DIFFUSION OF OLIVE CULTIVATION INTO CALIFORNIA
WITH
SPECIAL REFERENCE TO THE OLIVE INDUSTRY
IN THE SAN FERNANDO VALLEY

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Geography
by
Jack LeRoy White

January, 1975
The thesis of Jack LeRoy White is approved.

California State University, Northridge
December, 1974
DEDICATION

Ideally, a graduate student in geography should be a wealthy, erudite cosmographer, whose celibacy eliminates mundane obligations and permits a carefree meandering through the seemingly endless archives of academia in search of pertinent data for his thesis.

Unfortunately, most graduate students operate on a meager income and possess only the roughly hewn intellectual tools fashioned (and only slightly polished) during the rapid pace sustained during the collegiate educational experience. This situation is far from ideal, but deemed adequate by the society into whose bosom we ultimately will attempt to locate a suitable vocational niche.

It is upon the heads of these fledgling postgraduates that the onerous task of creating a thesis falls, and it is to these same colleagues that this thesis is respectfully dedicated.
ACKNOWLEDGEMENTS

As with many vocations in this intricate terrestrial activity we term "life," the multidisciplinary search for data relevant to a particular thesis topic is truly an exercise in cooperation, coordination, discretion, and, at times, arrant futility. During the course of these academic investigations the graduate student contacts and often befriends many of those persons from whom he seeks assistance.

Although the preparation of this thesis could not have been possible without the support of countless numbers of people in many different ways, there are a few individuals whose cooperation and sufferance merit special praise. First among those to be thanked is Dr. David A. Henderson, my thesis committee chairman, mentor and friend, whose knowledge, experience and compassion provided the light required to guide me along the path toward completion. Also, I want to thank Dr. James Allen and Mr. Robert Hoffpauir, the other members of my committee, who gave so freely of their time on my behalf.

Chryl Soule and David Fuller of the California State University, Northridge, Geography Department Cartographic Laboratory provided both advice and assistance in the preparation of the illustrations.

A special note of thanks goes out to Mr. Gary Rees for his invaluable help in locating relevant maps and
aerial photographs, and to his wife, June, who did such a
fine job of typing the manuscript.

Thanks, too, is extended to all of my fellow graduate
students, especially to Tom MacDannold, Margaret Zadney,
Alan Bloomberg and Joe Eisenhut, who provided me with
friendship, comaradarie, reassurance, and an abiding example
of academic eminence throughout our association at the
University.

I want to give special thanks to my wife, Lyndon,
whose tolerance with the situation that reversed traditional
husband-wife roles assured a domestic environment conducive
to postgraduate academic pursuits.
TABLE OF CONTENTS

| DEDICATION                                      | iii |
| ACKNOWLEDGEMENTS                                | iv  |
| LIST OF TABLES                                  | viii|
| LIST OF FIGURES                                 | ix  |
| LIST OF MAPS                                    | x   |
| ABSTRACT                                        | xii |

Chapter

1. INTRODUCTION

The Problem
Intent
Structure of the Thesis
Research Sources

Physical Environment of the Olive
Climatic and Edaphic Requirements for the Olive
Mediterranean Environment
Environment of the Study Area

Summary

2. THE PROBLEM OF ORIGIN AND DIFFUSION OF THE OLIVE WITHIN THE OLD WORLD

Probable Origin
Notable Proposals
Wild Olives
Evidence for Incipient Cultivation

Early Diffusion in the Old World

Summary

3. DIFFUSION OF THE OLIVE WITHIN THE NEW WORLD

Diffusion Within the New World

Probable Route of Diffusion into California
Diffusion Through the Mexican Mainland

vi
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PRELUDE TO CALIFORNIA OLIVE PRODUCTION</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Early Expansion of Olive Cultivation in California</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Growth of Mission Agriculture</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>68</td>
</tr>
<tr>
<td>5</td>
<td>CASE STUDY: THE OLIVE INDUSTRY IN THE SAN FERNANDO VALLEY, 1800-1973</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Production at the Mission, 1800-1846</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Orientation and Progress, 1846-1875</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Experimentation and Preliminary Commercial Production, 1875-1900</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Modern Olive Industry Established, 1900-1930</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>An Analysis of the Decline of the Olive Industry in the San Fernando Valley</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>99</td>
</tr>
<tr>
<td>6</td>
<td>CONTEMPORARY OLIVE PRODUCTION IN CALIFORNIA</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Distribution</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Production</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Uses of the Olive Fruit</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Projection for Future Growth of the Olive Industry</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>117</td>
</tr>
<tr>
<td>7</td>
<td>SUMMARY AND CONCLUSIONS</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>BIBLIOGRAPHY</td>
<td>124</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Average Monthly Temperatures and Precipitation for the City of Athens, Greece</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Average Monthly Temperatures and Precipitation for the City of San Fernando, California</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Microanalysis of Adobe Bricks at Selected Missions in Baja California</td>
<td>48</td>
</tr>
<tr>
<td>4</td>
<td>Compilation of Olive Orchard Sightings in Alta California, Circa 1800.</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>Membership of the California Olive Grower's Association in 1891, Active Producers.</td>
<td>80</td>
</tr>
<tr>
<td>6</td>
<td>Summary of Land Use Changes in the Sylmar Olive District, 1928-1971.</td>
<td>95</td>
</tr>
<tr>
<td>7</td>
<td>Monthly Average Number of People Working on California Farms, By Type of Worker</td>
<td>98</td>
</tr>
<tr>
<td>8</td>
<td>Leading Olive-Producing Counties in California, 1909-1969</td>
<td>113</td>
</tr>
<tr>
<td>9</td>
<td>Disposition of California Olive Crops, 1951 to 1970.</td>
<td>115</td>
</tr>
<tr>
<td>Figure</td>
<td>Regional Distribution of Total California Olive Bearing Acreage, 1930 to 1967.</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>105</td>
</tr>
</tbody>
</table>
# LIST OF MAPS

<table>
<thead>
<tr>
<th>Map</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The San Fernando Valley</td>
<td>2</td>
</tr>
<tr>
<td>II.</td>
<td>California Missions 1769-1823</td>
<td>3</td>
</tr>
<tr>
<td>III.</td>
<td>The Expansion of Neolithic Peoples From the Near East</td>
<td>22</td>
</tr>
<tr>
<td>IV.</td>
<td>Suggested Routes for Diffusion of the Olive, Fig, and Grape Out of the Near Eastern Hearth Region</td>
<td>24</td>
</tr>
<tr>
<td>V.</td>
<td>Spanish Colonization in Middle America (ND)</td>
<td>31</td>
</tr>
<tr>
<td>VI.</td>
<td>Spanish Conquest and Settlement of Mexico and Central America</td>
<td>37</td>
</tr>
<tr>
<td>VII.</td>
<td>Spanish Settlement in Northern New Spain</td>
<td>40</td>
</tr>
<tr>
<td>VIII.</td>
<td>Advancing Frontier in Northwestern New Spain</td>
<td>45</td>
</tr>
<tr>
<td>IX.</td>
<td>Missions of Baja California</td>
<td>47</td>
</tr>
<tr>
<td>X.</td>
<td>The Diffusion of Olive Cultivation in Spanish Middle America</td>
<td>55</td>
</tr>
<tr>
<td>XI.</td>
<td>Olive Distribution in California, c.1800</td>
<td>69</td>
</tr>
<tr>
<td>XII.</td>
<td>Olive Distribution in California in 1891</td>
<td>82</td>
</tr>
<tr>
<td>XIII.</td>
<td>Olive Distribution in California in 1909</td>
<td>86</td>
</tr>
<tr>
<td>XIV.</td>
<td>Study Area: Sylmar Olive District in 1928</td>
<td>90</td>
</tr>
<tr>
<td>XV.</td>
<td>Study Area: Sylmar Olive District in 1952</td>
<td>91</td>
</tr>
<tr>
<td>XVI.</td>
<td>Study Area: Sylmar Olive District in 1966</td>
<td>92</td>
</tr>
<tr>
<td>XVII.</td>
<td>Study Area: Sylmar Olive District in 1971</td>
<td>93</td>
</tr>
<tr>
<td>XVIII.</td>
<td>Olive Distribution in California in 1920</td>
<td>106</td>
</tr>
<tr>
<td>XIX.</td>
<td>Olive Distribution in California in 1930</td>
<td>107</td>
</tr>
<tr>
<td>XX.</td>
<td>Olive Distribution in California in 1940</td>
<td>108</td>
</tr>
<tr>
<td>XXI.</td>
<td>Olive Distribution in California in 1950</td>
<td>109</td>
</tr>
</tbody>
</table>
Map
XXII. Olive Distribution in California in 1964. . . 110
XXIII. Olive Distribution in California in 1972. . . 111
ABSTRACT

DIFFUSION OF OLIVE CULTIVATION INTO CALIFORNIA
WITH
SPECIAL REFERENCE TO THE OLIVE INDUSTRY
IN THE SAN FERNANDO VALLEY

by

Jack LeRoy White
Master of Arts in Geography
January, 1975

Since the time when Neolithic Man first developed the olive (Olea europaea) as a cultigen in the eastern Mediterranean region over 6000 years ago, the fruit has had a prolonged and significant influence on the pattern of man's habitation in both the Mediterranean world and in Spanish America.

It has been hypothesized by many scholars that olive cultivation originated somewhere within the eastern Mediterranean region. From this point, olive cultivation diffused throughout the Mediterranean basin. It is suggested that the fruit was first introduced into Spain by the Phoenicians around 1000 B.C. From Spain, the practice of olive cultivation was transmitted to the New World by Spanish agriculturalists who sailed to the West Indies with Christopher

xii
Columbus--possibly as early as 1493. Olive cultivation then diffused within the New World, via the various Spanish settlements and missionary outposts, until it reached California shortly after 1769.

Olive cultivation diffused to most of the California Franciscan missions by 1800, and subsequently spread to the present-day production areas in the inland valleys of the State, where there are currently over 40,000 acres devoted to the cultivation of this crop.

A study of the olive industry in the San Fernando Valley--which was taken to be representative of the impact that olive cultivation had on areas adjacent to mission sites--revealed that the industry was not as successful as it was in the interior regions of the State. The combined pressure of four main factors over a period of years served to create a situation that was not conducive to the success of the olive industry in the Valley: (1) a steady in-flow of people whose demand for residential housing, and the associated commercial and industrial development, caused a persistent encroachment of urban activities into the olive-growing district; (2) an increase in the valuation of orchard lands as the demand for new land for housing increased; (3) the non-availability of low-wage labor upon the termination of the Bracero Program in 1964; and (4) the fact that a scientific study revealed that climatic conditions in the Valley were never really conducive to quality olive production in the first place.
CHAPTER 1
INTRODUCTION

The San Fernando Valley (Map I) once supported what was reported locally and enthusiastically to be the largest olive grove in the world -- 2,000 acres and 140,000 trees. These trees were an outgrowth of the scheme of agriculture established by Franciscan missionaries throughout their chain of California missions (Map II).

The missionaries first introduced the olive (Olea europaea) into California through the mission at San Diego, the first of the California Franciscan missions, from cuttings shipped from San Blas, Mexico. Although olives may be found growing in dry, subtropical climates throughout the world, their native clime is the Mediterranean region. Since the coastal valleys of California which were chosen as mission sites exhibited a climatic regime which was similar to that of the Mediterranean, the success of olive cultivation was almost instantaneous after introduction.

Today, olives are among the important tree fruits commercially produced in the state of California, however, the key olive production centers are located in the inland valleys of the state. What has happened to cause the coastal valley of San Fernando to lose its predominant position as the leading producer of California olives? And, specifically, what was the motivation for this historic shift?

