everyday meals.

In 1822 Mexico took over the Spanish land possessions and livestock and farming became the main sources of livelihood for the new settlers coming into the valley. The Mexican government never questioned land grants made by the Spanish government and the ranchos flourished throughout the valley.

In 1850 California was admitted to the Union and the valley that was once roamed by the Ohlone Indians became known as Santa Clara Valley, extending past the boundries of the political designation of Santa Clara County into what is today known as Alameda County. The best evidence of the geographical area known as the proposed name is to look at the enclosed U.S.G. map and note the use of Santa Clara Valley as the name given our proposed area.

During the period from 1850 on, winemaking in the Santa Clara Valley flourished. From the Warm Springs Agua Caliente Rancho property owned by Clement Colombet south, vines were being planted and wines made in increasing volume. The 1856 California State Fair, in the California State Agricultural Society, Official Report of the Third Annual Agricultural Fair Cattle Show and Industrial Exhibition, etc. (San Francisco, 1856) awarded half a dozen premiums including "Best Vineyard of Foreign Grapes" to one Antonio Delmas of San

Jose. At the same time, Clement Colombet was awarded the first wine award given by the California Agricultural Society for wine grown and produced on his Warm Springs (Mission San Jose) property.

Pierre Pellier of the Evergreen district in San Jose was credited by H. S. Foote (ed.), Pen Pictures From the Garden of the World (Chicago, 1888) with the indroduction of "Black Burgundy, Chasselas, Fountainebleau, Madelaine, and others" to the valley and the state. Charles Wetmore, himself a major name in 19th Century California viticulture, expanded the list to include the famous Colombar (now the base of California's semillons), Folle Blanche, Chauche Gris, Chauche Noir and Poulsart in his "Ampelography of California", San Francisco Merchant, January 4 and 11, 1884.

By 1880, the entire valley was booming. Governor Leleand Stanford had purchased Clement Colombet's Warm Springs Ranch and his brother Josiah was managing the property. The Stanfords expanded the vineyards and built a new winery (currently owned and operated by the Weibel family). Josiah Stanford produced about 250,000 gallons annually at the winery and the wines were well regarded throughout the Bay Area. According to Harry M. Butterfield, "The Builders of California's Grape and Raisin Industry, The Blue Anchor, XV, 4, the Santa Clara Valley led the northern California wine-making areas and was second only to Los Angeles for most of the 19th Century in total wine production.

Charles LeFranc's Almaden winery was prominent during the 1850's and continued to be held in high regard throughout the rest of the century, as was that of his son-in-law, Paul Masson. The Pacific Wine Company of San Jose, a cooperative of many small ranches, alone produced 700,000 gallons in 1889 (The Whistle, September 21, 1889, p. 8). William Wehner, a German immigrant to the Santa Clara Valley, owned 1,250 acres of land in the Evergreen district on which he planted orchards and vines, including new varieties of whites he imported from Germany. Today the old Wehner winery (now part of the Villages and used by the Mirassou family for cooperage) and the old Stanford winery in Mission San Jose (purchased by the Weibel family in 1945) are two of the few remaining gravity-flow winery structures left in California.

The Novitiate winery was established in 1888 to provide work for the students and altar wines for the church in the hills above Los Gato and continues to produce wines today. Another co-op, The Paul O. Burns Company in the Evergreen district, was noted by Frona Eunice Wait, Wines and Vines of California: A Treatise on the Ethics of Wine-drinking (San Francisco, 1889) for a burgundy considered one of the best

produced in America.

In the 1890's the Santa Clara Valley Land Company, a corporation of San Francisco capitalists, offered for sale parcels of about ten acres in the San Martin area of southern Santa Clara. These were to be sold to "gentlemen farmers" and would each contain a small orchard, vineyards and grain fields, plus an area suitable for a homesite (Santa Clara Monthly, April 1894, p. 17). The enterprise was a failure and in 1902 a Thomas Casalegon was hired to manage the tract. Casalegno changed the emphasis to vineyards and started a winery which operates today as San Martin Winery.

II. Historic or current evidence that the proposed boundaries of the viticultural area are correct.

The term "Santa Clara Valley" has been used in local books written from 1871 to the present. There are roughly 1500 acres of vineyard in the proposed area as well as 40 wineries. This area has a proud and noble history as a viticultural area. It's fertile soil became known as one of the most fertile valleys in the world and earned San Jose the nickname, The Garden City. As stated by Leon Adams in his book, The Wines of America, "Santa Clara is the oldest of the northern California wine districts and one of the best."

All references made to the Santa Clara Valley in early publications made mention of the rich fertile soil of the valley floor which was protected from the colder ocean conditions by the Santa Cruz Mountains to the west and from the hotter interior temperatures of the San Jaoquin and Livermore Valleys by the Diablo Range on the east.

Since our proposed boundaries follow the natural mountain barriers, characterised by Richard Skolnik and William Generous Jr., in a history of the Pellier family, as "the gray-green Santa Cruz Mountains merging with the copper-colored Diablo Range, making one surprisingly aware of why it is called the Santa Clara 'Valley'", we feel it is well-evidenced that these boundaries are historically and geographically correct.

Emilio Guglielmo Winery, Inc.
1480 EAST MAIN AVENUE, MORGAN HILL, CALIFORNIA 95037
(408) 779-2145

Dec. 30, 1986

Mr. Ed Reisman, ATF Specialist
Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Washington, D.C. 20226

Dear Mr. Reisman,

Hope you and your family had a happy holiday season. Please find enclosed General Soil Map covering our proposed viticultural area. This was one of the items of additional information which you requested. Also find enclosed other information pertinent to our viticultural area.

I have purchased the additional maps necessary to establish the boundaries of our area, however, I find that I am not able to meet the time limitation, but am working to its culmination. In regards to the other information, I am actively gathering said and will be forwarding it to your office shortly.

I hope you understand the importance of this application to our small family owned winery and that I am working to provide you with the needed information. I wish there were more people working on this with me, it would probably be done by now. I plan on wrapping this whole petition up as soon as possible.

Very truly yours,

Eugene R. Guglielmo

Eugene R. Guglielmo
Emilio Guglielmo Winery, Inc.

ERG:vt
enc.

CITY OF SAN JOSE, CALIFORNIA

180 WEST SAN CARLOS STREET
SAN JOSE, CA 95113
(408) 277-4000

SAN JOSE PUBLIC LIBRARY

April 24, 1980

Gene Guglielamo
1480 E. Main Avenue
Morgan Hill, CA 95037

Dear Gene:

The Historical Atlas of Santa Clara County 1876. San Francisco, CA: Thompson and West, c. 1876 under Boundaries states the following:

> The terms "Santa Clara County" and "Santa Clara Valley" are often used as comprehending the same territory. This is a mistake, as the Santa Clara Valley extends beyond the limits of the County, while the County contains a large area that does not properly belong to the valley. The principal and best portion of the valley, however, belongs to the County.

The term "Santa Clara Valley" or "Valley of Santa Clara" has been used in local history books written from 1871 to 1933 and San Jose Chamber of Commerce publications from 1887 to 1904:

1. Frederic Hall. The History of San Jose. San Francisco, CA: A. L. Bancroft, c. 1871
2. J. P. Munro-Fraser. History of Santa Clara County. San Francisco, CA: Alley, Bowen and Co., c. 1881
3. H. S. Foote. Pen Pictures of the Garden of the World. Chicago, IL: Lewis Publishing Co., c. 1888
4. Sunshine, Fruit, and Flowers. San Jose, CA: San Jose Mercury, c. 1895
5. Reminiscences of Santa Clara Valley and San Jose, California. San Francisco, CA: Mysell-Rollins Co., c. 1901
6. Eugene T. Sawyer. History of Santa Clara County. Los Angeles, CA: Historic Record Co., c. 1922
7. William F. James and George H. McMurry. History of San Jose. San Jose, CA: A. H. Cawston, c. 1933
8. Santa Clara County, California. Vol. I September 1887 No. 1 San Francisco, CA: W. B. Bancroft Co., c. 1887
9. Commercial History of San Jose, California. Pacific Press, c. 1892
10. Picturesque San Jose and Environments. San Jose, CA: H. S. Foote and C. A. Woolfolk, c. 1893
11. San Jose Chamber of Commerce. San Jose, CA: San Jose Chamber of Commerce, c. 1904

Clyde Arbuckle, San Jose City historian, who lives at 988 Franquette Avenue, San Jose, CA 95125 telephone: (408) 269-5324 is a valuable source for information.

My very best wishes to you Gene and your family in Morgan Hill.

Sincerely yours,

George Kobayashi
California Room Librarian

BOOKS BY

Philip M. Wagner

American Wines and Wine-Making
(*1933, 1936, 1956*)

A Wine-Grower's Guide
(*1945, Revised 1965*)

These are BORZOI BOOKS,
Published by ALFRED A KNOPF *in New York*

American Wines
AND
Wine-Making

Ex. 9

Panama-Pacific International Exposition of 1915. Since there was a war on, most of the wine-men who were to have been delegates either were fighting one another in the trenches or had already been killed. The rest were Americans, most of them old friends anyway; and the theme that ran through everything they had to say was the rising menace of prohibition, how to stop it, how to make people realize that wine is the friend of temperance and the innocent victim of the prejudice against spirits. Resolutions were passed denouncing prohibition as "virtual confiscation of property without payment," and plans for campaigns of "public education" were gloomily discussed. Yet most of the delegates knew, even then, that the days of their industry were numbered. The prohibitionists won their battle in due course. Thousands of acres of excellent vines were grubbed up and the laxative and familiar prune planted in their places. The Eighteenth Amendment was written into law, and the California growers and vintners found themselves with large stocks of mature and aging wine in their cellars, representing much labor and a very considerable investment. The deadline was January 16, 1920, and the official ruling was that all wine for export must be on board ship and actually out of port by that day.

Thus, after a short and exciting life of little more than sixty years, which is approximately the life span of a good sherry, California's wine-making industry was destroyed—or so most people thought. When prohibition became the law, California had some 700 wineries. Of these, 520 were in the coast counties—256 in Sonoma County, 120 in Napa, and the rest divided largely between Santa Clara, Contra Costa, Alameda, Mendocino, and Santa Cruz. In the in-

terior valleys there were some 158 wineries; and in southern California there were 22, many of these being of large capacity. A few stuck it out, keeping body and soul together by the legal production of sacramental wine. Some held on for a year or two as bonded wineries and warehouses, then passed out of existence; many of them sold their equipment intact to the great bodegas of the province of Mendoza in Argentina. With the disappearance of these went many proud names—Gundlach-Bundschu, William Hoelscher, Lachman and Jacobi, A. Finke's Widow. . . .

Yet prohibition actually brought a new and unexpected prosperity to many growers of wine grapes. Its effect on the affairs of California's vineyardists was one of the most grotesque and ridiculous chapters in the whole farcical story. *Prohibition proved merely to be a ban on superior wines.* Congress had left a loophole which allowed the making of wines at home. So instead of selling their grapes to the wineries, many of the growers simply loaded them into refrigerator cars and shipped them east, especially to the big cities with large foreign-born populations. And here developed another surprise. The amateur wine-makers of the East knew nothing of the difference between one grape and another. It is notorious that the best wine grapes are not the most beautiful, so these amateurs walked right by them in the markets and leaped upon the prettiest. The small and unimpressive Cabernet, the undistinguished-looking Pinot, the thin-skinned and sticky Riesling and Sémillon —these went begging, while those with thick skins and placid dispositions and no capacity for producing superior wines were snapped up. The result was an almost complete reversal in the order of prices. The grapes that brought

Alameda, lying east of the bay, and Santa Clara, lying at its southern end.

Alameda contains two distinct districts. One of them, the more famous, is the Livermore Valley, which lies just east of and parallel to the bay, being separated by a low range of mountains. This is a district long famous for its white wines, particularly those of the Sauternes types. The wine-grower names associated historically with the district are Concannon, Wente, and Cresta Blanca. Cresta Blanca is now merely a division of the huge Schenley organization, and a "label." Concannon and Wente continue as independents, winegrowers in the literal sense. The "château" types of these producers, naturally sweet and made of the classic blend of Sémillon, Sauvignon Blanc, and Muscadelle, are comparable to French Sauternes. The drier wines, produced from Sémillon and Sauvignon Blanc, legitimately recall good dry white Graves. And since repeal the Wentes have pioneered in the planting of Pinot Blanc and Chardonnay for the production of very good wines of the white Burgundy type. Other, less familiar winegrowing names are those of Ruby Hill and Loretto, producers who have occasionally received awards at the annual judging at the Sacramento State Fair. The red wines of the Livermore Valley, though above the run of California wines,[5] have never equaled the whites in quality and reputation, which is unusual under California conditions.

The second of the Alameda County districts is wholly different in character, lying closer to the bay, between Irvington and Mission San Jose. The outstanding producers here are Llords and Elwood and Weibel vineyards. The

[5] Because based on superior hot-climate grapes, such as Barbera and Mourastel.

area is not known for a specialty, as is the Livermore Valley. Plantings are mixed, but with a fairly good acreage of superior varieties both white and red. I recall a fine Los Amigos Zinfandel of several years ago, a wine that left no doubt as to the ability of this variety to produce good wine in the right circumstances, and a good (sweet) Black Muscat from Weibel. The Weibel sparkling wines are clean and well made, though they have the limitations imposed on all of the California champagnes by the un-champagne-like climate. Another producer of good wines in this district is David Bynum.

The broad and incredibly fertile Santa Clara Valley is in effect a southern extension of the depression partly filled by San Francisco Bay. It is protected from the Pacific by the Santa Cruz Mountains and separated from the great Central Valley by another range on its east. In spite of suburban encroachments it is still the land, par excellence, of the prune; and in this valley also lie most of the vineyards of the county that bears its name. Santa Clara County produces three times as much wine as Alameda. In general, the climate grows hotter and quality decreases with distance from the bay, so that much of the product of its southern sector resembles the "standard" wines of the Central Valley or goes into dessert wines. But a significant proportion of the Santa Clara Valley wines may be classed as superior. Many of the smaller growers habitually sell their crop to the large wineries, reserving only a portion of it to make into wine themselves; this they may sell in bulk or at retail. Others ferment, but sell their young wines regularly to the larger concerns for blending and finishing. Of the better-known names in the valley proper, Almadén Vineyard (the old Charles le Franc property) is a producer of an

agreeable champagne and a full line of still red and white wines besides. Almadén has made ambitious plantings of superior varieties such as Cabernet, Pinot Noir, Chardonnay, Gewurz Traminer, and Riesling, and is intent on producing the best wines possible within the limitations of the climate. Its Grenache Rosé has had a pioneering success. Not all of the wines bottled under the Almadén label are of Almadén production. It is a beautifully managed property—indeed, one of the show places of the industry. A still bigger producer was B. Cribari & Sons,[6] at Madrone, specializing in popular-priced and bulk wines. The Mirassou vineyards have good plantings of superior grapes (much of the good Mirassou wine has gone to Paul Masson and Almadén). And on the western slope of the valley, in the outskirts of the charming town of Los Gatos, are the vineyards, winery, and home buildings of the Jesuit Novitiate of Los Gatos, which does an extensive business in sacramental wines, but produces some superior table and dessert wine as well. The Novitiate wines represent a successful compromise between quality (which is rarely associated with quantity) and mass production and distribution.

Santa Clara County embraces not only the fertile valley floor but a substantial segment of the Santa Cruz Mountains. Rising abruptly out of the town of Saratoga, one enters an area of great promise (still largely unexploited) for quality wine production in California. The pioneer in this mountain area was Paul Masson, the champagne-producer of pre-prohibition fame. After prohibition the name and

[6] Cribari is now just a label. This winery was sold by the Cribaris to the Lucky Lager (beer) people, who made a large investment in vineyards and plant but then abandoned the project.

the mountain vineyard were taken over by a quasi-legendary young man, Martin Ray, who extended the plantings of superior varieties and who proceeded to make a series of exceptionally good (and expensive) table wines, of which the Gamay stood out as a revelation of California's possibilities. The name of Paul Masson has now passed into the possession of aggressive merchandisers who appear to be more concerned with national distribution than with the climate and soil of the Santa Cruz range. Martin Ray has found another mountaintop: his small output is top quality.

There are a number of other mountain winegrowers within the borders of the county, but owing to a less scrupulous choice of varieties and less capable handling in the cellar the wines are not outstanding. Still in the mountains lie a number of other good vineyards. And to the south of here in San Benito County near Hollister is a favored district which includes the former (and famous) Valliant property plus huge new plantings of premium varieties by Almadén. Over a range of hills to the west near Salinas is a wholly new winegrowing district that is being pioneered by Paul Masson, Wente, and Mirassou and shows great promise.

This quick summary of the southern coast counties is completed by reference to a number of vineyards along the eastern arm of San Francisco Bay in Contra Costa County. The influence of the bay favors certain superior varieties that do not do at all well in the hotter parts of the region. The Digardi vineyard, near Martinez, produces a Gamay that has several times won recognition in competitions—a wine which strengthens the belief that the Gamay, *not* the

THE POCKET ENCYCLOPEDIA OF *California Wines*

BOB THOMPSON

(COPY) SANTA CRUZ PUBS.

EX. 15

Simon and Schuster/New York

Napa

Duckhorn
Keenan, Robert
Mayacamas
Mt. Veeder
Napa Vintners
Pannonia
Quail Ridge
Ritchie Creek
St. Clement
Shaw, Charles F.
Smith-Madrone
Spring Mountain
Stony Hill
Tulocay
Villa Mt. Eden
Vose

No-visitor policy
Buehler
Chappellet
Green & Red
Long
Pecota
Silver Oak
Stags' Leap Winery

ALAMEDA, SANTA CLARA AND SANTA CRUZ

Alameda County

As a vinegrowing county, Alameda is almost synonymous with its famous old appellation district, the Livermore Valley, which holds all but a handful of 1,535 acres of vines, although only four of the county's 12 wineries. Livermore, in hills east of San Francisco Bay and justly famed for Sauvignon Blanc, has a Region III climate. Alameda's principal varieties are (in acres): Gray Riesling (320), Semillon (310), Chardonnay (130), Chenin Blanc (107), and Sauvignon Blanc (104).

Santa Clara County

At the foot of San Francisco Bay, the county never had large districts; now its small ones are much pressed by urban growth in San José and smaller cities. Santa Clara has 33 wineries and 2,000 acres in vines. Without dominating varieties, its leaders in acreage are: Cabernet Sauvignon (191), Carignane (154), French Colombard (130), and Zinfandel (126). Identifiable districts are:

Hecker Pass–Morgan Hill In the south county, it is far the largest with 1,300 acres. The climate is Region III. Its history is as a producer of sound jug wines.

Santa Cruz Mountains This recognized appellation is tiny with a Region I climate. Cabernet Sauvignon and Chardonnay have done extremely well on the steep slopes in the northwest quarter.

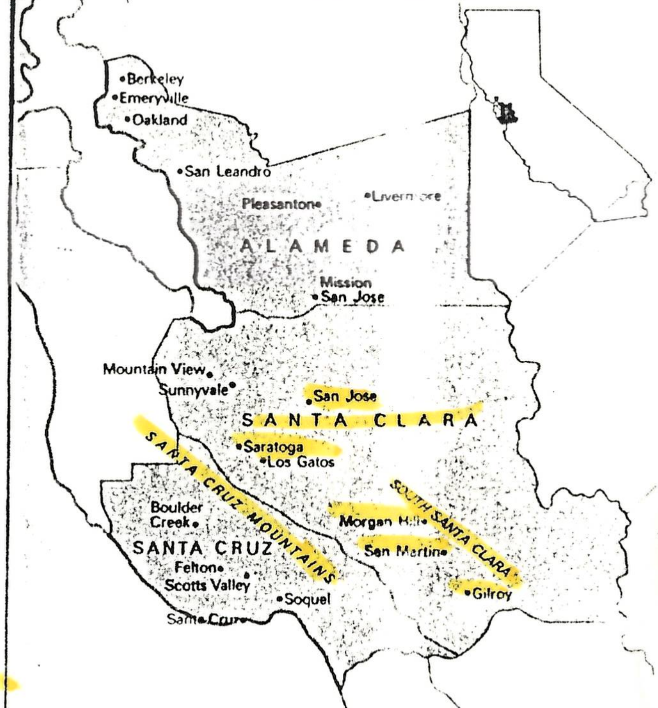
Santa Cruz County

The vineyard acreage is insignificant (94) but it extends the Santa Cruz Mountain appellation, and is home to 12 wineries.

WINERIES Readily visitable
(Tours, tastings, or both)

Almaden (SC)
Bargetto (SCr)
Bertero (SC)
Carey, Richard (A)
Concannon (A)
Fortino (SC)
Guglielmo (SC)
Hecker Pass (SC)
Kirigin (SC)
Kruse (SC)
Live Oaks (SC)
Masson, Paul (SC)
Mirassou (SC)
Novitiate (SC)
Oak Barrel (A)
Obester (SM)
Pedrizzetti (SC)
Rapazzini (SC)
San Martin (SC)
Stony Ridge (A)
Turgeon & Lohr (SC)
Villa Armando (A)
Weibel (A)
Wente Bros. (A)
Wine and the People (A)

Alameda/Santa Clara/Santa Cruz



Key: A Alameda
SC Santa Clara
SCr Santa Cruz
SM San Mateo

Limited visitor policy
(Daily sales; tours or tastings by appointment)
Conrotto (SC)
Gemello (SC)
Morris, J. W. (A)
Sycamore Creek (SC)

Visitors by appointment
Ahlgren (SCr)
Bruce, David (SCr)
Congress Springs (SC)
Devlin (SCr)
Felton-Empire (SCr)
Frick (SCr)
Grover Gulch (SCr)
Montclair (A)
Mt. Eden (SC)
Page Mill (SC)
Parsons, Michael (SCr)
Pendleton (SC)
Ray, Martin (SC)
Rich[illegible] (SC)
Rid[illegible] (SC)
Rosenblum (A)
Rou[illegible]on-Smith (SCr)
Rud[illegible], Channing (A)
Sarah's Vineyard (SC)
Sher[illegible]ll (SC)
Silv[illegible] Mountain (SC)
So[illegible]elier (SC)
Sun[illegible] (SCr)
V[illegible]rest (A)
W[illegible] (SC)
W[illegible]de (SM)

No-visitor policy
Lamb, Ronald (SC)
La Purisima (SC)
[illegible] (SCr)
Sta[illegible] (SCr)

LOCATION

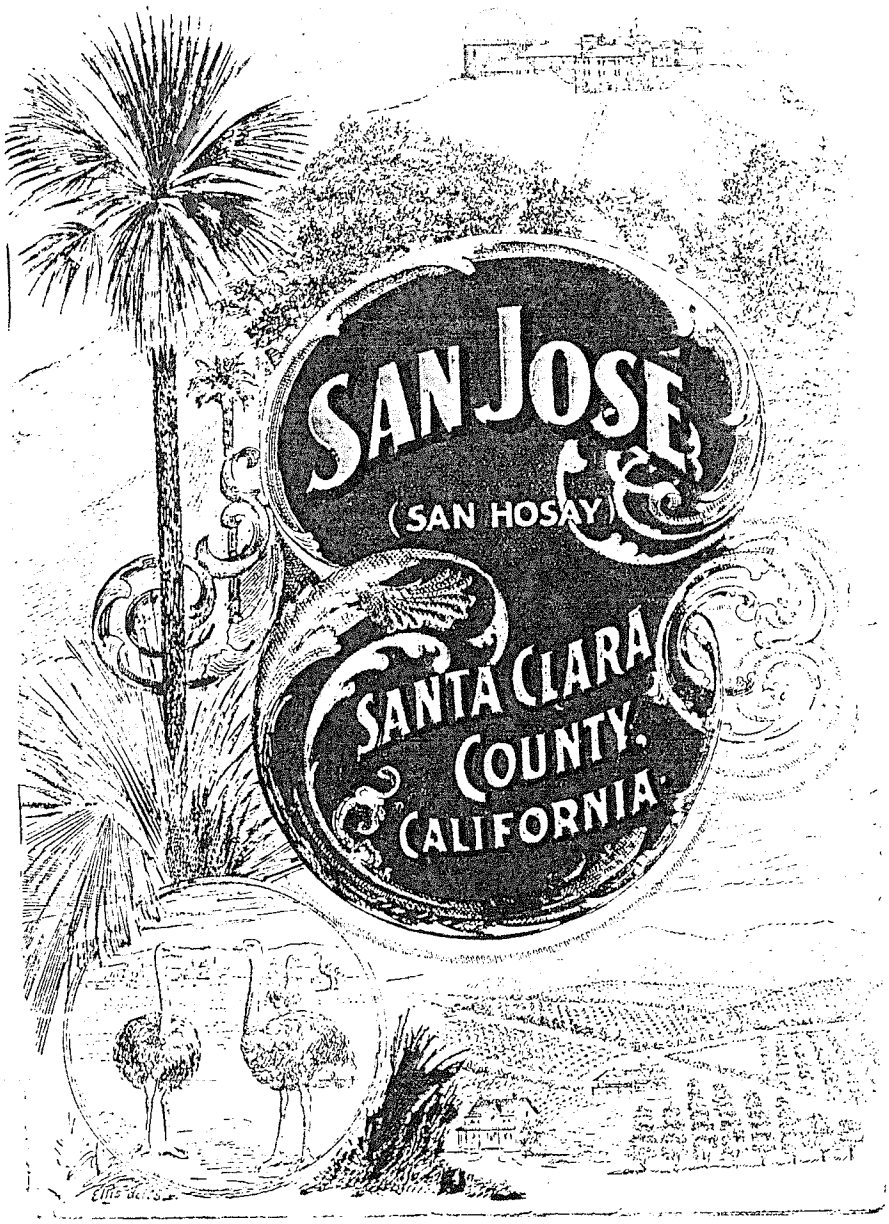
Santa Clara County lies in West Central California, immediately south of San Francisco Bay. It is roughly rectangular in shape and contains an area of 846,426 acres (1,327 square miles) (1) Approximately one third of the total county acreage (about 280,000 acres) is relatively flat with few topographic barriers. The remaining acreage is rough terrain-the Diablo Range and the Santa Cruz Mountains along the eastern and western boundaries of the county. The plain in the center of the county, starting from San Francisco Bay in the north where it is approximately 15 miles wide, extends southeasterly 25 miles to Coyote Narrows where the eastern and western mountain ranges converge. The plain widens again for another 22 miles southward of the Coyote Narrows to the San Benito County boundary line where it reaches an elevation of 400 feet and where it is approximately ten miles wide. The plain hence is in the shape of an hour glass, and the county, on the basis of this, is divided into a North Valley and a South Valley.

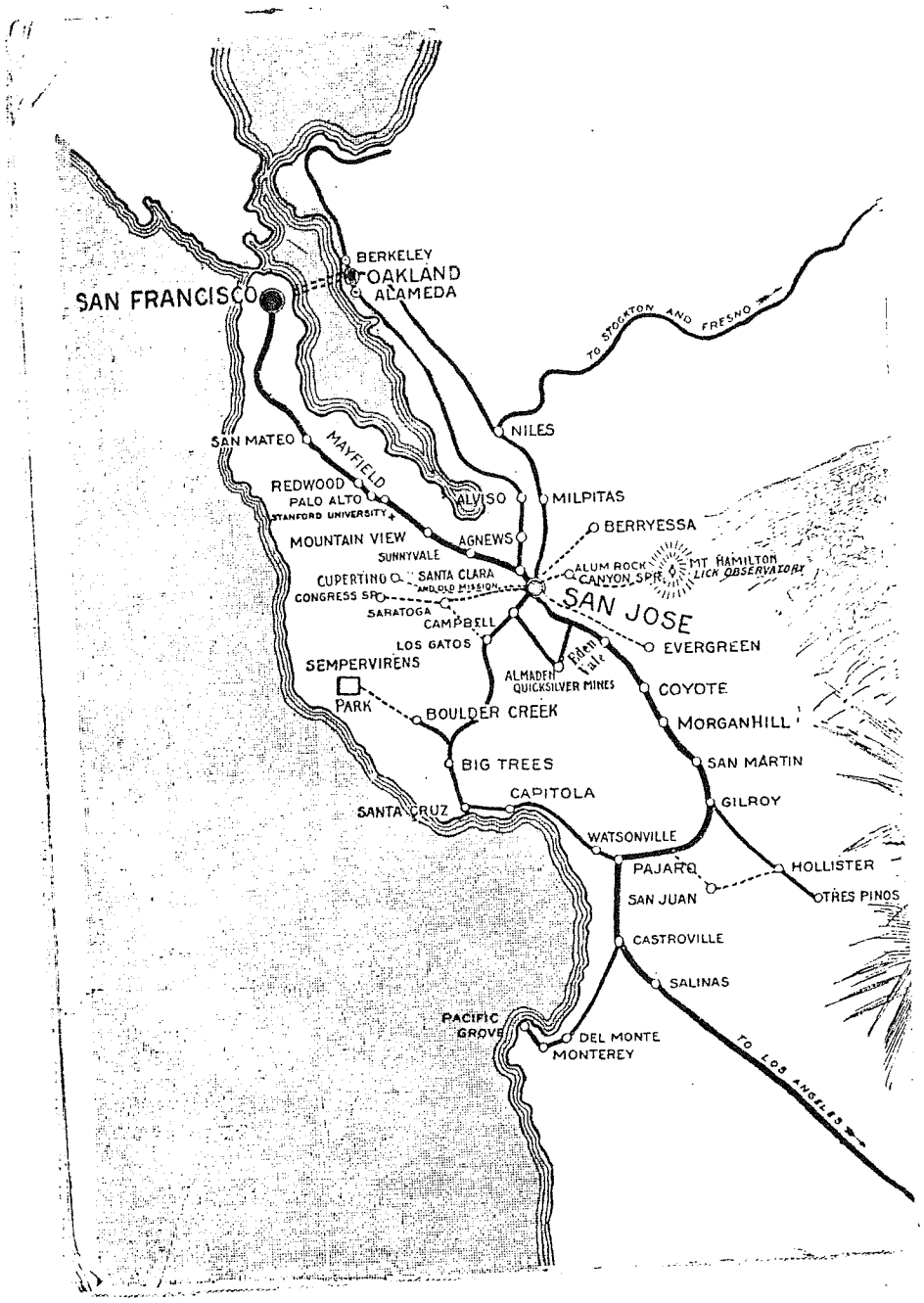
REGIONAL LOCATION AND SETTING

Neighboring counties include San Mateo on the northwest, Santa Cruz on the west, San Benito on the south, Merced and Stanislaus on the east, and Alameda on the northwest. *(see figure 1, page 2).* San Jose is 50 miles south of San Francisco and 42 miles south of Oakland.

HOW TO USE THE SOIL SURVEY REPORT

This report contains sections of interest to different groups of readers, as well as some sections that may be of interest to all. Those interested in soil potentials, should study the detailed soil section about soil characteristics and qualities, then turn to the section *"Soil Interpretations for Farm and Nonfarm Uses."* In this way, the soils of a certain land area may be identified for their best uses, limitations and management. Each kind of soil has definite characteristics and qualities. Knowledge of these properties permits the grouping of soils according to their limitations or suitabilities for different uses. Let us consider *San Ysidro loam, 0 to 2 percent slopes;* these are nearly level soils that have loam surface soil and clay subsoil. They are rated as moderately good land for agriculture, but have limitations for deep rooted crops because of the fine textured subsoil. When planning a septic tank filter field, they are rated as having a severe limitation because of the very slow percolation rate of the subsoil. *The chart on page 4 shows facts about the land and survey interpretations as shown in this report.*


SAN JOSE
(SAN HOSAY)
SANTA CLARA
COUNTY.
CALIFORNIA.