Then, too, the fact that olives are not native to California raises questions concerning the motivation for...
CALIFORNIA MISSIONS 1769-1823

SAN FRANCISCO SOLANO
SAN RAFAEL
SAN JOSE
SANTA CLARA
SANTA CRUZ
SAN JUAN BAUTISTA
SAN CARLOS
SOLEDAD
SAN ANTONIO
SAN MIGUEL
SAN LUIS OBISPO
L.A. County
PURISIMA CONCEPCION
SANTA BARBARA
SAN BUAVENTURA
SAN FERNANDO
SAN GABRIEL
SAN JUAN BAPTISTA
SAN ANTONIO
SAN LUIS REY
SAN DIEGO
their introduction. The actual route of diffusion from the Old World to the New is another point in need of research and rumination.

The Problem

Thus, the crux of the problem to be investigated can be stated in the form of a series of geographical questions concerning the presence of an olive industry in the San Fernando Valley. Since *Olea europaea* is not indigenous to California, how did it reach this part of the world? By what means and when was it transported from its native environment to California and the San Fernando Valley? What factors were responsible for the development of this tree crop as a viable industry in the Valley? What is the present distribution of olive production, both in the San Fernando Valley and throughout the state, and how has it changed since the introduction?

Intent

It shall be the intent of this paper to develop a continuum; that is to say, a chronological sequence of events connecting the existence of the olive in the Old World with its establishment in the New World, and, specifically with plantings in the San Fernando Valley. In addition, it shall be the aim of this paper to identify and assess the factors which contributed to the decline of the olive industry in the San Fernando Valley, and the subsequent expansion and boom of the industry in the central inland valleys of
California.

Structure of the Thesis

After a preliminary chapter which treats the whole problem of origin and diffusion of olive cultivation in the Old World, subsequent chapters will be concerned with the actual route of diffusion of olive cultivation within the New World. Chapter 3 traces the path of the early spread of olive cultivation in the West Indies, through the Mexican mainland and the Baja California peninsula, and eventually into California during the period between 1496 and 1769. Chapter 4 describes the assimilation of olive cultivation into the scheme of California agriculture established during the 19th century. Chapter 5 is a case study of olive cultivation in the San Fernando Valley from 1800 to 1973, and is presented to exemplify the impact this cultural trait had on the coastal valleys and other early Franciscan Missionary settlements throughout the State. Chapter 6 examines the present-day distribution of olive cultivation in the State of California, along with current production statistics and projections for future growth of the olive industry in the State.

Research Sources

Although description is fundamental to geographic understanding, the essence of this paper is not solely descriptive, for this paper will also strive to interpret and explain, insofar as it is possible.
The data accumulation process was intensive and eclectic, and after a while it became apparent that there is no body of literature, as such, which specifically deals with early plant introduction into America. Although diffusion studies have traditionally been the concern of geographers for many years (at least since Ratzel), it seems as though the bulk of the literature pertains to the diffusion of various innovations or cultural traits. However, olive cultivation is scarcely mentioned. There are a few journal articles by geographers which appertain to plant diffusion, and a few more written by historians, botanists and anthropologists; however, the total is by no means cyclopedic. Of those journal articles which proved to be helpful, George W. Hendry's "Source Literature of Early Plant Introduction into Spanish America," Donald S. Brand's "Origin and Early Distribution of New World Cultivated Plants," and Edward Whitaker's "Spanish Contribution to American Agriculture" proved to be the most illuminating. Of the few available books on the subject of domestic plant diffusion, Carl O. Sauer's Agricultural Origins and Dispersals, Edgar Anderson's Plants, Man, and Life, Erich Isaac's Geography of Domestication and Maurice Holmes' From New Spain by Sea to California, 1519-1668 stand out as those which provided the most insight.

There is a fairly large and quite valuable collection of historical literature pertaining to Spanish America contained within the Archivo General de Indias in Seville,
Spain and also with the Archivo General y Público de la Nación in Mexico City. The "ultimate wealth of the Archivo General de Indias is from 32,000,000 to 64,000,000 documents, aggregating 160,000,000 pages of manuscript," dating from 1597 to 1821. Since Seville served as the staging area and communication center between Spain and the New World, it was the logical collection point for these documents. There is much work to be done in the examination of these documents before they can find their proper place in the sequence of Old World--New World chronology.

The main source of data pertinent to the research of this paper was the vast supply of secondary historical literature--little of which addressed the problem of plant diffusion in any great detail. Thus, the research phase of the investigation basically consisted of a perusal and analysis of existing secondary literature, coupled with personal interviews and field observations.

Libraries used in the course of research included those located at California State University, Northridge and the University of California, Los Angeles. The Huntington Library in San Marino, the University of Cincinnati Library, the Downtown Branch of the Los Angeles Public Library System, and the Bancroft Library of the University of California, Berkeley were also utilized, albeit not as extensively.
Physical Environment of the Olive

In studies of this type, where the focus is on a particular member of the biotic community, it is beneficial to the reader to become acquainted with the physical environment of the study area and the environmental requirements of the species. The nature of the terrain surrounding a particular crop site is of vital importance in determining the economic feasibility, and, indeed, the very viability of that crop. In this respect, knowledge of the physical environment is basic to real understanding of all the implications involved with the success or failure of a crop in any given area. It is with this in mind that the following material is presented—first a look at the optimum habitat and then an examination of the physical environment around Athens, Greece (taken to be representative of the olive-growing areas of the Mediterranean) and then of the study area in the San Fernando Valley.

Climatic and Edaphic Requirements for the Olive

To induce good flowering, the olive tree requires a cool winter season, with temperatures falling below 40°F. In general, however, temperatures below 14°F may cause injury to a mature tree, but a temperature of 16°F will not be harmful. During the blossoming period (late spring to early summer) some humidity is required to encourage good fruit set. Olives will tolerate considerable drought and high temperatures because the structure of the small,
leathery leaves slows the rate of transpiration during these periods. Water requirements of the olive are not high, but irrigation results in increased yields, increased fruit-set as well as fruit size and prevents shrivelled fruits.

The olive tree will grow well in quite a wide range of soil types and can be seen growing and bearing fruit on poor, shallow, clayey or sandy soils, but, as with water supply, the tree will produce more fruit when grown within optimum conditions, that is, in sandy loam. The venerable olive is tolerant of soils where many other tree crops fail, but poor growth results when the edaphic environment becomes too wet or too alkaline (a pH of 8.5 or more).

**Mediterranean Environment**

The eastern Mediterranean region, which is the natural habitat for *Olea europaea*, exhibits a distinct climatic pattern and has been classified as "Mediterranean" by Wladimir Köppen in his characterization of worldwide climatic regimes. The "Mediterranean" category is characterized by a mild climate, with the coldest month ranging between 32°F and 64.4°F and the warmest month exhibiting an average temperature above 50°F. Further, less than 10 percent of the total annual precipitation falls during June, July and August, the dry, summer season. This climatic type has been symbolically represented by the letters Csa and Csb. Athens, Greece, which exhibits a Csa climatic
pattern, is located away from the immediate coast and has been chosen as being analogous to the climates of the coastal valleys of California. The range of temperatures and annual rainfall are exhibited on the following chart:

**TABLE I**

**AVERAGE MONTHLY TEMPERATURES AND PRECIPITATION FOR THE CITY OF ATHENS, GREECE**

<table>
<thead>
<tr>
<th>Month</th>
<th>Ave. Temperature (in °F)</th>
<th>Ave. Precipitation (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>48</td>
<td>2.2</td>
</tr>
<tr>
<td>February</td>
<td>49</td>
<td>1.6</td>
</tr>
<tr>
<td>March</td>
<td>53</td>
<td>1.4</td>
</tr>
<tr>
<td>April</td>
<td>59</td>
<td>0.8</td>
</tr>
<tr>
<td>May</td>
<td>68</td>
<td>0.8</td>
</tr>
<tr>
<td>June</td>
<td>76</td>
<td>0.6</td>
</tr>
<tr>
<td>July</td>
<td>81</td>
<td>0.2</td>
</tr>
<tr>
<td>August</td>
<td>81</td>
<td>0.4</td>
</tr>
<tr>
<td>September</td>
<td>74</td>
<td>0.6</td>
</tr>
<tr>
<td>October</td>
<td>67</td>
<td>1.7</td>
</tr>
<tr>
<td>November</td>
<td>58</td>
<td>2.8</td>
</tr>
<tr>
<td>December</td>
<td>51</td>
<td>2.8</td>
</tr>
<tr>
<td>Annual Ave</td>
<td>64</td>
<td>15.8 Ave. ann. total</td>
</tr>
</tbody>
</table>


Noncalcic brown soil is the major type found in the eastern Mediterranean region, and the natural vegetation consists of broadleaf evergreen forests with an admixture of conifer species, and bushy thickets known as *maquis* or *garigue* (called chaparral in California).

**Environment of the Study Area**

The San Fernando Valley (Map I) is a mountain-enclosed
coastal basin located about 15 miles northwest of downtown Los Angeles. The northeastern section of the valley shall be of particular interest in this paper, for it is there that most of the olive trees were commercially planted, and this sector shall be termed the "study area."

Climate. The climate of the study area is similar to that of the adjoining valleys to the east and southeast, the whole of which is popularly known as the Los Angeles Region. The summer months are dry with high temperatures. Rain occurs most often in connection with large polar fronts that move down from the northwest in the winter months when the circulation of air is most vigorous. Gusty winds are most prominent in the San Fernando Valley during the months of February and March, and from early September through late October. The other months are subject to only occasional windiness. The eastern San Fernando Valley suffers from air pollution in varying intensities—depending on the weather on any particular day. Wind and rain keep pollution to a minimum, but without these forces, the polluted air creeps in from the areas to the south and southeast. Table 2 gives the average monthly temperatures and average rainfall for the City of San Fernando, which can be construed as representative of the study area.
TABLE 2
AVERAGE MONTHLY TEMPERATURES AND PRECIPITATION
FOR THE CITY OF SAN FERNANDO

<table>
<thead>
<tr>
<th>Month</th>
<th>Ave. Temperature (in °F)</th>
<th>Ave. Precipitation (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>53.5</td>
<td>3.14</td>
</tr>
<tr>
<td>February</td>
<td>54.0</td>
<td>3.40</td>
</tr>
<tr>
<td>March</td>
<td>57.0</td>
<td>2.87</td>
</tr>
<tr>
<td>April</td>
<td>60.5</td>
<td>1.18</td>
</tr>
<tr>
<td>May</td>
<td>64.0</td>
<td>0.44</td>
</tr>
<tr>
<td>June</td>
<td>68.0</td>
<td>0.09</td>
</tr>
<tr>
<td>July</td>
<td>73.5</td>
<td>0.02</td>
</tr>
<tr>
<td>August</td>
<td>73.5</td>
<td>0.02</td>
</tr>
<tr>
<td>September</td>
<td>69.5</td>
<td>0.18</td>
</tr>
<tr>
<td>October</td>
<td>66.5</td>
<td>0.63</td>
</tr>
<tr>
<td>November</td>
<td>61.0</td>
<td>1.20</td>
</tr>
<tr>
<td>December</td>
<td>55.0</td>
<td>2.92</td>
</tr>
<tr>
<td>Annual Ave.</td>
<td>63.1</td>
<td>16.06 (total)</td>
</tr>
</tbody>
</table>


Topography and Drainage. The surface of the north-eastern sector of the San Fernando Valley consists of alluvial fans constructed of the eroded materials from the San Gabriel Mountains to the north. This association presents a topography which slopes gently toward the center of the mountain-enclosed San Fernando Valley. The natural slope quite easily carries the run-off into flood control systems developed in the Valley some years ago.

Soils and Vegetation. The soil is basically an alluvial brown, light-brown or light grayish brown, micaeous sandy loam, which extends, in places, to a depth of six feet or more without change in the composition of the soil.
profile. It ranges in texture typically from a light to medium-heavy sandy loam, and sometimes possesses a light brownish gray color. It also includes a pronounced and well-defined variation of a coarse, sandy sand to fine sandy loam. The subsoil is a little lighter in color than the surface material, and is usually encountered at a depth of about 20 to 36 inches below the surface.