SAN FRANCISCO
BERKELEY
OAKLAND
ALAMEDA
TO STOCKTON AND FRESNO
NILES
SAN MATEO
MAYFIELD
REDWOOD
PALO ALTO
STANFORD UNIVERSITY
ALVISO
MILPITAS
BERRYESSA
MOUNTAIN VIEW
SUNNYVALE
AGNEWS
ALUM ROCK CANYON SPR.
MT HAMILTON LICK OBSERVATORY
CUPERTINO
SANTA CLARA AND OLD MISSION
CONGRESS SP.
SARATOGA
SAN JOSE
CAMPBELL
LOS GATOS
EVERGREEN
Edenvale
SEMPERVIRENS PARK
ALMADEN QUICKSILVER MINES
COYOTE
BOULDER CREEK
MORGAN HILL
BIG TREES
SAN MARTIN
CAPITOLA
GILROY
SANTA CRUZ
WATSONVILLE
PAJARO
HOLLISTER
SAN JUAN
TRES PINOS
CASTROVILLE
SALINAS
PACIFIC GROVE
DEL MONTE
MONTEREY
TO LOS ANGELES

Revised 1/5/87

DESCRIPTION OF THE SOILS

There are twenty soil associations shown on the General Soil Map for Santa Clara County. They are named by the major soil series occuring within each association. Some associations shown on the General Soil Map have the same soil series for which they are named, but differ by properties or qualities of major importance to use and management. These are separated (or phased) by indicating differences such as slope, erosion, coarse fragments, drainage, salt and alkali or surface texture.

The twenty soil associations for Santa Clara County are organized into five groups based on soil characteristics and qualities including slopes. The five major groups and the mapping units within each group are described as follows:

Group 1 - *Areas dominated by fine textured soils and land types influenced by tidal water.*

1 Alviso Association

This association consists of very poorly drained, fine textured soils developed in gleyed, fine textured alluvium. It occupies level tidal flats along the San Francisco Bay. Vegetation consists of water loving plants, saltgrasses and forbs. Elevations range from sea level to 10 feet. Mean annual rainfall is 15 to 16 inches; mean annual air temperature is 58 to 60° F. The growing season is 300 to 325 days. This association comprises less than 1 percent of the county.

Alviso soils make up 85 percent of this association; 10 percent of the included areas are soils strongly acid in reaction, and 5 percent is Tidal marsh land.

Alviso soils have dark gray clay surface soils and gleyed, gray silty clay subsoils. They overlie gleyed alluvium, mixed with layers of organic matter. Free water usually occurs at 1 to 3 feet from the surface. The soils are affected by high concentrations of salts.

These soils are used for limited pasture, wildlife, recreation and salt ponds. The soils are subject to flooding at high tides when not protected by levees.

2 Tidal marsh association

This association consists of miscellaneous Tidal marsh land. The area is periodically covered by tidal water. Vegetation is predominantly cordgrass, pickleweed or samphire. Numerous sloughs meander throughout this land type. This association comprises less than 1 percent of the county.

85 percent of this association is Tidal marsh land, and 15 percent is Alviso soils.

This association is used for wildlife, recreation and many areas have been ponded to evaporate sea water for the production of salt. It has no agricultural value.

Santa Clara County Photo

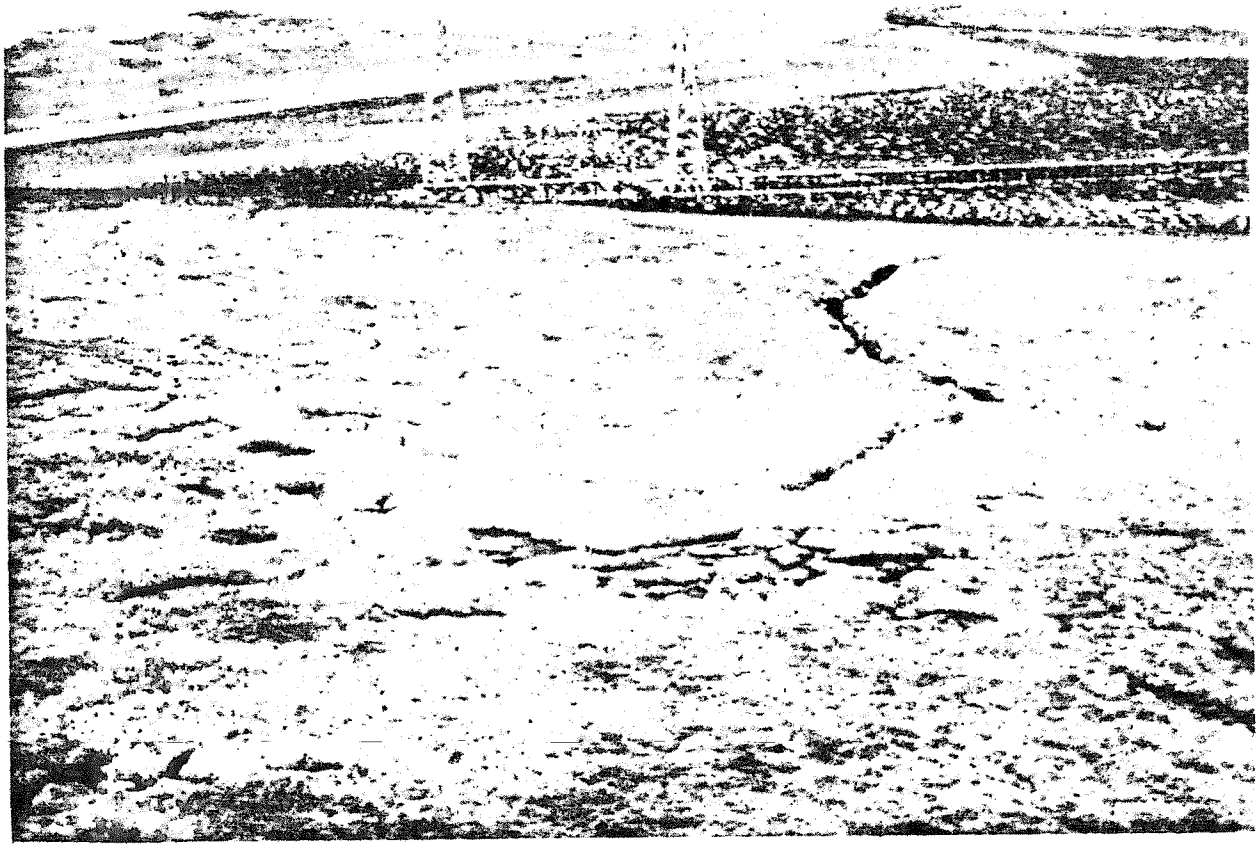


Figure (3) - *Marsh land is an important wildlife habitat. Provides food and resting area to migratory fowl and other birds of the Pacific Flyway.*

Group II - *Areas dominated by very deep, level, somewhat poor to poorly drained soils.*

3 Clear Lake-Campbell association, drained

This association consists of somewhat poor to poorly drained soils developed in mottled, fine to moderately fine textured alluvium. It occupies low level positions of the alluvial plains southeast of Gilroy, along Fisher Creek and Silver Creek, and small areas at other locations of the Santa Clara Valley. Vegetation consists of annual and perennial grasses and forbs. Elevations range from 130 to 300 feet. Mean annual precipitation is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 260 to 300 days. This association comprises about 1 percent of the county.

Clear Lake soils make up about 60 percent of this association and Campbell soils about 25 percent; 10 percent of the included areas are Cropley soils and 5 percent Pacheco soils.

Clear Lake soils have dark gray clay surface soils and mottled, grayish brown clay subsoils. Campbell soils have dark gray silty clay surface soils and olive gray silty clay loam subsoils. These soils overlie mottled, sedimentary alluvium. The intermittently high water table that existed during the development of these soils is below the zone that will affect crops at the present time.

These soils are used for irrigated row crops, sugar beets, orchards, dryland grain hay and pasture. Problems in the use of these soils are, fine textures and moderately slow to slow permeability. They have severe limitations for septic tank filter fields; shrink-swell behavior is moderate to high. These limitations impose restrictions on their use for housing and commercial developments.

4 Sunnyvale-Castro-Clear Lake association

This association consists of poorly drained soils, developed in mottled alluvium. It occupies low level positions of the alluvial plains on the valley floor extending from San Jose northwesterly to the Tidal marsh areas of San Francisco Bay and southeast of Gilroy. Elevations range from 30 to 300 feet. Mean annual precipitation is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 325 days. This association comprises about 3 percent of the county.

Sunnyvale soils make up about 40 percent of this association; Castro soils 25 percent and Clear Lake soils 20 percent. Included are 5 percent areas of Bayshore soils and 10 percent Willows soils.

Sunnyvale soils have dark gray, slightly calcareous silty clay surface soils and light gray, strongly calcareous subsoils. Castro soils have very dark gray, slightly calcareous clay surface soils and white, strongly calcareous clay subsoils. Clear Lake soils have dark gray clay surface soils and grayish brown clay subsoils. These soils overlie mottled, variable textured substrata. Free water usually occurs at 3 to 5 feet from the surface, except where artificially drained.

These soils are used for irrigated row crops, sugar beets, orchards, hay and pasture. Housing and commercial developments are rapidly expanding on these soils. Drainage and flood control are needed to achieve high production of most crops. These soils have moderate to severe limitations for septic tank filter fields; shrink-swell behavior is high. These limitations impose restrictions when used for housing and commercial developments.

Santa Clara County Photo

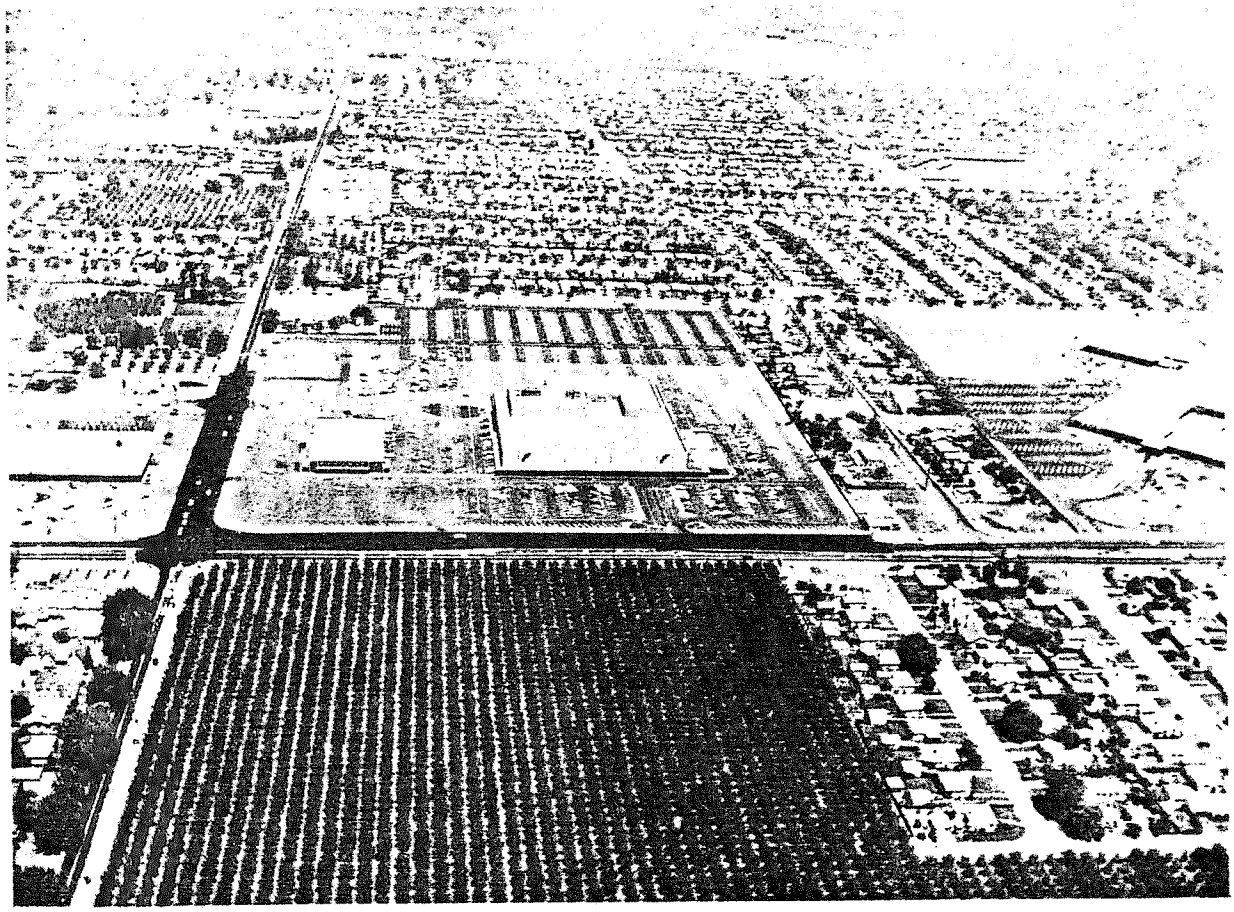


Figure (4) - *Land use change from agriculture to housing and commercial developments on Sunnyvale and Castro soils.*

5 Orestimba-Willows association

This association consists of poorly drained soils developed in fine textured alluvium. It occupies low level positions of the alluvial plains in the northern and southern parts of the valley and a few small basin areas at other locations in the valley. Vegetation consists of water loving plants, santgrasses and forbs. Elevations range from 100 to 400 feet. Mean annual precipitation is 15 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 325 days. This association comprises about 1 percent of the county.

Orestimba soils make up about 50 percent and Willows soils 40 percent of this association; 5 percent of the included areas are Clear Lake soils, 3 percent Sunnyvale soils and 2 percent Pacheco soils.

Orestimba soils have grayish brown clay loam or silty clay loam surface soils and dark grayish brown, clay loam subsoils. Willows soils have dark gray clay surface soils and light olive gray clay subsoils. These soils overlie mottled, variable textured substrata that are commonly calcareous. Free water usually occurs at 2 to 5 feet from the surface, except where artificial drainage has been installed. Most of these soils are affected by concentrations of salt.

These soils are used for irrigated row crops, dryland hay and pasture. Housing and commercial developments are expanding on limited areas. Salt concentration somewhat limits these soils for agricultural cropland uses. The high shrink-swell behavior limitations impose restrictions for housing and commercial development uses.

Group III - *Areas dominated by moderately well to somewhat excessively drained, medium to fine textured soils of the alluvial plains and fans.*

6 Yolo association

This association consists of well drained, medium and moderately fine textured soils developed in medium textured sedimentary alluvium. It occupies nearly level alluvial plains of the Santa Clara Valley along the major drainageways. Vegetation consists of annual grasses and forbs, with a few scattered oak trees. Elevations range from 400 to 1,000 feet. Mean annual rainfall is 15 to 25 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 325 days. This association comprises about 5 percent of the county.

Yolo soils make up about 85 percent of this association; 5 percent of the included areas are Campbell soils, 5 percent Mocho soils and 5 percent Garretson soils.

Yolo soils have grayish brown loam and silty clay loam surface soils and brown silty loam and silty clay loam subsoils. They overlie loamy substrata. Flooding is not usually a hazard on these soils, except for a few areas in lower positions along drainageways.

These soils are used for irrigated row crops, sugar beets, orchards, vineyards, dryland hay and pasture. The principal orchard crops are apricots, cherries, prunes and walnuts. They are the most productive soils in the Santa Clara Valley. The largest area of housing and commercial developments has been expanded on these soils. Land leveling, proper water application and fertility maintenance are important management factors. Erosion is not usually a problem. Limitations for expanding housing and commercial developments are moderate.

Santa Clara County Photo

Figure (5) *Typical high producing prune orchard on Yolo soils.*

7 Zamora-Pleasanton association

This association consists of well drained, medium and moderately fine textured soils, developed in sedimentary alluvium. It occupies nearly level alluvial fans, along the edges of the Santa Clara Valley. Typical slopes are less than 2 percent, but near areas of entrenched stream channels, the slopes range to 25 percent. Vegetation consists of annual grasses and forbs, with a few scattered oak trees. Elevations range from 200 to 1,000 feet. Mean annual rainfall is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 2 percent of the county.

Zamora soils make up about 50 percent, and Pleasanton soils 35 percent of this association; 5 percent of the included areas are San Ysidro soils, 5 percent Yolo soils, and 5 percent Hillgate soils.

Zamora soils have dark grayish brown loam and clay loam surface soils and dark brown or brown clay loam subsoils. Pleasanton soils have grayish brown loam surface soils, and dark grayish brown and brown gravelly clay loam subsoils. These soils overlie variable textured alluvium.

The soils are used for irrigated row crops, orchards, vineyards, dryland hay and pasture. They comprise a large part of the area on which prunes, apricots and walnuts are grown. Housing and commercial developments are rapidly expanding on these soils. Land leveling, proper water application, and fertility are important management factors. Erosion is not usually a problem except along drainage channels. Limitations for expanding housing and commercial developments are moderate to severe.

8 Arbuckle-Pleasanton association, 0 to 9 percent slopes

This association consists of well to somewhat excessively drained, medium textured, gravelly soils, developed in gravelly alluvium. It occupies nearly level to moderately sloping alluvial fans, along the edges of the valley and around Morgan Hill and San Martin. Elevations range from 400 to 1,000 feet. Mean annual rainfall is 15 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 5 percent of the county.

Arbuckle soils make up about 60 percent, and Pleasanton soils 25 percent of this association. 10 percent of the included areas are San Ysidro soils, and 5 percent Hillgate soils.

Arbuckle soils have brown gravelly loam surface soils and brown gravelly loam subsoils. Pleasanton soils have grayish brown and brown gravelly loam surface soils and dark grayish brown and brown gravelly clay loam subsoils. These soils overlie mixed gravelly substrata.

The soils are used for irrigated row crops, vineyards, orchards and dryland hay and pasture. They comprise a large part of the area on which prunes, apricots and grapes and other fruits are grown. Water for irrigation is available for these soils and is obtained mainly from wells. Erosion is a slight to moderate hazard. Land leveling, proper water application and fertility maintenance are important management factors in the use of these soils.

9 Cropley-Rincon association, 2 to 9 percent slopes

This association consists of well drained, moderately fine to fine textured soils developed in calcareous mixed alluvium. It occupies gently to moderately sloping fans along the edges of Santa Clara Valley. Vegetation is grasses and forbs, with a few scattered oaks. Elevations range from 200 to 1,000 feet. Mean annual rainfall ranges from 16 to 20 inches; mean annual air temperature is about 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 1 percent of the county.

Cropley soils make up 60 percent and Rincon soils 25 percent of this association; 5 percent of the included areas are San Ysidro soils, 5 percent Pleasanton soils and 5 percent Zamora soils.

Cropley soils have very dark gray clay surface soils and dark gray clay subsoils. Rincon soils have dark gray clay loam surface soils and grayish brown gravelly clay subsoils. The soils overlie mixed alluvium that may vary from gravelly clay loam to clay, and usually calcareous.

These soils are used for row crops, apricots, prunes, walnuts, grapes, dryland hay and pasture. A few areas are used for expanding housing and commercial developments. Soils of this area are more difficult to manage than the soils on the valley floor, and returns are somewhat less. Erosion hazard is slight to moderate. Water for irrigation is available through wells. Because of slowly permeable subsoils, they have severe limitations for septic tank filter fields and untreated steel pipe. The subsoils have high shrink-swell behavior. These limitations impose problems for expanding housing and commercial developments.

10 Yolo-Esparto association, 0 to 9 percent slopes

This association consists of moderately well to well drained, medium textured soils developed in sedimentary alluvium. It occupies nearly level to moderately sloping fans and stream benches along the major drainageways of the eastern upland area. Vegetation is annual grasses and forbs with scattered oak and sycamore trees. Elevations range from 400 to 2,400 feet. Mean annual rainfall is 15 to 25 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days.

This association comprises less than 1 percent of the county.

Yolo soils make up 70 percent and Esparto soils 20 percent of this association. 10 percent of the included soils are Garretson, Cortina and Pleasanton.

Yolo soils have grayish brown loam surface soils and brown silty loam subsoils. Esparto soils have pale brown loam surface soils and light brownish gray light clay loam subsoils. They overlie loamy substrata. Flooding is not usually a hazard on these soils except for a few areas in low positions along drainageways.

These soils are used for dryfarmed grain hay, pasture and range. Erosion is a slight to moderate hazard on the moderately sloping areas. Game birds, principally valley quail are present in limited numbers. Also found on these soils are deer, rabbits and mourning doves. Water is not available for irrigation. Where properly grazed, forage yields are good.

Group IV - *Areas dominated by soils with slow to very slowly permeable subsoils of the older alluvial fans and terraces.*

11 Keefers-Hillgate association, 2 to 9 percent slopes

This association consists of well drained soils having slow to very slowly permeable subsoils developed in old mixed alluvium. It occupies gently to moderately sloping old fans and terraces along the edges of the Santa Clara Valley. Vegetation consists of annual grasses and scattered oak trees. Elevations range from 200 to 1,000 feet. Mean annual rainfall ranges from 16 to 25 inches; mean annual air temperature is about 58 to 60° F. The growing season is about 260 to 300 days. This association comprises about 3 percent of the county.

Keefers soils make up about 60 percent and Hillgate soils 25 percent of this association; 5 percent of the included soils are San Ysidro; 5 percent Pleasanton soils and 5 percent Arbuckle soils.

Keefers soils have brown clay loam surface soils and reddish brown very gravelly clay loam subsoils. Hillgate soils have pale brown silt loam surface soils and strong brown clay subsoils. These soils overlie variable textured alluvium.

These soils are used for irrigated orchards, vineyards, dryland hay and pasture. The principal orchard crops are apricots and prunes. Crop yields on these soils are low; they are difficult to manage when cultivated because of the erosion hazard. Limited water is available for irrigation and obtained mainly from wells.

12 San Ysidro association

This association consists of moderately well drained soils, having very slowly permeable clay subsoils developed in old mixed alluvium. It occupies nearly level fans along the edges of the Santa Clara Valley. Vegetation consists of annual grasses and scattered oaks. Elevations range from 200 to 1,000 feet. Mean annual rainfall is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 1 percent of the county.

San Ysidro soils make up about 85 percent of this association; the included areas are 5 percent Pleasanton and 10 percent soils with strongly acid subsoils.

San Ysidro soils have light brownish gray loam surface soils, and subsoils are brown and yellowish brown clay. They overlie stratified, moderately fine textured alluvium.

These soils are used for irrigated orchards, vineyards, dryland hay and pasture. The principal orchard crops are apricots and prunes. They have low fertility and low available waterholding capacity. Water for irrigation is available and is obtained from wells. Because of the clay subsoils, limitations for septic tank filter fields and untreated steel pipe are severe. The subsoils have high shrink-swell behavior. These limitations impose problems for housing and commercial developments.

13 Hillgate-Positas association, 9 to 15 percent slopes, eroded

This association consists of well drained soils having very slowly permeable clay subsoils, developed in old mixed alluvium. It occupies strongly sloping old fans and terraces along the edges of the Santa Clara Valley. Vegetation consists of annual grasses and scattered oaks. Elevations range from 200 to 2,000 feet. Mean annual rainfall is 16 to 25 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 3 percent of the county.

Hillgate soils make up about 70 percent and Positas soils 20 percent of this association. Areas included are 5 percent Pleasanton soils and 5 percent Saratoga soils.

Hillgate soils have pale brown silt loam surface soils and strong brown clay subsoils. Positas soils have brown loam surface soils and reddish brown clay subsoils. These soils overlie gravelly textured alluvium.

These soils are used for irrigated orchards, vineyards, dryland hay and pasture. The principal orchard crops are apricots and prunes. Crop yields on these soils are low. Many places show substantial loss of top soil resulting from sheet and gully erosion. Limited water is available for irrigation and is obtained mainly from wells.

Figure (6) *Low producing apricot orchard on eroded area of Hillgate soils.*

14 Hillgate-Soper association, 15 to 30 percent slopes, eroded

This association consists of well drained soils that have moderately slow to very slowly permeable subsoils developed in old mixed alluvium and weakly consolidated sandstone and conglomerates. It occupies moderately steep terraces and uplands along the edges of the Santa Clara Valley. Vegetation consists of annual grasses, some brush and scattered oaks. Elevations range from 200 to 2,000 feet. Mean annual rainfall ranges from 16 to 25 inches; mean annual air temperature is about 58 to 60° F. The growing season is about 250 to 300 days. This association comprises about 3 percent of the county.

Hillgate soils make up 70 percent and Soper soils 20 percent of this association; included areas are 5 percent Pleasanton soils and 5 percent Azule soils.

Hillgate soils have pale brown silt loam surface soils and strong brown clay subsoils. They overlie gravelly clay loam alluvium. Soper soils have brown gravelly loam surface soils and reddish brown gravelly clay loam subsoils. They overlie weakly consolidated sandstone and conglomerate.

These soils are used for orchards, vineyards, pasture and range. A few areas have water available for irrigation that is obtained from wells. Erosion hazard is moderate and fertility is low. Cultivation of steep slopes has caused deep gullies to form in a few spots.

Group V - *Areas dominated by upland soils developed on sedimentary, basic igneous and serpentine rock.*

15 Altamont-Azule association, 30 to 50 percent slopes

This association consists of well drained, moderately fine and fine textured soils developed on soft sediments. It occupies steep uplands along the edges of the Santa Clara Valley. Vegetation is mostly annual and perennial grasses and forbs with scattered oaks. Elevations range from 500 to 2,000 feet. Mean annual rainfall is 16 to 25 inches; mean annual air temperature is 58 to 60° F. The growing season is 200 to 300 days. This association comprises about 4 percent of the county.

Altamont soils make up 55 percent and Azule soils about 30 percent of this association. Included soils are 5 percent Los Osos, 5 percent San Benito and 5 percent Diablo.

Altamont soils have dark grayish brown clay surface soils and grayish brown, calcareous clay subsoils. They overlie soft calcareous shales. Azule soils have dark grayish brown clay loam or silty clay loam surface soils and brown gravelly,sandy clay subsoils. They overlie soft gravelly sandy clayey sediments.

These soils are used for dryland grain hay, pasture and range, wildlife and watershed. Soils of this association are the high forage producing range land soils in the county. This group of soils provides a good habitat for both deer and quail. Erosion hazard and proper grazing use are important management practices.

Santa Clara County Photo

Figure (7) - *Area of Altamont soils showing high producing range land.*

16 Los Gatos-Gaviota-Vallecitos association, 30 to 75 percent slopes

This association consists of well to somewhat excessively drained, medium textured, shallow to moderately deep soils developed on hard sandstone and shales. It occupies steep to very steep uplands on both sides of the Santa Clara Valley. Vegetation is grasses and forbs, with some oak, digger pine and brush. Elevations range from 300 to 4,000 feet. Mean annual rainfall ranges from 55 to 60°F. The growing season is 200 to 250 days. This association comprises about 30 percent of the county.

Los Gatos soils make up 30 percent, Gaviota soils 30 percent and Vallecitos soils about 25 percent of this association. About 15 percent of the included soils are Parrish, Gilroy, Inks, San Andreas, Los Osos and Santa Lucia.

Los Gatos soils have brown gravelly loam surface soils and reddish brown gravelly clay loam subsoils. Gaviota soils have pale brown loam surface soils and light yellowish brown gravelly loam subsoils. Vallecitos soils have brown loam surface soils and reddish brown clay subsoils. These soils overlie metamorphosed hard sandstones and shales. Past sheet erosion ranges from slight to moderate.

These soils are used for range, wildlife, recreation and watershed. This association comprises the largest area of range soils in the county. Game species associated with this group of soils are deer, band-tailed pigeons, mountain quail and bush rabbits. Where the range is properly grazed, forage yields are moderately high and erosion hazard is high to very high. The lease of these soil areas for hunting rights has a good potential for economic returns to the landowners.

17 Felton-Maymen association, 50 to 75 percent slopes

This association consists of well to somewhat excessively drained, medium and moderately fine textured soils developed on strongly acid sandstones and shales. It occupies very steep uplands, extending along the Santa Cruz-Santa Clara County line. Vegetation is redwood, Douglas fir, coniferous forest and associated hardwoods; brush is the dominant cover on Maymen soils. Elevations range from 400 to 4,000 feet. Mean annual rainfall is 30 to 50 inches; mean annual air temperature is 55 to 60° F. The growing season is 200 to 250 days. This association comprises about 10 percent of the county.

Felton soils make up 65 percent and Maymen soils about 20 percent of this association. Included soils are 10 percent Madonna and 5 percent Ben Lomond.

Felton soils have brown silt loam surface soils and light brown clay loam subsoils. Maymen soils have fine sandy loam surface soils and light brown fine sandy loam subsoils. Maymen soils

are usually rocky. These soils overlie sandstones and shales.

These soils are used mainly for wildlife, recreation and watershed. Felton soils are used for limited timber production. Areas that have been logged show some sheet, gully and rill erosion. Game species associated with this group of soils are deer, band-tailed pigeons, mountain quail and brush rabbits. Because of the bedrock substrata damage from severe erosion is difficult to rebuild.

18 Montara Association 15 to 50 percent slopes, eroded

This association consists of somewhat excessively drained, shallow, moderately fine textured soils developed on serpentine rock. It occupies moderately steep to steep uplands along the edges of the Santa Clara Valley associated with notable faults in the area. Vegetation is grasses and forbs with a few scattered dwarf oaks and Digger pine. Elevations range from 800 to 3,000 feet. Mean annual rainfall ranges from 16 to 25 inches; mean annual air temperature is 58 to 60° F. The growing season is 250 to 300 days. This association comprises about 2 percent of the county.

Montara soils make up about 85 percent of this association. Included soils are 5 percent Climara soils and 10 percent Inks.

Montara soils have dark gray clay loam surface soils and very dark gray clay loam subsoils. They overlie serpentine bedrock. Geologic erosion is high; these soils are usually rocky or stony.

These soils are used for limited range, wildlife, recreation and watershed. Protection against reducing density of cover is necessary to prevent further accelerated erosion. Wildlife found on these soils are doves, rabbits, nongame birds and a few deer.

19 Maymen-Los Gatos-Gaviota association, 30 to 75 percent slopes, severely eroded

This association consists of well to somewhat excessively drained, medium textured, shallow to moderately deep soils developed on hard sandstone and shales. It occupies steep to very steep uplands on both sides of the Santa Clara Valley. Vegetation is mostly brush and hardwoods. Elevations range from 500 to 4,000 feet. Mean annual rainfall ranges from 15 to 50 inches; mean annual air temperature ranges from 55 to 60° F. The growing season is 200 to 250 days. This association comprises about 25 percent of the county.

Maymen soils make up 30 percent, Los Gatos soils 30 percent and Gaviota soils 30 percent of this association. Included soils are 10 percent Vallecitos and Parrish.

Maymen soils have brown fine sandy loam surface soils and light brown fine sandy loam subsoils. Los Gatos soils have brown gravelly loam surface soils and reddish brown gravelly clay loam subsoils. Gaviota soils have pale brown loam surface soils and light yellowish brown gravelly loam subsoils. These soils overlie metamorphosed hard sandstone and shales. Geologic erosion is high and these soils are rocky and stony.

These soils are used for limited range, wildlife, recreation and watershed. Protection against reducing density of cover is necessary to prevent further accelerated erosion. Wildlife found on these soils is doves, rabbits, nongame birds and a few deer. The lease of these soil areas for hunting rights has a good potential for economic returns to the landowners.

SCS Photo

Figure (8) - *Gaviota soils are used for range, wildlife, recreation and watershed.*

20 Henneke severely eroded, Rock land association, 30 to 75 percent slopes.

This association consists of somewhat excessively drained, shallow, rocky soils and land types developed on serpentine rock. It occupies steep to very steep uplands around Red Mountain and other small bodies throughout the county. Vegetation is mostly brush and a few scattered dwarf Digger pine. Elevations range from 1,600 to 2,500 feet. Mean annual rainfall is 16 to 20 inches; mean annual air temperature is 58 to 60° F. The growing season is 200 to 250 days. This association makes up less than 1 percent of the county.