The natural vegetation of the area consists mainly of grasses and various low-growing plants, particularly the sage species. The soil type is capable of supporting vineyards, olives, citrus, walnuts, and grains, and in fact, has supported all of these crops in the past.

Summary

Olive cultivation -- a tiny strand of cultural continuity woven through the intricate fabric of time and space--is only one of hundreds of cultural traits passed on by the Spanish civilization from the Old World to the New, and a paper of this sort could have focused on any one of these traits. Olive culture was chosen, in part, due to the fact that the San Fernando Valley -- one-time home of the largest contiguous olive grove in the world -- is also the home of the author, and an early curiosity about the presence of so many trees probably kindled the flame of interest in olives. Also, the thought of attempting to trace the route of diffusion from the place of origin to a point which is spatially and temporally so far-removed is challenging in
The literature (mostly historical) contains periodic references to olive cultivation, but, on the whole, the historical data is quite disjointed and required a great deal of assimilation before continuity began to develop. This probably would have been the case regardless of which cultural trait had been chosen. But, olive cultivation is the focus of this study and will be traced from its apparent origin in the eastern Mediterranean and early westerly diffusion along the shores of the Mediterranean Sea to its conveyance across the Atlantic Ocean into the West Indies and eventually to California and the San Fernando Valley, via Mexico and Baja California. The paper will then relate how the introduction of this single cultural trait spawned an important agricultural industry in the State of California, with special reference to the San Fernando Valley.
FOOTNOTES FOR CHAPTER 1


3. About 37,950 acres of olives are farmed by over 2,500 growers, and the average annual crop value for a ten-year period which ended in 1969 was $11,568,844 (H.T. Hartmann and K.W. Opitz, Olive Production in California, California Agricultural Experiment Station, Circular 540 (Berkeley: University of California Press, 1966), p. 3).

4. Ibid., p. 520.

5. Frederick A. Ober, In the Wake of Columbus (Boston: D. Lothrop Co., 1893), p. 28. The Bancroft Library of the University of California, Berkeley has many of these old manuscripts recorded on microfilm. Charles Chapman has categorized and annotated all of the material pertaining to the Pacific Coast and the Southwest in Catalogue of Materials in the Archivo General de Indias for the History of the Pacific Coast and the American Southwest, edited by H. Morse Stephens and Herbert E. Bolton. In addition, Bolton has published a guide to the Archivo General y Publico de la Nacion in Mexico City, which also contains numerous documents pertaining to Spanish occupation of the New World.


8. The information for this section was taken from Alan E. Simmons, Growing Unusual Fruit (N.Y.: Walker and Co., 1972), pp. 245-46, and Hartmann and Opitz, Olive Production in California, pp. 12, 33-34.


10. Köppen (1846-1940) was a German botanist and climatologist whose finalized system of climatic classifications appeared in "Das geographische System der Klimate," Handbuch der Klimatologie, Vol. 1, Part C, eds. W. Köppen and R. Geiger (Berlin: Gebrüder Borntraeger,
CHAPTER 2
THE PROBLEM OF ORIGIN AND DIFFUSION
OF THE OLIVE WITHIN THE OLD WORLD

Probable Origin

Notable Proposals

Although there is some scholarly discord as to the exact origin of the olive, as a cultigen, it is generally agreed that the probable origin was somewhere around the eastern end of the Mediterranean Sea. There have been several proposals regarding this matter by geographers, historians, botanists, and agriculturalists, and among the more notable works are those of the geographer Carl O. Sauer, and the botanists N.I. Vavilov, Alphonse de Candolle and Edgar Anderson.

Sauer, in Agricultural Origins and Dispersals, states that the olive is among the oldest cultigens in the eastern Mediterranean area, and may have originated either there or in southern Arabia;\(^1\) presumably, horticultural techniques which diffused out of India were used in cultivating the olive.

In his book entitled The Origin, Variation, Immunity, and Breeding of Cultivated Plants, Vavilov is more emphatic--albeit less specific--about the probable origin of the olive, declaring that the Mediterranean region is "undoubtedly" the native home.\(^2\)

Alphonse de Candolle, in his 1886 work, Origin of Cultivated Plants, concludes from evidence available to him at
that time that the domesticated olive originated in Syria, southern Anatolia, and the neighboring islands. The inhabitants of this area, he said, have cultivated the olive for more than 4000 years.\(^3\)

Candolle's view reinforces the suggestions advanced by both Sauer and Vavilov, and serves to support the assumption put forth by Edgar Anderson, who establishes Palestine as the place of apparent origin.\(^4\) Anderson observes that the "...wild form of the olive is widespread in the Mediterranean region and seems to be not merely the result of the cultivated form having run wild."\(^5\) Accordingly, the conjectures of all four scholars seem to be mutually supportive with regard to the eastern Mediterranean region being a source area for olive cultivation.

The Bible, too, provides hints as to the origin of the olive, for when the Hebrews entered the land of Canaan, (the region between the Dead Sea and the Coast of present-day Israel) they found that the olive was growing as though it had been there from the very beginning,\(^6\) although it was not stated whether or not the olive trees were wild or domesticated.

Others who have theorized on the apparent origin of the olive include J.R. Magness, one-time Director of Horticultural Research of the United States Department of Agriculture, Hans Halbaek, an archaeologist, and Alan E. Simmons, a botanist.

Magness states that:
Today (1951) the wild olive, *Olea europaea*, is found from western India throughout southwestern Asia and all about the Mediterranean borders. It is not certain that it is truly native throughout that range. In some districts, especially about the edges of the present range, the trees may be escapes (sic) from cultivation. Language research indicates that the true center of the olive species was probably the area from Syria to Greece.

In a 1959 article entitled "Domestication of Food Plants in the Old World," Hans Halbaek alluded to an earlier, unpublished study in which he established evidence of olives growing in Palestine about the 4th millennium B.C. Halbaek failed to reveal the nature of his evidence, and also failed to state whether the olives were wild or domesticated.

In an encyclopedic volume entitled *Unusual Fruit*, Simmons states generally that the Mediterranean region is the possible source region. He relates that:

It has been suggested that a wild species of olive found growing in the region of the Egyptian/Sudanese border is an ancestor of the common olive. But to fruit satisfactorily the olive requires a chilling period during the winter which means that the Mediterranean region rather than southern Egypt is a more likely habitat. If fact, wild olive trees are to be found growing in the Mediterranean area, but it is not possible to argue that these are the true ancestors of the cultivated tree because it could well be that they have simply escaped from cultivation.

**Wild Olives**

The problem of locating a specific place of origin for the cultivated olive is complicated by the fact that there is a ubiquitous wild form of the plant common to the entire Mediterranean region. Vavilov terms this widespread form
"oleaster", and states that it has been gathered by botanists and, for the most part, classified with the species Olea europaea. According to L.H. Bailey, in his extensive taxonomical work The Standard Cyclopedia of Horticulture, the Oleaster is a common name given to the Eleagnus augustifolia, a small deciduous tree, with fragrant flowers, having a resemblance to the olive.

Index Kewensis, which is a renowned bibliographic source used to identify the origin of generic names for numerous plant species, shows Oleaster as a different genera from that of O. europaea. In addition, the Index Kewensis lists O. sativa as a lineal relative of O. europaea. In as much as there are inherent problems in typification which have arisen from Carl Linnaeus' two-fold means of categorizing varieties of plants, it would be extremely difficult at this point to state that O. sativa is undoubtedly the wild form of O. europaea.

The present-day distribution of O. sativa ranges from Spain to Syria, along the northern coastal zone of the Mediterranean. In addition, O. sativa is found along the northern tip of the coastal provinces of Libya, Tunisia, Algeria and Morocco.

A knowledge of the distribution of both the wild olive and cultivated varieties is important in determining the exact origin of O. europaea. Ideally, it would be desirable to delimit the distribution of cultivated and wild olive
trees throughout history. Tracing olive distribution back through time would serve to examine effectively the spread of olive cultivation (in reverse). In this manner, the hearth of domestication would be more easily discerned.

Evidence of Incipient Olive Cultivation

The earliest archaeological evidence of the olive in the Mediterranean region is apparently the olive stones unearthed at Teluliot Ghassul in Palestine. These stones were carbon dated back to the chalcolithic period, around 4000 B.C. It was not determined, however, whether these stones were from the wild or domesticated form of the olive.\textsuperscript{15}

In as much as there is archaeological evidence which establishes the presence of agricultural villages in the Levant by 7000 B.C., it seems likely that the notable proposals set forth by Sauer, Candolle, Magness and others—which identifies the eastern end of the Mediterranean as the probable origin of incipient olive cultivation—are ostensibly correct.

Early Diffusion in the Old World

There are still a number of points which need to be clarified before the nebulous path of diffusion can be traced back to its place of origin.

Judging from the general diffusion pattern of Neolithic peoples in their expansion outward from the Near East (Map III), it can be assumed that the olive, which had been integrated into the diet of these people, followed about the
The Expansion of Neolithic Peoples from the Near East

Source: Edlin, Man and Plants, 1987
same path (Map IV). The olive played a large role in the domestic economy of the ancient inhabitants of the Mediterranean. Although olive oil was used as a dietary replacement for butter throughout much of the eastern Mediterranean region, perhaps the use of olive oil as the chief ingredient in the ointments and balms used to protect skin from the strong, dry summer winds was antecedent to culinary usage. The oil also found early use as soap, for medicinal purposes, and as a source of fuel for illumination.

While archaeological evidence has been found which establishes the olive in Palestine by the fourth millennium B.C., Hans Halbaek has stated that it can be assumed that domestication took place at an even earlier date.

Western diffusion of the olive occurred along the northern and southern shores of the Mediterranean. Based upon philological evidence given in Candolle's *Origin of Cultivated Plants*, diffusion along the southern shore is primarily attributed to the sea-going culture of the Semitic-speaking Phoenicians. It is thought by some scholars that the introduction of olive cultivation into Iberia was first carried out by the Phoenicians through their trading outposts along the southern coast of the Iberian peninsula—especially through Gadir (Cadiz), founded in 1000 B.C. and pre-dating early Greek settlements there by about 200 years.

Olive pits have been found among the archaeological
SUGGESTED ROUTES for DIFFUSION of the OLIVE, FIG, and GRAPE out of the NEAR EASTERN HEARTH REGION

Route of Diffusion

Hearth Region

Source: Sauer, "Agricultural Origins and Dispersals," 1957
rubble of the Minoan Culture on the southern coast of Crete
dating back to the Early Bronze Age (c. 3000 B.C.).21 This
is about the time when Egypt was developing a true civiliza-
tion across the Mediterranean to the south. It has been
stated that although olive oil was undoubtably a basic food-
stuff of the Greek civilization, the olive was not a major
crop in the southwestern region of the Peloponnese during
the Late Bronze Age (c. 1200 B.C.).22 The olive is purport-
ed to have been introduced to Olympia on the Peloponnesian
peninsula by Herakles (an Idaean Dactyl) from cuttings taken
somewhere in Crete.23 Thus, it appears that the olive was
taking on a wide distribution from very early times.

There is no evidence of olive cultivation along the
northern shores of the Mediterranean west of Greece until
the first millennium B.C.24 Westward diffusion of the olive
seems to be due primarily to the spread of the Greco-Roman
civilization after about 1000 B.C.25 After 800 B.C., the
agricultural plants of Greece, especially olives, vines and
certain grains, spread to all of the new Greek settlements--
from North Africa to southern Russia and from Spain to
Syria.26

Summary

The general assumption by many scholars is that the
eastern Mediterranean is the origin of olive cultivation.
The fact that olive stones dating from the 4th millennium
B.C. have been discovered in the Levant area of the eastern
Mediterranean serve to reinforce the assumption that olive cultivation had its origin in the eastern Mediterranean. From that region, the practice of olive cultivation spread westward along the northern and southern shores of the Mediterranean until it reached the Iberian peninsula in about 1000 B.C.