Henneke soils make up 65 percent and Rock land 20 percent of this association. Included soils are 15 percent Vallecitos and Gaviota.

Henneke soils have reddish brown gravelly clay loam surface soils and dark reddish brown very gravelly clay subsoils. They overlie serpentine bedrock. Rock land consists of areas that have enough rock outcrops and very shallow soils to submerge other soil characteristics. Outcrops of rock usually cover 2 to 10 percent of the surface area. Geologic erosion is high to very high.

These soils are used for wildlife, recreation and watershed. Some of the parent material is used as a source of magnesite. Protection against reducing density of cover is necessary to prevent further accelerated erosion. Wildlife found on these soils are a limited number of deer, bush rabbits and nongame birds.

These soils developed under conditions of poor drainage and ground water that contained calcium bicarbonates. The capillary rise and evaporation, plus transpiration, caused the precipitation of lime.

Los Gatos, Los Osos, Gilroy, Inks, Henneke, and Felton soils are in the Argixeroll group. Soils in this group are dry throughout the profile for 60 consecutive days or more for 7 years out of 10. These soils differ mainly in the amount of clay in the Bt horizon, depth, mineralogy, and average annual soil temperature.

Los Gatos soils are typical of this group and have a brown, slightly acid gravelly loam A horizon and a reddish-brown, medium acid gravelly clay loam Bt horizon. They are moderately steep to very steep and developed on uplands over metamorphosed shale rock. Average annual soil temperature is 56° F.

Gilroy soils differ by having developed on basic igneous rock. Average annual soil temperature is more than 58°.

Los Osos soils differ by having a clay Bt horizon and an average annual soil temperature of more than 58°.

Inks soils have a lithic contact with basic igneous bedrock at a depth of 12 to 19 inches and an average annual soil temperature of more than 58°.

Henneke soils have a very gravelly clay Bt horizon and developed on serpentine rock; average annual soil temperature is more than 58°.

Felton soils are similar to Los Gatos soils in many respects, except they have a base saturation of more than 35 percent but less than 75 percent.

San Andreas, Santa Lucia, Montara, San Benito, Ben Lomond, and Pacheco soils are in the Haploxeroll group. Soils in this group are similar to the Argixerolls, except that they have altered horizons but lack a B horizon. They differ from one another in textural class, depth, mineralogy, drainage, and average annual soil temperature.

San Andreas soils are typical of this group and have a grayish-brown, granular, soft, medium acid fine sandy loam A horizon over soft sandstone at an average depth of 22 to 30 inches. These soils are moderately steep to very steep and developed on uplands. Average annual soil temperature is more than 58°.

Santa Lucia soils differ by having a gray shaly and very shaly clay loam profile developed on shale rock.

Montara soils differ by having a dark-gray clay loam A horizon and serpentine bedrock at a depth of less than 16 inches.

San Benito soils have a limy horizon developed on soft sandstone and shale.

Ben Lomond soils are similar in many respects, except they have a base saturation of more than 50 percent but less than 75 percent.

Pacheco soils have slopes of less than 2 percent and developed in sedimentary alluvium under more poorly drained conditions than exist today. They have mottles within 16 inches of the surface, and their organic-matter content decreases with depth.

Vertisols.—Soils placed in this order shrink during the dry season as they lose moisture, and they develop wide cracks. These soils swell during the winter wet season, and cracks in them close. Because of this shrink-swell characteristic, material from the upper horizons falls into cracks in the lower horizons, which mixes and churns the soil and offsets horizon differentiation. Texture is typically clay, and the dominant clay mineral is montmorillonite. The dark, thick A horizon and the strong structure of these soils are a result of their high organic-matter content. In the exchange complex of these soils, calcium and magnesium are dominant. The soils developed under grasses, shrubs, or mixed shrubs, grasses, and scattered oak trees. Average annual rainfall is 16 to 25 inches. Average annual air temperature is 58° to 60° F.

Soils in this order are in the Xerert suborder. These soils are in the Altamont, Clear Lake, Cropley, Climara, Diablo, Maxwell, and Willows series. The main differences among soils in this suborder are relief, drainage, color, and parent material.

The Diablo soils are typical of this suborder. These soils consist of dark-gray clay, have a thick A horizon, and are calcareous in the C horizon. In more than 7 years out of 10, cracks open and close once each year and remain open for 60 consecutive days or more. The Diablo soils are strongly sloping to steep and developed from soft, calcareous sandstone and shale on uplands.

Altamont soils are similar to the Diablo soils but have a color value of less than 3.5 when moist and 5.5 when dry throughout the upper 12 inches.

The Climara soils differ by having developed in metamorphosed basic igneous rock, but the Cropley soils are nearly level to moderately sloping and developed in mixed alluvium on fans.

Maxwell soils are moderately well drained, are nearly level to moderately sloping, and developed in serpentine alluvium on fans.

Clear Lake soils are level and developed under poor drainage on low flood plains. Willows soils have a chroma when moist of more than 1.5, are level and poorly drained, and developed on low flood plains; free gypsum crystals are present in their C horizon.

General Nature of the Area

This section briefly describes the history, physiography, geology, and climate of the Eastern Santa Clara Area. Then it discusses the water supply, industry and farming, population, community facilities, transportation, and vegetation.

History

The Spanish first explored the Santa Clara Valley in 1769, and in 1777 they established the first settlement at what is now San Jose (*7*). For the first 100 years, growth was very slow. The economy was based on herds of sheep and cattle. Hides and tallow were the only products of significance, and these had to be shipped to San Francisco through a port at Alviso. Trade was therefore limited by the difficulties of access.

In 1870 the coast route of the Southern Pacific Railroad was constructed through the valley. This gave considerable impetus to more intensive farming, which forced cattle raising into the foothills. Wheat farming gradually replaced cattle raising in the valley until, in 1880, the area from San Jose to Gilroy formed an almost unbroken wheat field.

Since 1880 grain farming has decreased and fruit raising has increased. Orchards, predominantly of French prunes, and vineyards were established on most of the tillable land.

At the present time, the valley floor from the vicinity of Gilroy northward is almost entirely planted to deciduous fruits and grapes. Canning became the first major industry.

The dominance of farming and associated industries continued through the first half of the present century. As recently as 1940, 23 percent of the workers in the county earned their living directly from the products of the soil, either in the fields or in the food processing plants, while many others provided services for these workers.

Since 1950 the dependence on farming has lessened. There has been an increasing number of factories that produce a variety of goods in no way related to farming. By 1962, 25 percent of all workers in the county were engaged in the manufacture of durable goods. Farming and food processing, which were once the principal economic enterprises of the county, now support fewer than 9 percent of the county work force.

Physiography

The Eastern Santa Clara Area consists of the southern part of the Santa Clara Valley, which extends through the central part of the area, and of the rolling hills and mountainous uplands on either side of the valley.

The uplands in the western part of the area are the Santa Cruz Mountains, which consist of a number of complex ridges or small ranges with rugged slopes that range in gradient from 40 to 60 percent or more. The crest of these mountains is generally at an elevation of about 2,000 to 3,400 feet. The highest point, Loma Prieta Peak, about a mile east of the ridge line, has an elevation of 3,806 feet.

The uplands in the eastern part of the area are in the Diablo Range, which separates the Santa Clara Valley from the San Joaquin Valley. This range consists of several parallel ridges having slopes of 20 to 60 percent and of small, intervening valleys. Copernicus Peak, near the Lick Observatory at Mt. Hamilton, and the highest point in the survey area, is 4,372 feet in elevation. The foothills of this range have smoother, less steep slopes that generally range from 20 to 40 percent. The crests of these foothills range from 1,000 feet to slightly more than 2,000 feet in elevation.

Upland areas of undulating to rolling relief on eroded terraces are, in many places, at the base of the mountains and hills on both sides of the valley. The slopes of these areas are from 5 to 35 percent, and elevation ranges from 250 to 1,000 feet.

The lowland, or valley floor, consists chiefly of a number of confluent alluvial fans and flood plains formed by deposits from the numerous streams that enter the valley from both mountain systems. The valley extends northwest and southeast through the central part of the area. The comparatively smooth floor of the valley ranges in elevation from 100 to 400 feet. An imperceptible alluvial divide at Morgan Hill separates the drainage of the valley into a north-flowing system and a south-flowing system. The former drains into San Francisco Bay at the north end of Santa Clara County, and the latter leads to the Pajaro River south of Gilroy and eventually flows into Monterey Bay. The regional drainage of the valley is generally well developed. Areas of poorly drained soils occur, and the most important of these are south and west of Old Gilroy.

Geology

The oldest rocks found within the limits of the Eastern Santa Clara Area are included in the Franciscan-Knoxville Group of Upper Jurassic age. These rocks form the largest single geologic unit in the area. Overlying the Jurassic rocks locally are marine sedimentary rocks of Cretaceous age. Bordering the San Andreas fault, and in isolated patches in the Diablo Range, Miocene beds occur. Along the margins of the Santa Clara Valley, Pliocene strata are exposed and the valley floor itself is composed of an accumulation of Quaternary clay, sand, and gravel. Tertiary volcanic rocks are scarce, and in the few isolated areas they occur only in small, local bodies.

The structure of the area is complex. It is controlled by faulting, the trend of which is predominantly in a northwesterly direction, which is characteristic of the general structural trend of California. In many places, folding and crumbling of the sediments are associated with faulting. The most notable faults in the area, which are also the major features of the Central Coast Ranges, are the San Andreas, Hayward, and Calaveras faults. Other prominent related faults of lesser extent are the Sargent, Silver Creek, and Madrone Springs faults.

The San Andreas fault, together with one of its prominent branches, the Sargent fault, subparallels the western boundary of Santa Clara County and separates Miocene strata from Upper Jurassic rocks. The Calaveras and Hayward faults are nearly parallel to each other on the western side of the Diablo Range. The three major fault systems are predominantly of the strike-slip type, with probable large right lateral displacements (east blocks moved relatively south). Two important faults branching off the Calaveras fault are the Madrone Springs and the Silver Creek faults.

Numerous northwest-trending folds in the Tertiary beds have been mapped. Folding within areas of Upper Jurassic rocks, however, is not so well known, because persistent axes cannot be traced with certainty.

Climate [6]

Santa Clara County has moderate temperatures and light to heavy precipitation (*2*). Temperature ranges from around 10° F. in winter to well above 100° in summer. Average low temperatures in winter are in the middle thirties (table 8). Temperatures of 32° or lower occur in most years over much of the area (table 9); however, the growing season still ranges from 200 to 275 days. As a result of the mild temperatures, the value for heating degree-days ranges from 2,500 to 4,500 units.

The moderating influence of the Pacific Ocean, to the west, is felt in the relatively uniform temperatures that are characteristic of the northern part of the Santa Clara Valley. Offshore circulation patterns only infrequently permit continental temperatures to establish themselves, and these occasions are usually only 2 or 3 days in dura-

[6] By C. Robert Elford, climatologist for California, and John Estills, assistant climatologist for California, National Weather Service, U.S. Department of Commerce.

TABLE 8.—*Temperature and precipitation data, San Jose, Calif.*

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	2 years in 10 will have at least 4 days with—		Average monthly total	1 year in 10 will have—	
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—
	°F. (1)	°F. (1)	°F. (2)	°F. (2)	Inches (1)	Inches (1)	Inches (1)
January	58	41	65	33	2.7	0.4	4.7
February	61	43	70	35	2.6	.8	5.7
March	65	45	78	37	1.9	.1	4.6
April	69	47	84	39	1.1	.2	3.2
May	73	50	89	44	.4	0	1.2
June	78	53	95	48	.1	0	.2
July	81	55	91	51	(3)	0	(3)
August	80	55	90	51	(3)	0	.1
September	80	55	93	49	.1	0	.3
October	74	51	88	45	.6	0	1.3
November	66	45	78	38	1.1	0	2.8
December	59	42	68	34	2.6	.6	5.0
Year	70	48	[4] 100	[5] 31	13.2	9.3	18.4

[1] Period of record: 1931–60.
[2] Period of record: 1951–60.
[3] Trace.
[4] Average highest annual maximum.
[5] Average lowest annual minimum.

tion. In the mountainous areas, the temperatures sometimes vary considerably within short distances.

During the summer, the cool temperature and the prevailing, moderate to strong, west and northwest offshore winds move into the San Francisco Bay area at low elevations; thus, the effect of the marine air is felt in the Santa Clara Valley mainly late in the afternoon and in the evening. Higher elevations are often above this layer of marine air, and its influence is diminished there.

Along the eastern edge of the survey area, on the east slope of the Diablo Range, the weather resembles that of the San Joaquin Valley. As a result, temperatures are warmer in summer and cooler in winter. Precipitation averages only 16 inches in parts of the Santa Clara Valley, but over the mountains to the east it is as much as 30 inches.

Annual evapotranspiration ranges from 25 to 30 inches, but in dryfarmed areas it is only 6 to 10 inches during the growing season. Range grasses dry out during June in a typical year. Pan evaporation amounts to 55 to 60 inches per year; about two-thirds of it occurs during the May–October period.

In summer, cloudiness tends to blanket the valley at night, while the east slope of the Diablo Range remains clear. The orientation of the mountain chain results in a predominantly northwesterly flow of air in the Santa Clara Valley in summer and a southeasterly flow in winter. Mountain tops are subject to greater variability in wind direction in response to changing weather, particularly in winter. In the mountain valleys, wind patterns are influenced by local terrain.

In summer there is a moderate flow of marine air through the lower passes of the mountains. These winds frequently reach speeds of 20 miles per hour or more. The same pattern is also responsible for the light to moderate winds from the northwest that blow up the Santa Clara Valley on summer afternoons, except in its southern extremity, where this flow is countered by the northward spread of the marine air that enters through the Pajaro River Valley.

In winter, winds are predominantly southerly and are strongest at higher elevations. It is estimated that winds reach speeds of 30 miles per hour every other year, on the average, and as much as 80 miles per hour once in 50 years. These figures are based on an assumed average exposure, and some promontories and peaks probably receive considerably more wind than this.

TABLE 9.—*Probabilities of last freezing temperatures in spring and first in fall, San Jose, Calif.*

Probability	Dates for given probability and temperature [1]		
	24° F. or lower	28° F. or lower	32° F. or lower
Spring:			
1 year in 10 later than	(2)	February 4	February 20
2 years in 10 later than	(2)	January 13	February 12
5 years in 10 later than	(2)	(2)	(2)
Fall:			
1 year in 10 earlier than	(3)	(3)	November 19
2 years in 10 earlier than	(3)	(3)	December 2
5 years in 10 earlier than	(3)	(3)	December 28

[1] Period of record: 1931–60.
[2] Earlier than January 1.
[3] Later than December 31.

Total annual sunshine is about 3,100 hours in the Santa Clara Valley and 3,300 hours in the eastern part of Santa Clara County. This represents 65 percent and 70 percent, respectively, of the total possible annual sunshine. The percentage of sunshine received (50 to 55 percent) is generally uniform over the survey area in winter, but in summer the percentage of sunshine received ranges from around 70 percent in the Santa Clara Valley to 90 percent or more along the eastern boundary of Santa Clara County.

Humidity is relatively high during the entire year along the coast and during the winter over inland areas. Humidity over inland areas late in summer and in fall, however, is moderate to low.

Water Supply

Ground water basins are the chief source of water in Santa Clara County (*5*, *6*). Since farms, municipal areas, and industry are dependent upon an adequate water supply, the importance of ground water basin reserves cannot be overestimated. Reports by the Santa Clara County Flood Control and Water District indicate that there has been a long-term lowering of ground water tables below safe and economic operating levels.

Santa Clara County has three major interconnected ground water basins. They are the Santa Clara Valley, the Coyote, and the Llagas Ground Water Basins. There are other small ground water basins within the county, but their use at present is small. The Santa Clara Valley Ground Water Basin is not in the Eastern Santa Clara Area.