Although some scholars maintain that the olive was first introduced into Spain by the Greeks, it seems more likely that the olive was first introduced by the Phoenicians, for two reasons: (1) the Phoenicians arrived on the Iberian peninsula before the Greeks, and (2) olive culture was long a part of the Phoenician genre de vie and, thus, would likely have been transported along with the rest of the cultural baggage carried by the Phoenician traders as they established settlements along the southern coast of Iberia.

During the period when the imperialistic Holy Roman Empire ruled over the Mediterranean world, Spain came to the fore as the leading producer of olive oil, a position she still maintains in contemporary times. The Spaniards became skilled in the art of cultivating and processing the olive, and subsequently passed on this knowledge to the New World.
FOOTNOTES FOR CHAPTER 2


5. Ibid. Anderson infers that the present distribution of the wild olive evolved without the aid of man's agricultural activities.


10. Ibid.


19. All along the Mediterranean coast of Africa and southern Spain (Andalusia) the linguistic stock for the various names given to the olive are all derived from the Semetic word zeit. In Algiers, the Arabs call the cultivated olive zitoun and they call olive oil zit. In southern Spain, the Andalusians call the cultivated olive aceytuno. "Oil" in Spanish is aceite. (Candolle, *Origin of Cultivated Plants*, pp. 283-84.)


27. Proponents of this point of view are Pierson Dixon in *The Iberians of Spain and Their Relations with the Aegean World* (London: Oxford University Press, 1940),
CHAPTER 3
DIFFUSION OF THE OLIVE WITHIN THE NEW WORLD

At the close of the fifteenth century, Spain was fast-becoming a militaristic leader among the nations of the Old World. She sponsored a series of exploratory voyages which began with the voyage of Columbus in 1492. Within sixty years after the first voyage of Columbus, the Spanish and Portuguese navigators had explored the area from California, New Mexico and the Atlantic seaboard of the United States to the tip of South America. Colonies had been established from northern Mexico to Chile and throughout the Caribbean, and trade had become established between the major settlements (Map V).¹

The first Columbian voyage from Spain carried cheap beads and trinkets which were to serve as trading material with the natives, and very little other cargo was carried.² Upon his return to Spain, Columbus related tales which promised Spain the opportunity of extensive settlement and riches. The second voyage, consisting of seventeen ships carrying six months' supplies, 1,200 to 1,500 colonists, plant seeds, and farming implements, left Spain for Hispaniola in the Caribbean on September 25, 1493.³ This was the beginning of a massive, rapid, and energetic exploitation of the New World. It is suggested that this was the very first time the olive could have reached the New World, although the type of seeds carried on this voyage is not
known. Even if olives were carried on this trip it is highly unlikely that this trip resulted in a lasting introduction of any of the plants, because the period of starvation that beset the colonists of the second voyage resulted in the abandonment of all cultivation. Successful plant introduction followed the founding of Santo Domingo, Hispaniola in 1496, but the manner of introduction and the exact location of early plantings has, for the most part, gone unrecorded. Thus, it is extremely difficult to trace the early introduction and distribution of the olive in the New World. The best clue to the actual route of olive diffusion within the New World comes through an examination of the location of the various Spanish settlements, along with the chronology of their establishment.

Diffusion Within the New World

When the Spaniards arrived in the new land, it was quite natural for them to expect to see the vegetation to which they were accustomed in their own native land and, upon not finding it, to attempt to introduce it. In bringing the seeds, roots, and cuttings from Spain, they encountered many difficulties for methods of packing were quite crude and it was not uncommon for everything to become drenched with sea water. Then too, the intense tropical heat and humidity caused many of the seeds to rot. It is not known in all instances by whom introduction of plants and animals were made, but supposedly most products were
This will serve as a valuable check-point in future academic research into the matter of trans-Atlantic plant transfer.

By 1502, the Spaniards found that many crops brought from Spain such as olives, rice, date palms, oranges and sugar cane grew quite well in the new climate; however, cereal crops such as wheat and barley were not very successful. This first agricultural foothold at Hispaniola served as a base of operations which facilitated further exploration and conquest by the Spaniards. Puerto Rico was colonized in 1508, Jamaica was occupied in 1509, and Cuba in 1514. In 1519, Hernán Cortés left Cuba with 600 men in an attempt to secure control of Mexico, which he accomplished in 1521.

Specific examples of the introduction of the olive to the New World may be found in George W. Hendry's article entitled "The Source Literature of Early Plant Introduction into Spanish America," in which he cites many little-known authors from the sixteenth century onward. Among the instances cited by Hendry are: (1) the introduction (to an unspecified location) in 1520 of 250 living olive plants and 1,200 slips from Olivares (near Seville) in the Alajarate district; (2) introduction of the olive in 1531 to Vera Cruz and Mexico City; and (3) introduction of the plant into Peru in 1560 by Don Antonio de Rivera.

It was on the mainland of Middle America (present-day Mexico) that agricultural development most closely
followed the original pattern practiced by the Spaniards in their Iberian homeland, for the plateaus and uplands of Mexico resembled the physical geography of Spain far more closely than did the areas of Spanish settlement in the tropical islands of the West Indies. 12

Generally, the windward sides of the West Indian islands are wetter than the leeward sides due to orographic precipitation. The windward northern and eastern shores of these islands receive rain all year around; whereas, the southern and western shores are dry, receiving summer rainfall and some winter rainfall released from high pressure polar air moving down into the Caribbean during the period from December to February. The windward sides of these islands are considered to have a tropical monsoon type climatic regime (Köppen's Am), and the climate of the leeward shores is classified as tropical wet and dry (Köppen's Aw). 13

The very nature of these climatic regimes precludes successful olive production on the basis that the high temperatures (averaging above 64°F each month), and the high annual rainfall (about 80 inches for Am, and 40-60 inches for Aw) produces a humid, unfriendly environment for a plant that normally requires a dry environment and some winter chilling. The plateaus and uplands of mainland Mexico, on the other hand, more closely correspond to the milder Mediterranean climate natural to Olea europaea in that they exhibit both a mesothermal climatic regime (Köppen's Cw), having at least one month of the year that averages less
than 65°F and a total annual precipitation of 30-80 inches, and a dry (Köppen's BSh) climatic regime, where all months of the year are warmer than 32°F and the annual precipitation ranges from 18-25 inches.

With the conquests by Cortés, Balboa, Pizzaro and others on the mainland, the Spaniards were able to continue their efforts to transplant and propagate their Iberian cultural heritage to an even greater extent.

Hernán Cortés, in a well-known letter written to Don Carlos, the king of Spain, in 1524, begged that orders be given to the Casa de Contratación of Seville (the House of Trade, established in 1503) not to let any ship sail to the Indies without bringing plants and seed in its cargo. In 1525, Cortés again wrote emperor Don Carlos, saying:

And I can assure your Majesty that if plants and seeds from Spain were to be had here, as I requested in my last letter that your Majesty might be pleased to order to be dispatched, the natives of these parts show such industry in tilling land and planting trees that in very short time there would be great abundance from which I think no little profit would rebound to your Majesty's imperial crown, for by this means the fruitlessness of these parts would be secured and your Majesty would draw from them greater revenue and dominions than all those regions which in the name of our Lord your Majesty now possesses; for which reason your Majesty can be very certain that he will not find me lacking in such a scheme but rather that I will do everything in my power to forward it.

It wasn't until 1532, however, that the order complying with the wishes of Cortés was finally issued.
**Probable Route of Diffusion into California**

It is the contention of the author that the rate of olive diffusion within the New World was directly tied to the rate and extent of conquest and colonization.

In his fervid campaigns to conquer and settle the New World, the Spaniard, throughout most of his aggressive globe-trotting, was quite orderly with respect to the techniques he employed to achieve his ultimate goal of colonization and exploitation. Spanish advancement into frontier regions was promoted through employment of three institutions: the mission (religious) system, the presidial (military fortification) system, and the civic town system. The missions served as outposts--footholds--along the frontier, and actually assisted in the conquest of the untamed perimeter of Spanish America. The presidios served to ensure the viability of both missionary activities and civilian colonization efforts, the latter of which produced both agricultural and mining settlements. It was through this system of frontier development that the colonial imperialism of the Spanish Crown gained control over such a vast expanse of the New World.

**Diffusion Through the Mexican Mainland**

The conquest and colonization of the regions outward from the conquered Aztec nation of central Mexico occurred in two definite phases and in two distinct geographical areas (Map VI). The first phase saw a rapid and
SPANISH CONQUEST AND SETTLEMENT OF MEXICO AND CENTRAL AMERICA

Source: West and Augelli, Middle America, 1966
relatively easy conquest of regions south of the central highlands down to and including the northern one-third of Central America. The second phase was the slow conquest and settlement of the less-civilized Indian cultures to the north of the central highlands of Mexico (La Gran Chichimeca).

The rate of conquest in northern Mexico was influenced by three factors: (1) the ruggedness of the physical terrain; (2) the amount of Indian resistance encountered; and (3) the presence or promise of mineral wealth. The Spaniard, whose prime motivation for exploration was apparently the expectation of riches, wealth and fame, seemed empowered to circumvent the first two factors mentioned if there was evidence of the third. The discovery of riches was the apparent justification (both to himself and the Spanish Crown) for his pattern of exploration and exploitation.

The advance of the Spanish conquistadors and missionaries and, thus, the diffusion of the olive into northern Mexico in the 1530's was, in fact, impeded, both by the terrain and Indian resistance without promising signs of riches—at least at first. In the Mixtón War (1541), which took place just north of Guadalajara, the Spaniards defeated a large Indian force and opened the way for further northward expansion of the New World Spanish Empire. In fact, this new route led to Zacatecas, where an extensive silver deposit was discovered in 1546.20 This discovery was, according to West and Augelli, the prime motivation
for further expansion into the land of the hostile Indians of northern Mexico. Map VII shows the general routes of expansion and settlement in this region.

As the dates of settlement on Maps VI and VII indicate, the northwestern sector of New Spain was slow to be settled. There are several reasons for this. In addition to the reasons already mentioned (i.e. resistance of hostile Indians; rugged, forbidding terrain; and lack of mineralization), the mere fact that northwestern New Spain was so distant from the central highlands, the origin of colonial expansion, made it less sought after as a settlement site. This arid, unkind land which was avoided for so long by the brunt of the northerly colonial push, was to be the mission field for Jesuit missionaries during the 17th and 18th centuries.

Actually, the role of the missionary in this epoch of Spanish empire-building cannot be stressed enough, for it was through religion that significant numbers of the New World's indigenous population was brought under subjugation. The cross and the sword were often carried side by side on various entradas (preliminary military expeditions into the frontier region of New Spain), but when the sword could not find its mark, the cross became the means for carrying out the will of the Spanish Crown. This is not to demean the work done by Spanish missionaries, for they were undoubtably dedicated to the cause of Christianization; but it does seem that they were used quite effectively by Spain.
SPANISH SETTLEMENT IN NORTHERN NEW SPAIN

Source: West and Augelli, Middle America, 1968
to gain control of areas that could not be coerced by Spanish military force. Regardless, various Catholic orders played an important role in Spanish frontiers throughout the New World.

The Spanish Crown had supplied grants of land for the Church, free transoceanic and intercolonial passage for priests, and free wine and oil (presumably olive oil) for the monasteries.22 Located on the frontiers of the Empire, the missions came to represent the farthest outposts of Spanish rule, and undoubtedly played an important role in extending the tradition of Spanish agriculture throughout the New World. It is from these Spanish missions that the first olive seeds and cuttings were gathered and taken to California, via Baja California in the 18th century.

From almost the very beginning, however, there were certain restrictions placed on colonial agriculture which served to greatly retard the immediate expansion of the few enterprises which did do well in the New World. The Spanish court, acting under the influence of prevalent economic concepts and under the pressure of jealous agriculturalists at home, either discouraged or prohibited indulgence in the following enterprises: (1) sheep-raising and the allied woolen industry; (2) the silk industry; and (3) the growth of vines and olive trees.23 This all but stifled the development of an olive industry in New Spain. The key to its continued dispersal throughout the New World and, indeed, its ultimate success as a commercial crop is
found in the Spanish mission system, which was an integral part of the scheme for conquest and colonization.