The Coyote Ground Water Basin is the smallest of the three major basins. It occupies about 9,000 acres between the northerly Santa Clara Valley Ground Water Basin and a southerly divide in the vicinity of Cochran Road, just north of Morgan Hill. It is estimated that 14,000 acre-feet of ground water was extracted for use in 1965–66; no overdraft is estimated for this period.

The Llagas Ground Water Basin, which occupies about 57,000 acres, is the most southerly one and extends from Cochran Road on the north to the Pajaro River on the south. In 1966 about 70,000 acre-feet of ground water was extracted from this basin for municipal and farming purposes; no overdraft is estimated for this period.

Rainfall on the valley floor and runoff from the tributary watersheds are the major sources of water available to replenish these ground water basins. Surface reservoirs on the major tributary streams store flood runoff that would otherwise be lost for later release to percolation areas, thereby increasing the amount of local water placed in underground storage. The Santa Clara County Flood Control and Water District delivers water on the surface. It has also contracted for supplemental water from the State Water Project and is constructing facilities for the distribution of this water to meet present and future demands. Projections of future farm, munipical, and industrial water needs show that additional water will be needed. Therefore, import water from the San Felipe Division of Central Valley Project will be contracted to the county for distribution by the Santa Clara County Flood Control and Water District.

Industry and Farming

The location of Santa Clara County in the region surrounding San Francisco Bay, its proximity to large western markets, and its educational institutions have attracted a large number of nationally and internationally known firms. Most industrial growth has been in the northern part of Santa Clara Valley.

Since 1940 farm output has increased, even though there has been a shift in its relative importance. The largest income was derived from fruits, nuts, and berries (*4*). Nursery products increased in importance to become the second most valuable income crop. Livestock, poultry, and vegetable crops are other high-income enterprises.

Population

The population of Santa Clara County increased from 642,300 in 1960 to 919,700 in 1966. By 1970 the population was estimated to be approximately 1,125,000. In the southern part of the county, however, there has been only a slight increase in population. The County Planning Department has estimated that the population, which was 22,000 in 1960, could increase to 117,000 by 1980.

Community Facilities

Two universities and a State college are near the survey area: Stanford University, near Palo Alto; Santa Clara University, in Santa Clara; and San Jose State College, in San Jose. In addition, three theological schools are in the area. The Lick Observatory of the University of California is located 26 miles from San Jose in the northeastern part of the survey area, on the summit of Mount Hamilton.

Public schools in the county include kindergartens, elementary schools, junior high schools, senior high schools, and four junior colleges. In rural areas, an extensive school bus system provides easy access to schools for children living in nearly every part of the area. Churches of many denominations are in the area.

The county maintains several parks in the area for outdoor recreation, and golf courses are located throughout the area. Several of the water-storage reservoirs are used for fishing, swimming, and boating. The Santa Cruz Mountains, particularly the timbered parts, have long been summer recreational areas. Many summer homes are located in the Llagas and Uvas Creek drainage area and elsewhere in the mountains.

Transportation

The survey area is served by two trancontinental railroads, the Southern Pacific and the Western Pacific.

U.S. Highway 101, which connects San Diego, Los Angeles, San Francisco, Portland, and Seattle, passes through the area. State Highway 17 connects San Jose with Oakland and Santa Cruz. Numerous paved county roads crisscross the area and allow easy and direct transportation by truck or automobile between points within and outside the area.

A commercial airport is located at San Jose. Also, an international airport is located at San Francisco. Both trans-

oceanic flights and flights east are scheduled daily from San Francisco.

Most of the processed foods and commercial cut flowers are trucked to the nearby San Francisco Bay area for shipment around the world. Much of the fresh farm produce of the area is marketed within a radius 50 miles from San Jose.

Vegetation

Approximately 15 percent of the area is grassland, which is in the foothills on both sides of the Santa Clara Valley and on the south slopes of the Diablo Range. Grassland consists predominantly of annual grasses, such as slender oats or wild oats, soft chess, ripgut brome, and foxtail fescue. In a few places, perennial purple needlegrass grows in considerable abundance. Commonly associated with the grasses are herbs such as filaree and burclover. Thistle and morningglory are the chief weeds of economic importance in the area. There are some areas of Klamath weed and puncturevine, and the county is sponsoring work to prevent their spread. Grasses predominate in winter and spring, but herbs generally are more conspicuous late in summer and in autumn. These areas are mostly used for grazing.

Grass and oak trees make up about 15 percent of the area and cover easterly slopes of the foothills and the Diablo Range. In the Diablo Range, open stands of trees are principally coast live oak, California black oak, California blue oak, and valley white oak. The herbaceous vegetation is similar to that in areas of grassland. These areas are used principally for grazing.

About 20 percent of the survey area is brushland. The largest area of brushland is east of Mt. Hamilton. Other large areas also occur in the Santa Cruz Mountain area. Brushland is closely related to lack of soil moisture and has replaced areas of forest or grassland. It consists of shrubs that are mainly hard and woody. Among the associated plants are manzanita, scrub oak, canyon live oak, Jimbrush, birchleaf mountain-mahogany, Christmasberry, poison-oak, chamise, and chaparral-pea. Areas of brushland provide an effective watershed cover, but they also create a fire hazard.

About 20 percent of the survey area is woodland. Woodland covers the northern and protected slopes of the Santa Cruz Mountains and the Diablo Range. It consists of various broad-leaved or hardwood trees that form fairly dense, closed-canopy stands. Predominant species are coast live oak, canyon live oak, California black oak, madrone, tanoak, and California laurel.

Forest land makes up less than 5 percent of the survey area. It occurs in small areas of the Santa Cruz Mountains. Stands of trees contain both redwood and Douglas-fir, and each of these species makes up about 20 percent or more of the total stand. Tanoak, madrone, and coast live oak are also in these stands. There is an undergrowth of shrubs such as poison-oak, California blackberry, and California huckleberry, and several species of fern are commonly present. The trees on forest land are young, mainly from 40 to 80 years old. They normally range in height from 60 to 130 feet, and in diameter from 8 to 36 inches. In the past, a few small areas have been used for the production of timber but now are not considered important.

The remaining 25 percent of the survey area is cultivated farmland, which is on the valley floor and adjacent foothills and terraces. Vegetation before cultivation began consisted of large, scattered valley white oaks and coast live oaks that had an understory of grasses and weeds. A few stands of eucalyptus, once planted for windbreaks and fast-growing timber, are at scattered locations on the valley floor and foothills.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as crumbs, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern.

Available water holding capacity. The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Calcareous soil. A soil containing enough calcium carbonate (often with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Capability unit VIIe8 (4) - Moderately deep, well drained, medium textured, very steep upland soils.

Madonna loam 50 to 75 percent slopes, is the only soil in this unit. It has a loam surface and subsoil texture, underlain by coarse grained sandstone. Reaction is medium acid (pH 5.6 to 6.0) in both the surface and subsoil. Favorable rooting depth is 20 to 28 inches. Runoff is very rapid and the erosion hazard is very high. Subsoil permeability is moderate. Fertility is moderate and the soils hold about 3 to 4 inches of water plants can use. Rainfall is 35 to 50 inches and the growing season is 200 to 250 days.

Soils of this unit are best suited for range, recreation and watershed because of very steep slopes and very high erosion hazard. Areas that have a dense woodland brush cover are best maintained as protected watershed and as a browse area for wildlife.

Land Resource Area (14)

This land resource area consists of the Santa Clara Valley, which will include the valley bottoms, alluvial fans and low footslopes and terraces along the edges of the valley. Slopes are level to moderately sloping but will range to moderately steep at the upper elevations. The elevations range from sea level to 1,000 feet, and the average annual rainfall is 15 to 25 inches.

Many of the soils require intensive conservation and management practices to utilize their full potential. The soils at the lower end of the Santa Clara Valley and around the San Francisco Bay Area are poorly drained. Flooding and deposition is a problem along the major streams. Erosion is a problem on the footslopes and strongly sloping terraces, but generally, the valley floor and fans do not have serious erosion problems. Maintenance of soil structure is a growing problem on the intensively managed soils. Irrigation management is a problem because of a growing shortage of water.

Basic facts and assumptions considered in establishing the capability classification for land resource area (14) are as follows:

1. Climate is characterized by warm summers and cool, moist, mild winters; frost-free season of 250 to 325 days; beneficial effects of coastal fogs are felt over most of the area.
2. Irrigation water is, or will be available for all irrigable soils.
3. Land damage by flooding has been greatly reduced, but flooding is still a problem in some areas.

4. Drainage has been improved, but is still a problem on some soils.

5. A wide variety of the common cultivated field, truck, forage, fruit and nut crops are grown, subject to limitations imposed by individual soils.

6. A moderately high level of management is assumed.

7. Erosion is a problem on the steeper slopes.

Capability groups included are I-1 (14), I-3 (14), IIe1 (14) IIe5 (14), IIw2 (14), IIs4 (14), IIs5 (14), IIIe3 (14), IIIe4 (14), IIIw5 (14), IIIs3 (14), IVw6 (14), IVs4 (14), IVs9 (14), VIIIw4 (14) and VIIIw6 (14); these units are described in the following paragraphs.

Capability unit I-1 (14) - Very deep, well to moderately well drained, moderately coarse to moderately fine textured, nearly level soils.

This unit consists of soils having fine sandy loam, loam, silt loam, clay loam and silty clay loam surface and subsoil textures. They occur on alluvial plains and fans, with a reaction that may be slightly acid to moderately alkaline (pH 6.1 to 8.4) in both the surface and subsoil. Moderately alkaline soils may be calcareous in the surface, subsoil or substratum. Slopes range less than 2 percent. Favorable rooting depth is very deep, 60 inches or more. Subsoil permeability is moderately rapid to moderately slow. Runoff is very slow and erosion is not a hazard. Fertility is moderate to high and the soils hold about 8 to 11 inches of water plants can use. Rainfall is 15 to 25 inches and the growing season is 250 to 325 days. Campbell silty clay loam, and Pacheco silt loam drained, are included with this capability unit because the water table that existed during their development is now below the zone that will affect plant roots.

The soils of this unit are suited to the wide range of crops climatically adapted to the county. They have no permanent limitations or hazards.

Capability unit I-3 (14) - Very deep, well drained, medium textured soils with moderately fine textured subsoils on nearly level fans.

Pleasanton loam, 0 to 2 percent slopes, is the only soil in this unit. It has a loam surface soil and gravelly clay loam subsoil. The substratum is old gravelly alluvium. Reaction is slightly acid to neutral (pH 6.1 to 7.3) in both the surface and subsoil. Slopes average less than 2 percent. Favorable rooting depth is very deep, over 60 inches; however, the gravelly clay loam subsoil may only slightly retard root development.

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THE SANTA CLARA VALLEY.

By Hon. Judge Belden.

To the visitor approaching the Valley of Santa Clara, each mile traversed, ushers in some delightful surprise—introduces a new climate. If his advent be from the nort'1, the hills of scanty verdure, which encircle the bay, recede upon either hand; assume a softer contour and a richer garb. The narrow roadway that skirts the salt marsh has widened to a broad and fertile valley that stretches as far as the eye can reach in luxuriant fields of grass and grain. Bordering this verdant plain, in hues and splendors all their own, come the hills, and into the recesses of these hills creep the little valleys; and as they steal away in their festal robes they whisper of beauties beyond, and as yet unseen.

In full keeping with the transformed landscape is the change in climate. The harsh, chill winds that pour in through the Golden Gate and sweep over the peninsula, have abated their rough vigor as they spread over the valley, and softened as they mingle with the currents from the south, meet as a zephyr in the widening plain.

If the approach be from the south, the traveler, wearied with the desert and its hot, dry airs, is conscious of a sudden change. The sterile desert has become a fruitful plain; and the air that comes as balm to the parched lungs, is cool and soft, and moist with the tempered breath of the sea. Upon every hand, and to every sense, there is a transformation that would scarce be looked for outside Arabian romance.

If it be spring or early summer, miles upon miles stretches the verdant plain; over it troop sunshine and shadow; across it ripple the waves. Summer but changes the hue and heaps the plain with abundant harvests, while the first rains bring again the verdure and the beauty of spring. "An ocean of beauty," exclaims the charmed beholder; nor is this comparison to the sea altogether an idle fancy.

At a period geologically recent, the Sierra Nevadas and the Coast Ranges of mountains inclosed a basin about four hundred and fifty miles in length by about forty in width, comprising the present valleys of the Sacramento and San Joaquin rivers. During the same period the region east of the Sierras, now embraced in the State of Nevada, and the Territories of Utah and Arizona, was an inland sea, connected with the Pacific by straits and inlets. The evaporation from this body of water affected materially the climate of the adjacent regions. Lowering, as it must have done, the general temperature, and increasing the humidity, it induced precipitation from the saturated winds of the Pacific, while from its own evaporation it added materially to the rainfall it thus invited. From these causes, the precipitation of that period, both as to volume and duration, must have been greatly in excess of the present, and vegetation must have been correspondingly more luxuriant. From the slopes of the mountain ranges the waters flowed southerly in a majestic stream, forming broad lakes as the basin widened, a river where the narrowing valley restricted its borders, until, passing through the bay of San Francisco, and the present valleys of Santa Clara and Pajaro, it found an outlet in Monterey Bay. In the era that measured the existence of this ancient

Frederic Hall. History of San Jose. San Francisco, CA: A. L. Bancroft, c. 1871

and on the 16th organized a mission there. The first native was baptized there December 26th of that year. The Mission of San Carlos, at Monterey, was founded June 3d, 1770. The Presidio at San Francisco was established September 17th, 1776, and the Mission of San Francisco de las Dolores, October 9th, 1776, and the Mission of Santa Clara, January 18th, 1777. The foregoing data are herein given that the reader may carry them along in his mind as he contemplates the history we are about to record of that town of an almost contemporaneous creation.

The city of San José, pronounced *San Hosay*, and written in English *Saint Joseph*, formerly known as the Pueblo de San José de Guadalupe, is situated on the right bank of the Guadalupe river, about eight miles south of the bay of San Francisco, in the county of Santa Clara, and in the broad and beautiful valley which bears the same appellation as the county. Although the land which encircles San José, for a very considerable extent, has been christened "Santa Clara Valley," yet the domain thus denominated is but a part of the great valley which embraces several counties, and sweeps down from the city at the Golden Gate in one apparent uniform level to San Juan South, a distance of more than ninety miles. The ancient name of this great valley at the time of its first settlement was San Bernardino, from San Francisco to San Juan Bautista. It is oval

in form, and its width at San José is about fifteen miles. At about four miles south of San José, small hills, *Lomas Lagrimas* (Hills of Tears), appear to fence in the valley; but they are not extensive, nor do they obstruct either road that leads southward. They are probably about two miles in extent at their base.* Eight miles farther south the valley narrows to a width of nearly three miles, and thus extending six miles farther, when it gradually expands to a breadth of some six miles and so sweeps onward. On either side the valley is bordered by a chain of mountains running northwest and southeast, and ranging in altitude from one thousand to nearly four thousand feet. Directly east, and about twelve miles on an air line from the city, is Mount ~~Washington~~, 4,448 feet high. The western range near the Almaden Mines is crowned by two peaks, standing like sentinels watching the precious metal emboweled in the surrounding hills, but firmer on their base than that metal which oozes out in silver streams from these mercurial fountains. The one termed by the Indians Choual, is 3,530 feet in altitude. The other, Oumouhum, since named Mount Bache, is 3,430 feet. On the western mountains grows the tall and stately redwood (*Sequoia Sempervirens*), so serviceable for building timber—so stubborn in

Hamilton

* Those hills are so named because in early times, when some of the early settlers were coming up from the State of Sonora, they stopped there, and their provisions giving out caused the children to cry.

south-west of San José, and lying in a ridge east of the main range, culminating in Mount Bache, the highest points of which are about seventeen hundred feet above tide water. The three mines—the New Almaden, Enriquita, and Guadalupe, are in line extending over a distance of about five miles, the former is by far the most productive. The cinnabar occurs in altered shales, inclosed by extensive masses of serpentine. The ore is very irregularly distributed, though the metal-bearing portions seem confined to limited areas dipping with the strata. This is but one of the numerous localities throughout the coast ranges where cinnabar is mined, but thus far is the only one that has been worked with very great and continued profit to its owners.

In addition to the important deposits of cinnabar in this county, it also contains several veins of copper ore, which have been worked to some extent. Petroleum and Asphaltum are abundant in the range of mountains between Gilroy and Watsonville, particularly on Sargent's ranch, and in Moody's gulch, near Lexington, at a point one thousand one hundred feet above the sea.

TOPOGRAPHY.—In considering the topography of this county let us premise by saying that the great Santa Clara valley is but a portion of that vast plain which stretches from the Golden Gate in the north to San Juan South, a distance of ninety miles. When first peopled the whole was known as San Bernardino. It is oval in form and attains its greatest width near Mount Bache, where it is about fifteen miles. About four miles from San José, and apparently forming a barrier across the valley, are a chain of low hills, called the Hills of Tears, (so named, the legend relates, because in early times when some of the first settlers were coming up from the State of Sonora, they stopped there, and their provisions giving out caused the children to cry,) but the obstruction, however, is only apparent. About eight miles from this point the valley contracts to a width of but three miles, and so continues for some six miles, when it again expands to a breadth of nearly six miles, and thus sweeps out beyond our limits.

A chain of mountains hems in the valley on either side running north-west and south-east. From the time of its entry into the county, the eastern range rapidly rises, becomes broader and very rough, having many elevated points along it, until it culminates on the summit of Mount Hamilton nearly east of San José, four thousand four hundred and forty-three feet above the level of the sea. The range then decreases in height to Pacheco's Pass, the loftiest point of which is fourteen hundred and seventy feet. The western range near the famous Almaden Mines is crowned by two grand looking peaks that stand like stalwart sentinels guarding the precious treasures which lie concealed in the yet unexplored store-houses of their lesser

brethren around. To one the Indians gave the name of Chaoual, to the other Oumouhum. The first of these has an altitude of three thousand five hundred and thirty feet; the second, which has been modernized into Mount Bache, is three thousand seven hundred and eighty feet above the sea level.

In the cañons and on the slopes of the western chain are to be found growing in full vigor the useful redwood (*Sequoia Sempervirens*) as well as many oaks and madrona. Of course the march of civilization has considerably thinned the primeval forests, but further back, beyond the county line, there yet remains enough timber to supply many generations. On the eastern range comparatively few trees are found, but its swelling undulations, picturesque ravines, and wealth of natural beauty, pleases the eye, making a grand contrast with its opposite neighbor on the western side of the valley.

At a distance of twenty-five miles from San José, in the depth of these eastern gorges, the Coyote stream has its birth, and after springing into vigor, leaves its cradle, joyously leaping and splashing among the roots of trees and playing around the smooth worn sides of boulders, until it rushes into the pastoral valley, where it assumes a more staid demeanor, and languidly flows in many a tortuous curve, at last finding its doom in the great Bay of San Francisco. But what a change comes over its spirit during the rainy seasons! It then becomes a swirling, treacherous torrent, sweeping here and tearing thither, carrying all before it, until lost in the mighty ocean; yet how different is its normal condition. The Summer's sun has deprived it of much of its life, but none of its beauty. Its clear stream trickles through the cañons, kissing the laughing flowers, and giving life to the parched ferns and grasses in its course, while "its whimpling waters make their way" into the salt water basin. So much like human life is a stream!

The next most important creek in Santa Clara county is the Guadalupe so named after the patron saint of Mexico. It rises in the Sousal, about three miles south-west from San José, is fed by many tributaries and springs, and runs in a northerly direction until it comes near the city when it takes a north-westerly course and empties itself into San Francisco bay, near the *Rebouchure* of the Coyote.

There are numerous other streams in the county, many of them being of importance on account of the mills which stand on their banks, but unhappily our space will not admit of our describing each in their turn, suffice it to say that all have their advantages both manufacturing and pastoral.

There are several small valleys in the county, secluded among the hills, where many settlers have made comfortable and pleasant homes. Among these are the Cañon de los Osos (Bears cañon,) six miles easterly from Gilroy, which a few years ago was a favorite resort of the "grizzly." It is a wild but exquisitely beautiful gorge, through a range of high mountains, covered

THE GARDEN OF THE WORLD

AS IT IS NOW.

BY HON. DAVID BELDEN.

THE FOLLOWING SKETCH OF THE SANTA CLARA VALLEY WAS PUBLISHED IN THE OVERLAND MONTHLY OF SAN FRANCISCO, JUNE, 1887.

TO the visitor approaching the Santa Clara Valley, each mile traversed ushers in some delightful surprise, introduces a new climate. If his advent be from the north, the hills of scanty verdure, which encircle the bay, recede upon either hand and assume a softer contour and richer garb. The narrow roadway that skirts the salt marsh has widened to a broad and fertile valley that stretches, as far as the eye can reach, in luxuriant fields of grass and grain. Bordering this verdant plain, in lines and splendors all their own, come the hills, and into the recesses of these hills creep the little valleys, and, as they steal away in their festal robes, they whisper of beauties beyond, and, as yet, unseen. In full keeping with the transformed landscape is the change in climate. The harsh, chill winds that pour in through the Golden Gate and sweep over the peninsula, have abated their rough vigor as they spread over the valley, and, softened as they mingle with the currents from the south, meet as a zephyr in the widening plain.

If the approach be from the south, the traveler, wearied with the desert and its hot, dry airs, is conscious of a sudden change. The sterile desert has become a fruitful plain, and the air that comes as balm to the parched lungs is cool and soft and moist with the tempered breath of the sea. Upon every hand and to every sense there is a transformation that would scarce be looked for outside Arabian romance. If it be spring or early summer, miles upon miles stretches the verdant plain; over it troops sunshine and shadow; across it ripple the waves. Summer but changes the hue and heaps the plain with abundant harvests, while the first rains bring again the verdure and the beauty of spring.

"An ocean of beauty!" exclaims the charmed beholder. Nor is this comparison to the sea altogether an idle fancy. At a period geologically recent, the Sierra Nevadas and the Coast Ranges of mountains inclosed a basin about four hundred and fifty miles in length by about forty in width, comprising the present valleys of the Sacramento and San Joaquin Rivers. During the same period the region east of the Sierras, now embraced in the State of Nevada, and the Territories of Utah and Arizona, was an inland sea connected with the Pacific by straits and inlets.

The evaporation from this body of water affected materially the climate of the adjacent regions. Lowering, as it must have done, the general temperature and increasing the humidity, it induced precipitation from the saturated winds of the Pacific, while from its own evaporation it added materially to the rainfall it thus invited. From these causes, the precipitation of that period, both as to volume and duration, must have been greatly in excess of the present, and vegetation must have been correspond-

Commercial History of San Jose, California. Pacific Press for Metropolitan Publishing Co., c. 1892

City of San Jose

THE county seat of Santa Clara County, is situated eight miles south of San Francisco Bay, between the Guadalupe and Coyote Rivers, which at this point are about a mile and a half apart. The site possesses many advantages of beauty and health and profit. It is eighty feet above the level of the sea and near the heart of Santa Clara Valley. The surrounding mountains, which are visible from the streets, add to the beauty of the city by their grandeur, and to the comfort and health of its people by shutting away the ocean fogs and damps on one side, and the hot winds from the great San Joaquin Valley on the other. The fertility of the soil and the life-giving climate cause everything in the shape of vegetation to grow in such profusion that the lawns, the gardens, and the shaded walks and grounds which are seen in every quarter, have become renowned throughout the State and gained for San Jose the name of the Garden City. The place is one of the oldest communities in California. Immediately after the founding of the Mission of Santa Clara, which occurred in 1777, the fertility of the valley attracted other eyes besides those of the priests, and Don Felipe de Neve, commander of the presidio at San Francisco, suggested the establishment of a crown colony in the valley upon the banks of the Guadalupe River. The settlement he declared would in a short time not only furnish supplies for the troops at the presidio, forty-eight miles distant, but would also yield a handsome revenue to the crown. The suggestion was approved by the viceroy, and in November of the same year, Don Jose de Moraga, a lieutenant at the presidio, received orders to make the settlement. Moraga at once set out on his expedition with a command consisting of nine soldiers, who had experience as farmers, two settlers and three laborers, making fourteen in all. He selected a site on the banks of the Guadalupe River about seven miles from where it enters San Fran—

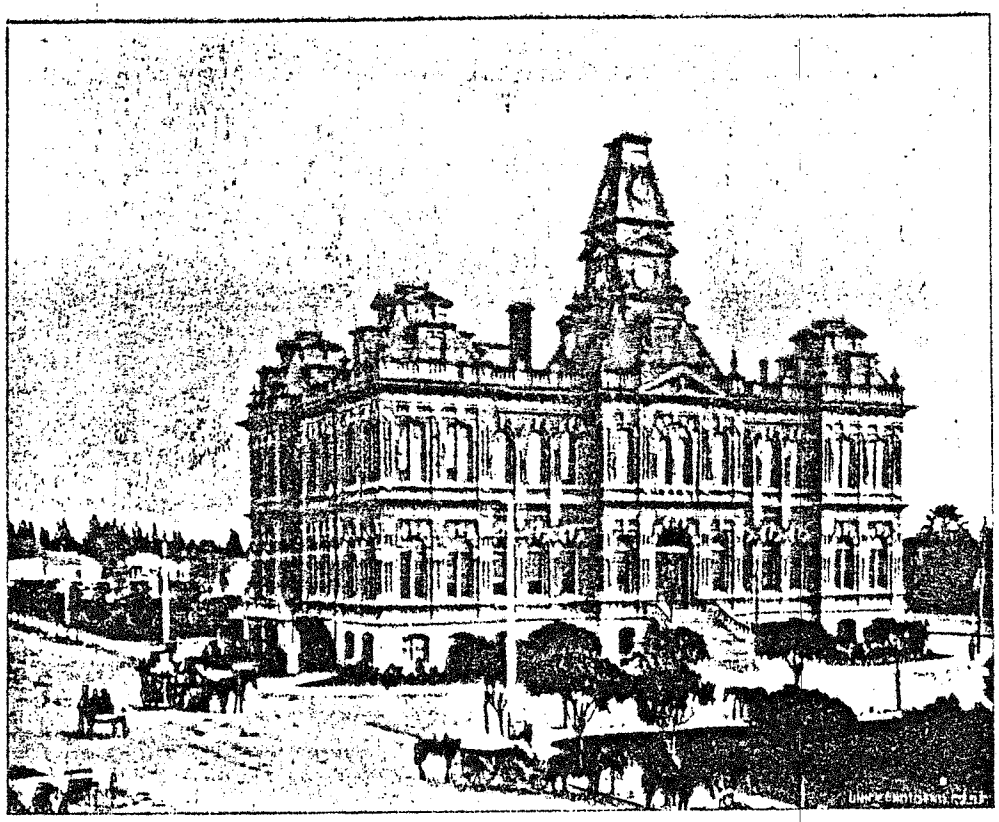
HISTORY OF THE COUNTY.

When and by Whom the County was Discovered, Settled and Developed. Establishment of Santa Clara Mission and of Pueblo San Jose. Discovery of Coyote Creek, San Francisquito and the Guadalupe.

PREVIOUS to the advent of Europeans California was considered a portion of Mexico, subject to Spain. The authorities, however, knew very little concerning its geographical features, their knowledge having been founded upon the unreliable reports of bay and shore lines, furnished by adventurous navigators.

DISCOVERY OF MONTEREY BAY.

In 1602 the Coast was visited by Sebastian Vizcaino, who anchored in Monterey Bay. The distinguishing features of the vicinity were recorded by Venegas and Cabrea, who, presumably, accompanied him. They pronounced it a famoso puerto. This report eventually fell into the hands of the Spanish authorities, who, ever eager to establish out-posts, decided to occupy the land. No particular effort to forward the plan was made, however, until 1769. In that year orders were sent to the officers in charge of the Pueblo at San Diego to dispatch a party in search of Monterey Bay. In keeping with this order, Captain Gaspar de Portola, civil and military governor, and Captain Fernando Javier Rivera y Moncada, left San Diego July 14th, 1769, with a company, to search for the famous port. Moncada was in command of twenty-seven soldiers, including Sergeant Joseph Francisco Ortega and Lieutenant Pedro Fages, with six or seven of his Catalan volunteers. Engineer Miguel Costanso, Fathers Juan Crespi and Francisco Gomez, seven muleteers, fifteen christianized Lower Californians, and two servants for Portola and Rivera were included, the company numbering altogether sixty-four persons.



THE NEW CITY HALL, SAN JOSE.

The party reached the Bay of Monterey on October 1st, but failed to recognize it, and continued up the coast. A week later they crossed the Pajaro River, naming it from a stuffed bird found among the natives. On the 17th they crossed the Rio San Lorenzo, at the site of the present city of Santa Cruz. Continuing along the coast they reached Point San Pedro October 30th, where they camped, intending to remain several days, as rain was falling, several members of the party were ill, and the supply of food was nearly exhausted.

DISCOVERY OF THE SANTA CLARA VALLEY.

While the party was in camp two soldiers, hunting for deer, climbed the northeastern hills, and from the summit saw "a valley like a great inland sea, stretching northward and southeastward as far as the eye could reach." The country was well wooded, they said, and very beautiful.

Thus these two deer-hunters who, on the 2d day of November, 1769, stood on the summit of the western hills and surveyed the beautiful Santa Clara Valley were the first Europeans who ever saw it. Unfortunately, their names were not recorded in connection with the discovery.

Ortega, with a small party, had proceeded along the beach toward the Golden Gate. He learned from natives that at the head of a "brazo de mar" there was a harbor, with a vessel at anchor. The party was looking for the arrival of the ship *San Jose* at the sought-for Bay of Monterey, with supplies. The entire company, therefore, on the 4th of November, crossed the San Bruno hills to explore the "brazo de mar," which they thought was Monterey Bay, and search for the ship.

"Breakfast! breakfast!" some one is calling, and we accept the invitation so as not to lose the habit of eating.

So many have attempted to describe the marvelous beauties of Santa Clara Valley, that it seems rather presumptuous for a stranger to be desirous of painting its diverse colors, and its various forms. It would require a most versatile pen, and the knowledge of an accomplished agriculturist, besides the capaciousness of an encyclopædia, to be fully able to do justice to this dream. Alas! One must be contented with the modest title of an observer, who will but write of what he has seen, and how he saw it.

If we are enabled to conduct the reader amidst so many marvels, it is owing to the erudition and wisdom of our cicerone (the distinguished representative of France) His perfect cognizance of the country, (one might say that its birth and growth had taken place beneath his eyes) made him the most precious of companions. How charming and delightful it is to meet a kindred soul, far from one's native soil, whose sympathetic heart also re-echoes the traditional song of the skylark, (the symbolical bird of France).

And, now, oh, reader! while the sky is so clear, and all God's creatures are rejoicing and chanting in unison, we will go forth armed with umbrella, a guide and pen, to take a stroll in the garden of Hesperides—Nature's immense garden—that has been perfected by man's industry and glorified by the art of horticulture. Immortal objects, that are ever renewed with all that is beauteous in life, with all the splendor, contained in lines, form, and color. Ah, what a jollification!—the sunshine, the delicious air and the sweet odors are exhilarating.

Hurrah, for pleasure and the Santa Clara Valley!

There may be counties larger in size and more imposing in appearance. But there can be none more beautiful and luxuriant.

The Santa Clara Valley is oval in shape, flat, and mountainous in places. The land slopes slightly at an average of about ten to a thousand feet, from the south to the north, thereby facilitating the flow of the several streams.