Olive oil, a mainstay in the Spaniard's diet, was "scarce and expensive..." in Sonora, according to Jesuit missionary Ignaz Pfefferkorn.\(^{24}\) The apparent scarcity may have been the result of the restriction placed on olive production, but it seems illogical that the frontiers—a region where successful agricultural practices ensured basic sustenance—should have fallen under such a restraint. But, then, man's actions are not always ruled by logic alone.

Actually, when Alexander von Humboldt visited the New World in 1799 he noted that the olive tree was quite rare throughout all New Spain, stating that "there exists but a single olive plantation, the beautiful one of the Archbishop of Mexico, situated two leagues southeast from the capitol (Mexico City)."\(^{25}\) Humboldt continued his description, stating that the Archbishop's plantation produced 200 arrobas (27.5 tons) of a "very good quality" oil.\(^{26}\) The size and apparent success of this plantation seemed to be no surprise to Humboldt, for he mentioned the fact that "the great analogy between the climate of the table-land of New Spain and that of Italy, Greece, and the south of France ought to invite the Mexicans to the cultivation of the olive."\(^{27}\)

Humboldt's travels throughout present-day Mexico were not that extensive. His sojourn through the Viceroyalty
of New Spain was, for the most part, confined to the central highlands region, and he did not journey into the frontier region to the north of Mexico City; thus, his comment about an observed scarcity of olive orchards in "all New Spain" must be regarded as indicative only of those areas he actually visited (i.e. the central highland region).

The olive would have proved to be an ideal crop for the arid subtropical outposts of New Spain, but statements confirming its cultivation in these regions are scarcely found in the literature. In fact, a rather extensive review of the literature written by, or about, Jesuit and Franciscan missionaries; travelogues and personal narratives by travelers in northern New Spain; and from other books, articles, etc. depicting the geography, history, economy, etc. revealed that aboriculture, as such, was by no means extensively practiced in northern New Spain.

Agricultural Development in Baja California

The Spaniards had explored, colonized and developed an extensive mission system quite early in most of Mexico and Central America. Even the barren peninsula of Baja California received its first attempt at colonization only fourteen years after the conquest of Mexico City, which occurred in 1521. The colony, which was established at La Paz under the direction of Hernán Cortés, quickly failed, for the land would not even provide a basic subsistence,
and all assistance and supplies had to be brought in by sea at enormous expense.

Explorers, buccaneers, and pearl fishermen visited various points along the shores of Baja California from the 1530's to the 1690's, but, due to the sterility of the land, the peninsula was not a region of primary interest until late in the 17th century, when it became the concern of the Jesuit missionaries. 28

Nothing which resembled a significant step toward Alta California (the present-day State of California) occurred until January, 1683, when Padre Kino and Don Isidro de Atondo y Anillón (governor of Sinaloa) established a colony at La Paz. 29 It was short-lived, lasting only six or seven months. In October of 1683, a colony was established at San Bruno, about 15 miles north of Loreto, and was the most nearly successful of all the early efforts to colonize Baja California, lasting two years. 30 Carbonel, Córdova, Porter y Casanate, Ortega, Piñadero, and Lucenilla are names of men who attempted to establish colonies in forbidding Baja California during the 17th century--and failed. 31

On October 19, 1697, permanent mission work among the Indians in Baja California officially began with the establishment of the mission at Loreto, on the eastern coast of the peninsula north of La Paz (Map VIII). 32 The first seeds and plants of cultivated fruits and vegetables came to Baja California about the same time, for there was a small garden and a few fruit trees observed to be at Loreto in
THE ADVANCE OF THE
SPANISH FRONTIER IN
NORTHWESTERN NEW SPAIN

Source: Dunbier, Sonoran Desert, 1970
But, it was determined that Loreto was unfit for horticulture, and so an expedition led by Padre Ugarte set out to locate a more suitable location. In 1699, Padre Ugarte founded a mission at San Xavier, and developed agriculture on a small scale, obtaining the necessary livestock and seeds from the Sonoran missions.

The olive, the date, the fig, lemons, and oranges were all brought to San Xavier by Ugarte, although cultivation of these crops was "not in sufficient quantity to supply the needs of the conquistadores and natives." Jesuits continued to establish mission outposts on the Baja California peninsula--some more successful than others--until, by the year 1767, a total of twenty missions had been founded (Map IX). There were vineyards at five of these missions, and, presumably, at least as many or more had gardens with fruit trees. In 1728, the Jesuit Father Luyando established the mission at San Ignacio, where he planted 500 grape vines, olive trees, fig trees and sugar cane--all of which were said to have been successful.

Olives were also cultivated at other missions. For instance, olives, wheat, corn, grapes, and pomegranates were grown at Mission Santa Rosalia in 1730; and, between 1752 and 1768, Mission Santa Gertrudis had orchards which produced olives, figs, pomegranates, and peaches, as well as vineyards. Charles Nordhoff noted a 130-year old olive tree at Santo Tomas (Map IX) when he traveled through the region in 1888. In addition, olive trees were
MISSIONS OF BAJA CALIFORNIA

△ Dominican Mission
△ Jesuit Mission
● Franciscan Mission

Source: Gerhard and Gulick, Lower California Guidebook, 1970
reported to have been seen at the Jesuit Mission Guadalupe (of the south) in 1769. \(^{41}\) Franciscan Father Serra reported seeing "gnarled old olive trees which were grown from seeds by the Jesuits at Mission San Xavier.\(^{42}\)

Additional evidence for the presence of the olive in Baja California comes from another source, George W. Hendry's article "The Adobe Brick as a Historical Source," which concerns three sites not previously discussed.\(^{43}\) The evidence presented by Hendry was derived from the micro-analysis of adobe brick fragments obtained at decadent Spanish Mission sites.\(^{44}\) This analysis revealed the presence of olive pits embedded in the adobe bricks at the following sites:

**TABLE 3**

**MICROANALYSIS OF ADOBE BRICKS AT SELECTED MISSIONS IN BAJA CALIFORNIA**

<table>
<thead>
<tr>
<th>Building</th>
<th>Date of Foundation</th>
<th>Locality</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Fernando de Velicata</td>
<td>1769</td>
<td>San Fernando, B.C., Mexico</td>
</tr>
<tr>
<td>Santo Domingo</td>
<td>1775</td>
<td>Santo Domingo, B.C., Mexico</td>
</tr>
<tr>
<td>San Vicente Ferrer</td>
<td>1780</td>
<td>San Vicente, B.C., Mexico</td>
</tr>
</tbody>
</table>

In 1767, the Jesuits were expelled from all of New Spain, and were replaced by the Franciscans, who, in 1773, were replaced in Baja California by the Dominicans. Mission agriculture was never very extensive in Baja California, and rarely was it a permanent feature around any of the mission establishments (with the exception of the Jesuit missions at the southern tip of the peninsula and the Dominican missions located in the northwestern sector of Baja California), but it certainly had an important part in promoting the diffusion of the olive into Alta California. Livestock, seeds and cuttings were gathered from the missions of Baja California to be sent to the new mission field in Alta California.\(^{45}\)

It doesn't seem logical that the Jesuit mission field in Baja California, a region which was almost totally dependent upon mainland Mexico for its very sustenance, should be the source for all of the supplies necessary to start a mission program in Alta California, but there is evidence that, in fact, most of the first supplies were gathered from the Baja missions and from their main warehouse in La Paz. José de Gálvez, Visitador-General of the King of Spain and organizer of the 1769 Alta California expeditions, "decided to call upon each of the old establishments for small donations of vestments, sacred vessels, and other church furnishings that could be spared...; cattle and farm implements were to be considered as loans...; (and) the missions were to make gifts of surplus food and
grain.\textsuperscript{46} The supplies were then taken to Loreto to await the arrival of the packet boats from San Blas, which were to haul the cargo to San Diego.

**From San Blas and Baja California to Alta California**

In 1769 there were four expeditions which set out for San Diego—two by land and two by sea. The first of the land expeditions, headed by Captain Rivera y Moncada and Franciscan Padre Juan Crespi, departed from Loreto, Baja California on March 9th and arrived in San Diego in the middle of May. The other land expedition, headed by Gaspar de Portolá and Franciscan Padre Junípero Serra left from Loreto on May 11th and arrived in San Diego on July 1st.

After having arrived in La Paz from San Blas in a state of ill-repair, the packet San Carlos underwent a thorough overhaul to ensure her integrity on the way to San Diego—a voyage which began on January 9th and terminated upon her arrival in San Diego on May 12th. The second packet, the San Antonio, departed from La Paz on February 9th and sailed into the harbor at San Diego on April 11th, almost a month sooner than the San Carlos, which experienced navigational problems.\textsuperscript{47} A third packet, the San José, was lost at sea sometime after its departure from La Paz in 1770.

All of the packet boats which originated in San Blas had to be off-loaded and repaired in La Paz before continuing on to San Diego. The San Carlos carried "church ornaments, agricultural tools, provisions, and sacks of seeds;"
whereas the *San Antonio* carried "blacksmiths, a carpenter, and a heavy cargo of supplies (presumably for the blacksmith and carpenter)."\(^{48}\)

Another account, that of Franciscan Padre Francisco Palou, confirms the fact that the *San Carlos* carried agricultural tools and seeds, stating that "the necessary implements for tilling the soil (were carried by the *San Carlos*, along with)... a supply of seeds of all kinds, from Old as well as New Spain, not forgetting to include the lesser items such as fruit tree cuttings, flower and flax seeds."\(^{49}\)

Ainsworth, on the other hand, says that "a supply of beans, corn, lentils and other produce was shipped from the mainland (of Mexico)" to supply the *San Carlos* on her voyage to San Diego.\(^{50}\) The items mentioned by Ainsworth were presumably for the consumption of the crew of the *San Carlos* on the way to San Diego since the word "produce" is mentioned in the same context.

Even though it has been mentioned by various writers that the first olives arrived in California with the 1769 expeditions, this writer has found no substantive data to support that assertion. An examination of the official cargo manifest signed by Captain Don Vicente Vila, commanding officer of the *San Carlos*, revealed that she carried neither olive cuttings nor seeds in her cargo.\(^{51}\) Neither were olive seeds or cuttings included in the supplies carried by the two overland expeditions. In fact, there is no mention in Father Junipero Serra's diary of any intent to plant tree
crops of any sort upon their arrival in San Diego.\textsuperscript{52}

Thus, one of two things transpired: (1) the San Antonio carried olive cuttings or seeds; or (2) neither the San Antonio nor the San Carlos carried olive cuttings or seeds. It has been stated that the "humid climate and low yields of agriculture in San Blas would seem to indicate that the olive cuttings came from some other region to be shipped out of San Blas to San Diego."\textsuperscript{53} The "other region" probably refers to a location on the Mexican mainland, but the important point here is the fact that olive cuttings were "shipped out of San Blas to San Diego." Thus, if it is assumed that (1) the olive cuttings were loaded on either the San Carlos, the San Antonio or the ill-fated San Jose at San Blas; and (2) the cuttings never reached their destination; then it is logical to assume that they were among the cargo which perished with the San Jose. However, the manifest of the San Jose did not list olives among the cargo she carried. Must it therefore be assumed that the cuttings were actually carried by the San Antonio (the only ship for which the author failed to find a cargo manifest)?

Another point which serves to mystify the olive's actual date of arrival in California is the fact that nowhere in the literature reviewed for this paper is there any mention of the padres actually planting olive trees at San Diego in the 1760's or 1770's. But perhaps the failure to mention olives growing at the mission was due to their relative unimportance during the early days of mission
establishment. There is no mention of tree crops of any kind growing at San Diego mission in any of the Annual Status Reports of the missions from 1777 to 1784. In fact, from 1785 to 1802 wheat, barley, corn, kidney beans, chickpeas, peas, lentils and beans were the only crops listed in the reports which gave the general state of the missions. A commentary by Padre Fermín Francisco de Lasuen in the Biennial Reports of 1795-96, 1797-98, and 1799-1800 said that all of the missions were "engaged in raising... and cultivating different kinds of fruit trees."

Olive trees were probably planted before 1790, for an olive grove was observed to be growing at Mission San Diego in 1794. In addition, the remains of olive pits were found embedded in the adobe bricks which once formed the foundation for Mission Soledad in northern California—a structure whose foundation was laid in 1791. This evidence clearly indicates the presence of olive seeds in California in 1791, and presumably is an indication that olive trees (old enough to bear fruit) were growing at the mission site at that time. It is believed by some, however, that no olives were planted before 1785-90, since screw presses and olive mills were not set up at the mission before 1790-95. When Father Palou arrived at Mission San Diego in 1773, he "observed that efforts to raise crops had failed disastrously..., the first crops (prior to 1773) had either been flooded out or destroyed by drought, and water for irrigation was completely lacking."
So, in view of all of this, it seems that even if olive seeds did arrive in 1769 (which still remains to be proved) they were not successfully planted in San Diego at that time; furthermore, it does not appear that there is any substantive evidence to support the fact that olives were successfully introduced into California prior to 1774. 61

Summary

From its cultivated origin on the eastern shores of the Mediterranean Sea some six thousand years ago and its diffusion along the shoreline perimeter of that region, to its expansion across the Atlantic Ocean into the West Indies and eventually to California, the olive has had a prolonged and significant impact on the cultural, economic and agricultural patterns of man's habitation--both in the Old and New Worlds.

Early patterns of olive diffusion within the New World are not easily traced due to a scarcity of recorded information on the manner of introduction and the exact location of early plantings. Thus, the best evidence of the actual route of olive diffusion in New Spain comes from an examination of the location of various Spanish settlements, along with the chronology of their establishment.

With the aid of a few chronicles which bear witness to the presence of olives growing in certain locations at specific points in time, Map X has been prepared to show the probable routes of diffusion of olive culture within
THE DIFFUSION OF OLIVE CULTIVATION IN SPANISH MIDDLE AMERICA

(1519) Founding date

Source: various
New Spain--from the probable point of introduction in the West Indies during the 15th century to the historically significant (but chronologically disputable) introduction at San Diego, California some three centuries later.

Prior to its introduction into Alta California, the olive never displayed the same popularity and omnipresence in New Spain that it had in the Old World homeland. This fact is manifested in the apparent scarcity of olive trees throughout the New World, a phenomenon quite opposite that of the Old World.
1. Donald S. Brand, "The Origin and Early Distribution of New World Cultivated Plants," *Agricultural History*, Vol. 13, No. 2 (April, 1939), p. 110. Juan Rodriguez Cabrillo and Bartolome Ferrelo had navigated along the west coast of the United States as far north as Oregon during their voyage of 1542-43; the Coronado expedition had reached Santa Fe, New Mexico and as far inland as Kansas during the period from 1540-42; the eastern seaboard of the United States was navigated by Francisco de Gordillo in 1521 and by Pedro de Quexos in 1524-25, the latter of whom reached as far north as the coast of New Jersey; Ferinand Magellan had successfully navigated his way through the treacherous straits at the tip of South America during his circumnavigation of the globe in 1519-22.


4. Ibid.

5. Ibid.

6. Ibid.


8. Ibid., p. 9.


19. West and Augelli, Middle America, p. 257.

20. Ibid., p. 262.

21. Ibid.


23. Ibid., p. 10.


26. Ibid.

27. Ibid., p. 516.


33. Ibid.
34. Ibid.
36. Ibid., p. 171.
37. Wickson, California Fruits, p. 61.
39. Ibid., pp. 117, 379.
44. The main problem with an analysis of this sort is that it systematically destroys the very structure it seeks to explain; thus, Hendry's methodology in all probability would only gain acceptance at sites where the structures are in an unrestorable state of decadence, and, accordingly, has limited application.
46. Ainsworth, In the Shade, p. 113.
47. The foregoing information has been taken from Dunne, Black Robes, p. 425.


51. A list of the items included on the San Carlos manifest can be found in Ainsworth, *In the Shade*, p. 115.


55. Ibid.

56. Ibid., p. 380


61. It should be noted at this point that cultivation of the olive in the United States first began on the eastern seaboard—not in California. In 1755, Henry Laurens imported and raised olive trees at Charleston, South Carolina. In 1767, Andrew Trumbull established a colony of Greeks, Italians and Minorcans at New Smyrna, Florida and cultivated olives, grapes, figs, pomegranates and oranges. Later, Thomas Jefferson, who was an avid proponent of olive introduction, had a number of olive plants sent to him from France for planting in South Carolina and Florida in 1789-90. Still later, a group of French emigrants known as the Tombigbee Association settled at a site in Western
Alabama in 1819 to raise olives and grapes. The olive was not particularly successful in the east for two main reasons: (1) the trees required what was considered to be too long to come into a state of reasonable productivity whereby the investor might realize an economic return on invested capital; and (2) the climate was not conducive to commercial olive production (in most instances, the reoccurring winter frosts killed all but the roots). (Nelson Klose, America's Crop Heritage (Ames, Iowa: The Iowa State College Press, 1950), pp. 10-91.)
There is little to support the statement by Sehery and others, who assert that olives were first introduced into California by the Franciscan padres through the San Diego Mission in the year 1769.

In 1773, Pedro Fages, who served as comandante of California's presidial establishments from July 9, 1770 to May 25, 1774, made the following observation regarding the missionaries' attempts at agriculture at the San Diego Mission:

There are ponds, or pools, which contain a sufficient supply of water for the use of the camp and for the mission during the entire year; but as it is not practicable to obtain irrigating water for the fields and tillable lands, life there will always be attended by the necessity of obtaining supplies for the maintenance of the people. Attempts have been made at sowing grain in season, but the first year the stream overflowed and carried away the seed which had been sowed at the right season. The following year the attempt was repeated, the grain then being sown farther back from the stream; but as the rains did not come in season it was possible to harvest only a little for seed. This seed it was planned to put into the ground (which indeed is not to be called sterile) at some more suitable place upstream, where rainfall is said to be greater and more regular. Unless this proves to be the fact, it will be impossible for the mission to exist there long. Nor has there been found, even after great and painstaking search, any permanent water supply whereby sewing of irrigated crops might be undertaken.

Thus, the combination of an arid environment and the ephemeral nature of the water supply caused the missionaries to relocate Mission San Diego to a more suitable upstream site.
in 1774.³

San Diego was not the only mission that was forced to relocate because of an environment that was unamiable to agriculture. Mission San Gabriel, founded in 1771, changed locations in 1775 since the first year crops (1772) washed out and those of the following year were only moderately successful.⁴ The mission at San Carlos, too, changed location one year following its establishment in June, 1770.

The relocation of certain missions from sites which were deemed ill-suited for agriculture serves to point out the fact that a high priority was placed on suitable agricultural sites by the Franciscan missionaries. Then too, since the missionaries knew "practically nothing about the needs of the soil,"⁵ the first few years of agricultural efforts proved to be mostly trial and error to determine where and when various plants would thrive.

The literature indicates that wheat, maize and beans were almost invariably the first crops to be planted, partly because they were hardy and partly because they produced large yields within a reasonable time and were capable of being stored for future use. Most tree crops, on the other hand, take many years before they bear fruit, and, thus, would only be planted after a reasonable agricultural base of other crops had been established to ensure that an adequate supply of staple foodstuffs were available. In particular, the olive takes from 10 to 12 years to fruit when grown from a seed,⁶ and about 3 to 5 years when grown from
a cutting—given present-day technology.  

This brings up the point about the "Mission" variety of olive, which was the type developed at Mission San Diego from the first introduction of seeds (or cuttings). The California Mission variety is botanically different from any other variety found growing in the Mediterranean region. It is possible that this difference resulted from propagation by seed at Mission San Diego. When propagation of the olive is accomplished by budding, grafting or another vegetative method, the resultant offspring is identical to that of the parent plant; however, the offspring are not purely identical to their parents when propagated from seed. Thus, since the California Mission variety is a distinctive variety, it is contended that the first olive trees at San Diego were grown from seed. In the same vein, because of the considerable length of time (viz. 10-12 years) required before seed-planted trees are capable of bearing fruit, the very first time that olives could have been harvested would have been sometime between 1779 and 1781, given that the seeds had been successfully planted at the original San Diego Mission site in 1769. However, since the author failed to find any record of olives harvested before 1791, it is contended that, although the first olive trees at San Diego Mission were planted from seed, the plantings probably occurred sometime after 1774.

This original planting purportedly furnished the seeds and cuttings for all of the other California missions, and
this original planting thrived until 1964, when the last two trees died. 10

**Early Expansion of Olive Cultivation in California**

By the end of the first decade of Spanish occupation in Alta California, there were eight missions (San Diego de Alcala, San Carlos Berremeo de Carmelo, San Antonio de Padua, San Gabriel Arcangel, San Luis Obispo de Tolosa, San Francisco de Asis, San Juan Capistrano, and Santa Clara de Asis), three presidios (San Diego, Monterey, and San Francisco), and one pueblo (San Jose)—all demanding food and supplies from the Spanish Crown. 11

In view of the expense and uncertainty involved with shipping supplies to Alta California from San Blas, Mexico, the Spaniards realized that the missions, pueblos, and presidios must develop a feasible means of agricultural self-sufficiency or face the possibility of failure. To that end, and as early as June, 1776, it was proposed that wheat and maize be sown on an experimental basis at various mission locations throughout Alta California. And although these early experiments were for the most part, unsuccessful, the stage was set for further agricultural expansion in later years.

All of the mission orchards were quite small and some had only a few trees, but those trees played an important part in the horticultural history of California, for they laid the foundation for an important agricultural industry
by furnishing stocks for many groves.\textsuperscript{12} There is little doubt that most of these primitive trees were grown from seed, for in almost every mission olive orchard there were distinctly different trees growing side by side.\textsuperscript{13}

**Growth of Mission Agriculture**

Even though almost nothing was done to develop the agricultural potential of the mission sites beyond the circumscribed needs of each settlement, each well-chosen site certainly possessed an inherent agricultural quality. Explicit instructions from the Spanish Crown directed the selection of mission sites (viz. ample tillable land, accessible water supply, and a nearby Indian population).\textsuperscript{14} In each case, the missions were located in the fertile valleys, alluvial fans, or coastal plains among California's coastal ranges. Generally, missions were situated in well-drained basins, valley floors or piedmont areas, which possess some of the best soils along the California coast.\textsuperscript{15}

Another promulgation of mission agriculture was conducted on mission ranches. Each mission had one or more ranches that were devoted to raising livestock and/or crops. One such ranch, San Antonio Pala (an agricultural extension of Mission San Luis Rey), is reported to have had in December, 1827, a few fields of wheat, beans, corn and garbanzos, a vineyard, and irrigated groves of olive and fruit trees.\textsuperscript{16} But, by far, livestock production (and cattle raising in particular) was the most important agricultural activity which took place on mission lands. Land devoted to
horticulture (which includes olive cultivation) was not nearly as extensive as the vast expanses over which livestock ranged. 17

After an initial period of agricultural instability, which lasted until about the time the Santa Barbara Channel missions were founded (San Buenaventura 1782 and Santa Barbara in 1786), the mission system in Alta California revealed that it was indeed capable of self-sufficiency, producing a surplus of wheat, maize and barley, and substantially increasing the size of its livestock herds.

Horticulture was almost entirely confined to the missions during the last few decades of the eighteenth century. Olive orchards and vineyards were certainly the most important elements of these horticultural endeavors (although olive cultivation was not nearly as extensive as viniculture during this period). 18

For the most part there seems to be a paucity of recorded observations of olive groves, per se, in Alta California during the sixty-five years generally recognized as the Mission Period (1769-1834). Observers generally made reference to sighting orchards at specific locations, but usually neglected to identify the particular species—whether through ignorance or plain disinterest. In addition, the mission fathers did not keep a statistical record of olive or vineyard acreages and yields.