In the days of yore, when there were but a few scattered adobe houses in San Jose the valley extended some 90 miles, from San Francisco to San Juan Bautista, and was known by the name of San Bernardino. Santa Clara Valley, as it appears at the present date, only exists since the year 1847. It covers an area of about 800,000 acres of land, and, at San Jose is some fifteen miles in width. Four miles south of the city, the hills called "homos de las grimas" (hills of tears) are situated. They

San Jose Santa Clara County. San Jose, CA: San Jose Chamber of Commerce, c. 1904

Santa Clara Valley

And this they said:—

"One of the three most beautiful valleys in the world."—*Bayard Taylor.*

"I have traveled through California, and this last is best of all."—*Admiral Schley, U. S. N.*

"Say for me, as a much-traveled man, that this is the richest valley in the world."—*Chauncey M. Depew.*

"Your foothills are like those on the Rhine."—*Dr. Albert Shaw, of Review of Reviews.*

"I thought to find San Jose a country town—instead, a magnificent and beautiful city."—*Secretary Ellsworth, Century Publishing Co.*

"The most beautiful foothills I have seen."—*Judge Grosscup, of Chicago.*

"Stanford University, the finest group of buildings in the world."—*Mr. McMillan, of McMillan's Magazine, London.*

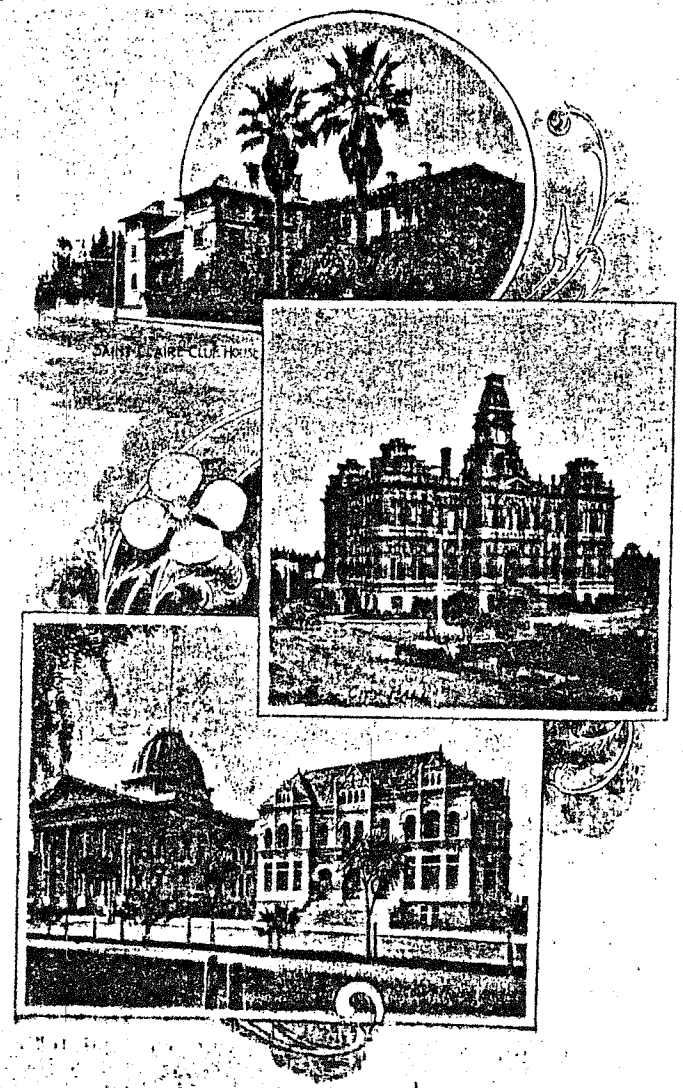
"Most charming; what a beautiful valley!"—*Edwin N. Bok, of Ladies' Home Journal.*

"An ideal out-of-doors country."—*F. N. Doubleday, of Doubleday-Page & Co.*

The Santa Clara Valley was settled by Franciscan friars, under Father Junipero Serra, in 1777. Two of the missions, Santa Clara and San Jose, are within its limits.

The valley is a park, originally dotted with magnificent oaks. North to south, within the county, it is fifty miles long, with a maximum width at the north end of twenty-five.

The mountains eastward, the inner Coast Range, rise four thousand feet, oval foothill being piled upon oval foothill, so that the range is a series of rounded terraces. Westward is the more angular Coast Range, with forests of redwood, pine, madrona, and laurel. From its four-thousand foot crest are visible, on one hand, the Pacific Ocean, and



Eugene T. Sawyer. History of Santa Clara County California.
Los Angeles, CA: Historic Record Co., c. 1922

History

CHAPTER I.

Unrivaled Climate and Situation—Story of the Early Days—The Founding and Growth of the Missions—Founding of San Jose—Secularization of the Missions—Life on the Early Ranchos—Early Government—The First Americans—The Ill-Fated Donner Party.

THERE is no county in California so rich in material, romantic, progressive and adventurous, as the County of Santa Clara. It absorbs about the whole of the Santa Clara Valley, rightly proclaimed the richest valley in the state, and in respect of size, the richest in the world. It is located at the southernmost end of San Francisco Bay and the county, itself, embraces 1355 square miles.

The climate is famed for its evenness and salubrity. The Mt. Hamilton Range on the east and the Santa Cruz Mountains on the west protect the valley from the heat of the San Joaquin plains and direct coast influences. The Bay has a modifying effect, its cool breezes which sweep through the valley, making the summers cooler and the winters warmer. The mean summer temperature is seventy-five degrees; winter, about sixty degrees. The average rainfall is sixteen inches for the valley and nearly twice that amount for the mountains. There is an alternation of storm and sunshine between October and May. During this period there are from thirty to forty days in which more or less rain falls; from sixty to seventy that are cloudy; the rest are bright and pleasant. These estimates vary with particular seasons, but taking the average of a series of years, it will be found that from October to May one-half the days are cloudless and fully three-fourths such that any outdoor vocation can be carried on without discomfort or inconvenience.

Cyclones and terrific windstorms are unknown and thunder is heard only at rare intervals. With the month of March the rains are practically over though showers are expected and hoped for in April. Summarizing, it may be said that in any part of the year, days too hot or too cold for the comfort of those engaged in ordinary occupations are rare. It may be added that the fears and forebodings with which the seasons are elsewhere greeted, are here unheard of. Coming with no rigors, they bring no terrors and are alike welcomed as a change. In these conditions health and comfort are largely subserved and also in them the great horticultural possibilities, and these, the elements of present and prospective prosperity, are as constant as the ocean currents in which they have their origin, as permanent as the mountain ranges which bound the field of their exhibition.

Santa Clara County is the banner fruit section of the state. In 1919 there were 98,152 acres planted in fruit trees and 2,850 acres in vines. The total acreage of cereals, vegetables and berries was 86,695 acres. The livestock numbered 62,248; value $1,288,175. It is the prune center of America. More prunes are raised in the valley than are raised in the whole United States outside. In 1919 the orchardists of the county received $45,000,000 from the product of their trees. This was irrespective of the money received from the packers and canners. In the season ending in the winter of 1919 the Southern Pacific Railway handled about 153,000,000 pounds of prunes in the territory between Hollister and San Francisco. The crop was by far the largest ever raised in the Santa Clara Valley. In 1921 the canneries of the valley paid out nearly $50,000,000 for orchard products.

Though called the "garden spot of California," this phrase should not be interpreted to make gardening more important than fruit raising, for fruit raising is the prime industry. Timber, cattle raising, dairying and sundry industries have played and still play an important part in the business life of the population, though the days of wheat raising, grazing and timber culture are passing rapidly. Lands so fertile and so adaptable to fruits and vegetables cannot, in a section that is being rapidly populated, be given over to any industry other than one that is intensive. Within the limits of the county there is practically no waste land. It is interesting to bear in mind that much of the poorer and rougher land compares more than favorably with some of the best acreage in the Eastern states.

A graphic and beautiful picture of the valley appeared in the April (1920) issue of the

William F. James and George H. McMurry. History of San Jose California. San Jose, CA: A. H. Cawston, c. 1933

I.—EXPLORERS AND INDIANS (1769-77)

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"At four in the afternoon (we) halted at the Arroyo of San Joseph Cupertino. . . This place is in the Llano de los Robles. . . through which we traveled. In this valley or plain there is a great abundance of oaks. . . On the way we found some lagoons of water. . . formed by the arroyos which run from the sides of the Sierras and, flowing toward the estuary of the port (of San Francisco), become lost in those plains and flats. All the way is very level and good, except for some mires. . . making necessary some detours. . . .

"Along the way many Indians came out to us. . . . They shouted amongst the oaks and then came out, naked like fauns, running and shouting and making many gestures, as if they wished to stop us, and signaling to us that we must not go forward. Although they came armed with bows and arrows, they committed no hostility. . . .

"They would not appear to me so lean and miserable as those of yesterday. I saw some with beards, one or two with long moustaches, and several with medium moustaches and long beards. Many had their hair tied, wearing a branch around the head, perhaps to fasten it with, and others had their hair cut short. They had their ears pierced like those of the (Santa Barbara) Channel and wore little reeds in them.

"I must have seen today more than a hundred Indians. About thirty of them came out to us, and seeing that we paid no attention to them. . . . or perhaps because of the novelty, they followed us for a good distance. Their method was to run, one behind the other in single file, until they got ahead of us, and then, halting, they began to shout and even to shriek, making many gestures and signs as if they were angry and did not wish us to go forward. Then seeing that we continued on our way. . . . they again started to run to get ahead of us. . . and went through the same performance. . . So they continued for about a league, when all but a few of them went away. Then finally, little by little, even these left us and we saw them no more.

"This place of San Joseph Cupertino has good water and much firewood, but nothing suitable for a settlement, because it is among the hills very near to the range of cedars."—Frey Pedro Font (March 25, 1776). (From his diary of the Anza expedition.)

1

EUROPEANS first trod the Valley of Santa Clara on Monday afternoon, November 6, 1769. They were a party of 64, led by handsome, headstrong, young Don Gaspar de Portolá, Governor of the Peninsula of California. With him rode the gentle Father Juan Crespi, preacher of the College of San Fernando, Mexico, far-seeing diarist and chaplain; Lieutenant Pedro Fages of the Free Company of Catalonia, second in command; long-bearded, moody Captain Fernando Javier de Rivera y Moncado, commander of the Company of Loreto; Don Miguel Costansó, accomplished young engineer and cosmographer, and the noted scout, Sergeant José Francisco de Ortega. Many others in the company were also to be noted shortly in the annals of this new land.

They had made camp on San Francisquito Creek, near the present site of Palo Alto. That afternoon they had ridden down from the western hills after circling what is now Half Moon Bay, the west slope of Sweeny Ridge, the southern end of Crystal Springs Lake, and east from Searsville Lake.

fermentation and storage and clarification; there is no standard age at which any one type of wine is bottled and no standard age at which any one type of wine is sold.

To sum up, we are dealing in California with a vineyard country *in the process of creation*—only the general outlines can be seen by now. It is easy to tell Bordeaux from Burgundy and Vouvray from Rhine wine; it would be not only difficult, but scarcely possible, if thirty varieties of grape (the same thirty) were grown in all four districts, if hillsides and bottom-lands were planted indiscriminately with vines, and if there existed no characteristic methods of production, standardized and hallowed by tradition, for each district.

Thus all honest red Bordeaux, from the humblest Médoc *ordinaire* to the proudest Mouton-Rothschild, have a certain family resemblance. The same thing is not true of the wines of the Napa Valley and will not be true for a good many years. Red Bordeaux, to the wine drinker, is a wine. "Napa" is not a wine—the presence of this word on a label says, or should say, to the intelligent wine drinker, only this, "Here is a wine made in one of the half dozen best vineyard dis-

tricts of California." If it is made from grapes of a superior variety, by a good producer, it will be good—considerably better, at least, than a wine made from the same grapes, by an equally good producer, in an inferior district.

After this explanation and this *apologia*, here is the reasonably accurate information which it is possible to give about the better wine districts of California.

SANTA CRUZ-SANTA CLARA

These two can most conveniently be treated as one, for the best vineyards of Santa Clara County are in the foothills of the mountains from which Santa Cruz County takes its name. There are even a few scattered and mostly abandoned vineyards in the southern half of San Mateo County which share the same climatic conditions, the same exposure and the same soil, and should therefore be considered part of this major viticultural district. And on the basis of the evidence now at hand, this is perhaps the most promising of all the viticultural districts of California.

As one drives southward along the Bay High-

way from San Francisco, the range of hills of which San Francisco's Telegraph Hill and Russian Hill and Nob Hill are the northernmost outposts, runs parallel to the Bay shore almost as far as Palo Alto, where it sheers off a little to the west, gradually acquires altitude and width and impressiveness and turns at length into the Santa Cruz Mountains. With one or two minor breaks, such as that behind Los Gatos, this chain continues on south to Monterey Bay. The eastern foothills of this chain, and the Santa Clara Valley which it protects, are planted mostly with fruit and nut trees (scarcely profitable today) and to a lesser extent with vines.

The Valley itself is too rich, too abundant, too fertile to produce good wine. But around the edges of the valley proper there are a good many thousand acres of slightly rolling or comparatively level land, light, well-watered and well-drained, and admirably adapted to the growing of the vine. The foothills of the Santa Cruz Mountains, from Redwood City fifty miles on south to Gilroy, are even better; they could be, and perhaps some day will be, one great vineyard.

A certain amount of wine is made today from grapes grown on the Santa Clara bottom-land, al-

most all of it poor, and almost all of it sold [illegible] when about a year old. A good deal of wine is made from grapes (largely inferior varieties) grown at the southern end of the Valley between San Jose and Gilroy, some on fairly good vineyard soil and some on poor. A considerable number of small growers in this region, disgusted with the twelve or fifteen dollars a ton which their grapes brought at commercial wineries, have recently struck out for themselves—most of them, unfortunately, with limited equipment and poor vines.

Several of the better vineyards on the edge of the Valley were planted by Frenchmen, and Messrs. Athenour and Bouret, both French-speaking, still grow grapes not far from Los Gatos. Southeast of San Jose is the once-celebrated Evergreen Vineyard of the Schilling family, now owned by the University of California, and south of San Jose are a number of big wineries which buy from the neighboring growers and make wine—San Martin, Cribari Bros., Bisceglia Bros. Perhaps the most impressive of the valley vineyards lies between San Jose and Los Gatos and takes its name from the nearby village of Almaden.

At present, the outstanding wines of the Santa

Cruz-Santa Clara district are produced by a scant half dozen vineyards, almost all of them well up in the foothills, at least five or six hundred feet above the valley floor. The best, and probably the best wines of California, are those of the Paul Masson Champagne Co., which, parodoxically, produces even finer still wines than Champagnes and is no longer owned by Paul Masson. The other top producer is the Novitiate of Los Gatos, whose best wines are sold almost exclusively for sacramental use.

In other words, the Santa Cruz-Santa Clara district, like practically all of the better wine districts of California, is at present producing an enormous range of wines—the commonest of "dago reds" made (and poorly) from Alicante grapes grown on lowland vineyards; sound, pleasant, undistinguished wines from better grapes and well-drained vineyards; wines that are altogether remarkable from top varieties grown on the foothills.

Nevertheless it is possible, purely on the basis of what is being produced today, to make a few fairly positive statements and a few rather rash predictions (many of which will be subject to con-

siderable revision by 1960) about Santa Cruz-Santa Clara:

First, this is not a district particularly well adapted to the production of wines of the Rhine wine sort, nor to the cultivation of Riesling or Sylvaner or Traminer grapes. These, it would appear, are better off in Sonoma County.

Second, Semillon and Sauvignon grapes, grown in the good vineyards on the edge of the Valley, here yield a wine which is not much like a Sauternes, but which is nearer, in flavor and body and fruit, to a sound Graves, than any wine grown elsewhere in California.

Third, it is possible to make, out of the great, traditional European grapes—the Cabernet, the Pinot Noir, the Pinot Chardonnay—grown on foothill vineyards, cultivated, picked, sorted, crushed, fermented in the slow, meticulous, European way—wines which will, within a few short years, be able to hold their own against the better Classed Growths of the Médoc, and against all but the very best red Cortons, for example, and white Meursaults. Wines of this class are being produced, although in very small quantities, even today in the Santa Cruz Mountains.