In the Biennial Report for 1801-1802, Fray Fermín de Lasuen reported that a beginning had been made at culti-
vating the olive at San Juan Capistrano, San Gabriel, San Buenaventura, Santa Barbara, San Luis Obispo, Santa Clara, and San Jose, and a small quantity of olive oil was purported to have been produced at San Diego Mission.\textsuperscript{19} Another report stated that by the end of the eighteenth century San Diego Mission had an olive grove consisting of more than 500 trees.\textsuperscript{20} Alexander von Humboldt, too, mentioned that he had heard of orchards planted at Santa Clara when he made his historic travels in the New World (1799-1804).\textsuperscript{21}

Table 4 is a compilation of all recorded sightings around the turn of the 19th century which were uncovered during the course of this investigation. It should provide a good indication of the actual distribution of the olive during these early years of California history. Likewise, Map XI is a pictorial display of the data compiled in Table 4, and will help to verify the information provided in this tabulation.

In 1802, only some of the missions had olive groves,\textsuperscript{22} but twenty years later it was observed that the olive was abundant everywhere throughout Alta California.\textsuperscript{23}

Thus, the Franciscan missionaries began controlled diffusion of the olive throughout Alta California—the incipient threshold of an enterprise that would one-day become a multi-million dollar industry in the State.

\textbf{Summary}

After its introduction into California through the
DISTRIBUTION OF OLIVE CULTIVATION IN CALIFORNIA, c. 1800

- = Olive cultivation site

Source: various

MAP XI
### TABLE 4

**COMPILATION OF OLIVE ORCHARD SIGHTINGS IN ALTA CALIFORNIA, CIRCA 1800**

<table>
<thead>
<tr>
<th>Mission</th>
<th>Date Founded</th>
<th>Date of Sighting</th>
<th>Description of Observation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Diego</td>
<td>1769</td>
<td>1800</td>
<td>500 olive trees in grove.</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801</td>
<td>Olive oil produced.</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1803 (?)</td>
<td>Olive oil produced.</td>
<td>(3)</td>
</tr>
<tr>
<td>San Gabriel</td>
<td>1771</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td>San Luis Obispo</td>
<td>1772</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>1777</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1803 (?)</td>
<td>Orchards present.</td>
<td>(3)</td>
</tr>
<tr>
<td>San Buenaventura</td>
<td>1782</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1803 (?)</td>
<td>Olive oil produced.</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1828</td>
<td>Olive prod. of prime importance.</td>
<td>(5)</td>
</tr>
<tr>
<td>Santa Barbara</td>
<td>1786</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1803 (?)</td>
<td>Olive oil produced.</td>
<td>(3)</td>
</tr>
<tr>
<td>Soledad</td>
<td>1791</td>
<td>----</td>
<td>Olive pits found in adobe bricks from foundation structure.</td>
<td>(7)</td>
</tr>
<tr>
<td>Pala</td>
<td></td>
<td>(1892)</td>
<td>Trees said to be 100 years old.</td>
<td>(8)</td>
</tr>
<tr>
<td>San Fernando</td>
<td>1797</td>
<td>----</td>
<td>Olive pits found in adobe bricks from foundation structure.</td>
<td>(7)</td>
</tr>
<tr>
<td>San Jose</td>
<td>1797</td>
<td>1801</td>
<td>Olive cultivation had begun.</td>
<td>(1)</td>
</tr>
<tr>
<td>San Luis Rey</td>
<td>1797</td>
<td>1822</td>
<td>Olive prod. of prime importance.</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1827</td>
<td>Best olives in all California.</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Source:**

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
<td>Englehardt, San Luis Rey, p. 59</td>
</tr>
<tr>
<td>(6)</td>
<td>Ibid., p. 66.</td>
</tr>
</tbody>
</table>
first Franciscan mission at San Diego, the olive was diffused throughout the chain of twenty-one missions that were later established at selected sites in the fertile valleys and alluvial plains along the coastal mountain ranges of Alta California. Horticulture (and olive cultivation in particular) was never as extensively practiced as some other agricultural endeavors such as livestock raising and grain farming, but was, nevertheless, an integral part of agrarian activities which took place in the California missions. Even though there is a dearth of recorded observations of olive groves in the literature, a compilation of the more accessible data revealed that olive culture had diffused from San Diego to San Francisco by 1801 (Map XI). This was the early expansion of an agricultural industry that would eventually spread to its present-day home in the San Joaquin and Sacramento valleys, via the southern and central coastal regions of the State, including an import- and stopover in the San Fernando Valley.
FOOTNOTES FOR CHAPTER 4

1. Fages subsequently served as Governor of California from September, 1782 to April, 1791.


4. Ibid., p. 140

5. Ibid., p. 42.


8. Ibid., p. 21.


10. Personal interview with Mr. John Nelson, Assistant Curator of the Presidio Natural History Museum, San Diego, California, on September 2, 1971. Mr. Nelson explained that the trees died of lead poisoning. It seems that the Spanish soldiers stationed at the Presidio garrison used the tree trunks as targets while idly firing their muskets, causing an earlier than natural death for the usually long-lived trees.


13. Ibid.

15. Ibid., p. 52.
16. Ibid., p. 67.
18. Ibid., p. 71.
CHAPTER 5
CASE STUDY: THE OLIVE INDUSTRY
IN THE SAN FERNANDO VALLEY, 1800-1973

The San Fernando Valley was chosen as a site for a case study for three reasons. First, and most important, the Valley was once the location of the largest single olive grove in the world. Second, the olive industry in the San Fernando Valley is a perfect example of an industry that was created out of the successful cultivation of the olive at Mission San Fernando Rey de España. As such, it is a prime example of the influential effect the agricultural preferences of the Franciscan missionaries had on the agricultural development of the State of California. Third, it is interesting to note how the successful imposition of a single cultural trait--olive cultivation--could create such an impact on the pattern of future growth in a given area.

With these reasons in mind, the chronological development of the olive industry in the San Fernando Valley will be investigated, from its early introduction at Mission San Fernando Rey de España to its later success as a commercial enterprise, and finally to its demise as a viable agricultural industry in the face of suburban encroachment and other factors.

Production at the Mission, 1800-1846

Olive production was introduced into the San Fernando Valley through the Mission San Fernando Rey de España.
sometime shortly after the year 1800. The mission, located in the northeastern sector of the valley, was founded in an attempt to close one of the gaps in the long chain of California missions.\(^1\) It was, therefore, not a pivotal link in the mission system, and the prime consideration in selecting the site was the outlook for future prosperity.\(^2\) At the time, the site was part of a large rancho belonging to Francisco Reyes, and was only partially cultivated—mainly in maize, beans, and watermelon.\(^3\) Olive orchards were planted at the mission sometime during the first two decades of the 19th century and were especially productive due to the fertile, well-drained soil, and because of an irrigation system employed by the padres to supplement the rather meager natural precipitation. As late as 1858 great quantities of olive oil were processed at the mission. An article in the San Francisco *Alta California Daily* (August 22, 1858) declared the quality of the olives at San Fernando Mission to be equalled only by those of San Diego, and, for richness of flavor and delicate fiber, they were said to be far superior to even the famed Italian olive.\(^4\)

Productivity was hampered in the early years when, in 1834, a decree was issued by Jose Figueroa, Mexican Governor of California, to secularize all of the missions. This decree put the missions and all of their assets under the control of the Mexican Governor, who in turn appointed commissioners to minister to the mission property. Then a series of changes in governorships caused an oscillating situation
whereby the missions were restored to the hands of the missionaries one minute and were rented out the next. The padres strongly protested against the greed and ill-rule of the Mexican commissioners, and as soon as the padres were certain that secularization would remove the missions from the control of the Church, the Franciscans began to destroy both crops and livestock. 

In 1846, the mission system was declared bankrupt, and Mission San Fernando was sold that year as Rancho Ex-Mission San Fernando, containing 116,858 acres. The orchards and vineyards at the mission were left without proper cultivation or irrigation, and whole groves of trees were indiscriminantly felled and converted into fire wood. Needless to say olive production in the San Fernando Valley was greatly retarded during the dozen years from the time of secularization until 1846, when the mission was sold.

Since the mission was producing the vast majority of the olives used in the Valley and the Los Angeles area, the years between 1846 and the early 1880's saw very little olive production in the San Fernando Valley. This is not to say that olive production came to a standstill, however, for the mission olive press was used to produce small quantities of olive oil as late as 1875. 

Orientation and Progress, 1846-1875

In 1850, when California became the 31st State to enter the Union, a major transition occurred throughout the
State. The San Fernando Valley participated in this state-wide trend, whereby the old ranchos were broken up into smaller holdings and much of the grazing land that once made up the bulk of mission lands was brought under cultivation by the new owners of the apportioned mission lands. For the most part, this newly cultivated land was planted mostly in seed crops. Small orchard plantings were to be found near missions and about the homesteads of old Spanish land grants. Most of the olive trees in the state were located near Los Angeles at this time, especially at San Fernando, San Gabriel, and San Juan Capistrano.  

Up until 1875, the California olive industry had expanded only slightly at best, growing outward from the old mission plantings. There was almost no fruit industry in the northern part of the State until 1858. The census of 1850 reported the value of orchard products for only two northern counties: Sonoma, $13,000; and Marin, $1,200.  

The State Agricultural Society reported a total of 14,688 olive trees in California in 1875, Santa Barbara County having more than 3,000 trees and five other coastal counties (including Los Angeles) having more than 1,000 trees each. Tulare and Butte counties, which would become the principal production centers in the twentieth century, had only 27 and 41 trees, respectively.  

Between 1848 and 1860, the population of California increased by almost 300,000 people, most of whom were adventurous gold-seekers. The State was ill-prepared to meet
the mounting demand for food at the beginning of the influx, and was forced to increase agricultural imports and production to cope with this new demand. As early as 1852 a rough and incomplete census had indicated large increases in all types of agricultural production which was induced in an attempt to provide an adequate food supply for the burgeoning State population.12

In the San Fernando Valley, a transition from stock raising to grain farming was taking place, and acreage devoted strictly to olive production increased very slowly. The land use changeover finally became so complete in the Valley that by 1877 all new tillable land was devoted to grain production, and all other industries were comparatively negligible.13

Experimentation and Preliminary Commercial Production, 1875-1900

The commercial olive industry seems to have had its beginning about 1875, when the idea was advanced that California olive oil would find a large and profitable domestic market if the American market were protected against the impure imported product.14 During the next twenty-five years, olive groves which had been entirely devoted to Mission variety olives were bolstered by more than one hundred and fifty varieties of oil-producing olive trees which were introduced into California from the Mediterranean region. Of these, fewer than half a dozen varieties (primarily Manzanillo, Sevellano, and Ascolano) are now commercially
important. By 1885, growers had learned that California olive oil was indeed equal in quality to the best European product, and that the quality and quantity of the California oil varied geographically--better oils came from olives grown in the interior regions of the State. Consequently, a large-scale planting boom ensued. Although this increase in cultivation extended from San Diego County to Shasta County, the inland valleys of San Joaquin and Sacramento were the most intensively cultivated during this period. The number of olive trees in California had increased from fewer than 15,000 trees in 1875 to about 175,000 trees in 1890,\textsuperscript{15} and by 1897 the State registered some 2,500,000 trees.\textsuperscript{16}

A good indication of the statewide distribution of olive trees in the early 1890's can be gleaned from Table 5, which lists the members of the California Olive Grower's Association that were considered to be active producers in 1891.

\begin{table}[h]
\centering
\caption{Membership of the California Olive Grower's Association in 1891, Active Producers}
\begin{tabular}{ll}
\hline
Member & Location \\
\hline
1. John Bidwell & Chico \\
2. Bowen & Goudge & Pomona \\
3. Ellwood Cooper & Santa Barbara \\
4. Juan Gallegos & Mission San José \\
5. E.E. Goodman & Santa Clara \\
6. John C. Gray & Oroville \\
7. Harwood & Woodford & Ontario \\
8. George F. Hooper & Sonoma \\
9. Frank A. Kimball & National City \\
10. Perveril Meigs & Santa Barbara \\
\hline
\end{tabular}
\end{table}
TABLE 5--Continued

<table>
<thead>
<tr>
<th>Member</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Emily Robinson</td>
<td>Auburn</td>
</tr>
<tr>
<td>12. J.P. Smith</td>
<td>Livermore</td>
</tr>
<tr>
<td>13. V.C. Smith</td>
<td>Napa</td>
</tr>
<tr>
<td>14. C.A. Wetmore</td>
<td>Livermore</td>
</tr>
<tr>
<td>15. J.R. Wolfskill</td>
<td>Winters</td>
</tr>
</tbody>
</table>


The assumption here, of course, is that, given the inefficient transportation of that era, the producers were compelled to reside in close proximity to their groves; thus, it is assumed that the location given for each member is also the location of his olive trees. Map XII gives a pictorial display of the information presented in Table 5, and shows a marked increase in the statewide distribution of olive cultivation, when compared to Map XI in Chapter 4 (irrespective to the amount of acreage). Olive production had expanded in the north, but contracted in the south.

The stimulus for large-scale planting and commercialization within the San Fernando Valley itself seems to have come from a pamphlet written by Judge Robert M. Whidney in 1886 or 1887, a period during which real estate subdividers were first becoming aware of the great potentialities existing in the Valley. The pamphlet described the fine possibilities of the foothill tract—a vast stretch of gently sloping acreage situated northeast of the San Fernando Mission in the present-day town of Sylmar. In addition, the pamphlet stimulated enthusiasm among notable
DISTRIBUTION OF MAJOR OLIVE ACREAGE IN CALIFORNIA, 1891

• = Location of actively producing member of the California Olive Grower's Association

Source: California Olive Grower's Association, California Olive Industry, 1893

MAP XII
entrepreneurs such as D.O. Miltmore, George L. Arnold, Charles Morell, and Colonel Butterfield, and prompted their founding of the Los Angeles Olive Growers Association. In 1893, the Association purchased 1,603 acres in the Sylmar foothill tract and developed it into the largest olive orchard in the world. This was the famous Sylmar Olive Orchard, a grove which, during the years of peak production around 1920, encompassed some 2,000 acres supported 140,000 trees, and had a normal season's output of 50,000 gallons of oil and 200,000 gallons of ripe olives. The Association's processing plant employed about 400 people during its heyday.

Modern Olive Industry Established, 1900-1930

By 1900, processors found through experience that pure olive oil could not be manufactured profitably and the industry was threatened with extinction. Pure California olive oil, however high in quality, could not be produced cheaply enough to compete with the adulterated European product, nor with other vegetable oils and fats on the American market. At the same time, demand had increased measurably for the large-fruited ripe olive, and the City of Los Angeles was providing an excellent market for the olives locally produced in the Los Angeles County area. The same increase in demand occurred throughout the State, and, as a result, the olive industry wisely shifted its emphasis from the growing of oil varieties to culinary var-
ieties (table olives), causing a contraction of the total olive-bearing acreage by more than one half. This contraction was due to the fact that so many oil-bearing varieties (such as the Nevadillo, Redding Picholine, Rubra, Pendulina, and Chemlali), introduced during the period of experimentation (which began in 1875), had to be top-grafted by the large-fruited table varieties, such as the Seviliano, Manzanillo, Ascolano, and Barouni; thus, these trees did not come into bearing until the new graftings produced new fruit-bearing wood. For the most part, groves of Mission variety olives were left intact because the fruit is fairly easy to process and the high oil content of the fruit provided an alternative in years when the market demanded the production of olive oil.

In 1899, a research report by F.T. Bioletti and G.E. Colby of the Agricultural Experiment Station at the University of California showed that ripe processed fruit could be successfully preserved by packing the olives into jars or cans and then heating them to 176°F. The process preserved the olives indefinitely in hermetically sealed containers. By 1910, the pickling and canning processes had been perfected to the point where the product could be shipped to distant markets without fear of spoilage. Thus, the whole character of the industry changed, and the growth of the industry since that time rests almost entirely upon the sophistication of the canning process. Olive production increased on a statewide scale from the 2,002
tons produced in 1899 to 8,000 tons produced in 1909.25 Map XIII shows olive distribution in the state in 1909.

The modern industrialization of olive culture occurred on a statewide scale, but to obtain good yields of canning-sized olives, growers found that irrigation comparable to that required by most other tree crops was essential. Although the olive tree is physiologically adapted to tolerate prolonged periods of drought and high temperatures, good irrigation practices result in increased yields. Irrigation produces new fruiting wood on the tree, and also increases fruit set and fruit size, and prevents shriveling.

In the San Fernando Valley, there is an insufficiency of perennial water resources, which created a serious deficiency of irrigation water. This proved to be a definite hindrance to the development of the large-fruited ripe olives in the San Fernando Valley for the first decade of this century. Even as late as 1915, the scarcity of water was inhibiting the growth of the olive industry in the Valley. A Federal Government soil survey taken in 1915 stated:

An exceptionally large olive grove is located northwest of (the City of) San Fernando, and this grove and several others of relatively small size elsewhere in the valley constitutes (sic) about 1,500 acres of bearing trees. Most of the olives are grown without irrigation, and yields are somewhat variable. The olive industry does not seem to be increasing in the San Fernando Valley. Many of the present plantings are on very light-textured soils, where most other tree crops cannot be produced without irrigation. Lack of
DISTRIBUTION OF OLIVE ACREAGE IN CALIFORNIA, 1909

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

Source: U.S. Census Bureau, Agriculture, 1909-1910, Vol. VI.

MAP XIII
irrigation water and the predominance of large land holdings have been the two principal factors in regarding the development of intensive farming.

On November 5, 1913, however, the Valley did receive its precious irrigation water. An aqueduct was constructed to import water from the Owens River Valley (located between the White Mountains and the eastern slopes of the Sierra Nevada) to a thirsty, burgeoning Los Angeles. Eventually, Los Angeles would have to look elsewhere to import additional water, but for the time being the Owens River aqueduct provided an abundant supply of water for a multitude of uses.

The annexation of the greater part of the San Fernando Valley into the City of Los Angeles during the period from 1915 to 1923 made the new water supply available for irrigation purposes, and pipelines gradually laced their way through the valley floor. The availability of water created a rapid shift in land use throughout the valley from grain farming to truck gardens, vineyards and orchards.

Within a few years, the San Fernando Valley was transformed from a grain-raising community dependent upon intermittent rainfall to an empire of truck gardens and orchards; thus, it became one of the richest agricultural regions in the world. The following account was given in 1929:

The Federal Census (of 1920) classified Los Angeles County, with $27,000,000 in farm products, as the richest county agriculturally in the United States... (the) San Fernando Valley produced $22,000,000 of that and, annually, the average yield is over $20,000,000.
In 1917, 30,000 acres of agricultural lands were under ir-
rigation in the valley, an increase of over 65 per cent in
only three years.  

Fields that had been valued at ten dollars an acre be-
fore the coming of the Owens River water were now valued at
over one thousand dollars an acre.  
The crops became more
and more diversified as citrus and olive trees were planted
in and around the City of San Fernando, and peach, apricot
and other deciduous fruit trees were planted near the pre-
sent-day sites of North Hollywood and Van Nuys.

The town of San Fernando was sufficiently distant from
Los Angeles to develop an independent economy, and was an
agricultural trade center, with packing and shipping opera-
tions for olive, citrus, and truck crops. The City grew
somewhat after adjacent farm lands received Owens River
water, but not as rapidly as other Valley communities--par-
ticularly those in the southern portion of the valley,
where developers were conducting heavy and profitable land
promotional campaigns.

A local entrepreneur, Leslie C. Brand (and his assoc-
iates), conducted a large selling campaign around 1920,
whereby 16,000 acres of the property earlier acquired from
the Porter Land & Water Company was subdivided and put up
for sale. Between 1916 and 1923, orchards, cultivated
fields and the homes of the new landowners created a pat-
tern of habitation never before imprinted on the Valley's
ever-changing landscape.
An Analysis of the Decline of the Olive Industry in the San Fernando Valley

It appears that there has been not one but a combination of factors contributing to the decline of the once-flourishing olive industry in the Valley. The first factor is an increase of residential housing due to increased population, which has been alluded to in the previous section. Although the relatively small annual increases in population appear to be almost insignificant, their cumulative effect over the forty-year period from 1920 to 1960 is quite significant indeed. The significance can best be seen by an examination of Maps XIV through XII, which delimit the actual areas devoted to specific land-use activities (olive orchards, residential housing areas, and areas devoted to other uses), for selected years (1928-1971), and serve to illustrate the gradual but decided encroachment of residential housing on the Sylmar olive district.

Map XIV shows that, in 1928, the Sylmar area was completely devoid of tract-type residential housing, and about 52 per cent of the area was devoted to olive orchards; whereas, the other 48 per cent of the area was being utilized for other purposes, mostly agricultural. Although there were a few small industrial sites located along San Fernando Road in 1928, there were few other structures in the area, with the exception of an occasional farmhouse and related outlier buildings. Truly, the predominate character of the landscape was agricultural.
Olive groves

Residential area

Other

Railroad

Intermittent stream

Paved road

Secondary road

STUDY AREA 1971

Source: Personal field observations (May 8-May 30, 1971).

MAP XVII
An examination of subsequent maps reveals that a positive pattern of residential encroachment occurred between 1928 and 1952, a precursory indication of later developments.

In 1952 (Map XV), residential encroachment had begun to acquire a secure foothold in the olive district, occupying about 18 per cent of the study area. At the same point in time, olive grove acreage had been reduced to about 45 per cent and about 37 per cent of the study area was still employed for uses other than residential housing or olive cultivation.

The most dramatic change in land use occurred during the period between 1952 and 1966 (Map XVI), when about 75 per cent of the remaining olive grove lands fell to residential encroachment. Whereas, in 1928, the area was almost exclusively agricultural in nature, the 1966 land use pattern shows a landscape which is predominately (60 per cent) high-density residential housing. The acreage occupied by olive orchards had dwindled to about 12 per cent of the total area, and the acreage being employed for other uses had been reduced to about 28 per cent. The industrial concerns had, at this time, more or less concentrated in the general area bounded by Tyler Street and Roxford Street between Bradley Avenue and San Fernando Road.

In 1971 (Map XVII), a field survey by the author revealed a pattern of land use nearly the same as that of 1966, with olive grove acreage still holding at about 10
per cent, areas devoted to other uses being reduced by a slight margin to about 28 per cent, and the residential sprawl continuing to gain ground with a total of about 62 per cent. There are, at this time, many new housing tracts being constructed on the northern and eastern fringes of the study area. The solid residential areas are generally occupied by older homes, especially in the southern corner, where the first massive encroachment began in the 1930's.

It is obvious from these maps that residential expansion has caused the loss of considerable acreage which was formerly planted in olive trees, and Table 6 summarizes the land use changes which occurred in the study area between 1928 and 1971.

**TABLE 6**

**SUMMARY OF LAND USE CHANGES IN THE SYLMAR OLIVE DISTRICT, 1928-1971**

<table>
<thead>
<tr>
<th>Year</th>
<th>Olive Groves</th>
<th>Residential</th>
<th>Other Uses**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1928</td>
<td>52%</td>
<td>0%</td>
<td>48%</td>
</tr>
<tr>
<td>1938</td>
<td>51%</td>
<td>3%</td>
<td>46%</td>
</tr>
<tr>
<td>1949</td>
<td>49%</td>
<td>10%</td>
<td>41%</td>
</tr>
<tr>
<td>1952</td>
<td>45%</td>
<td>18%</td>
<td>37%</td>
</tr>
<tr>
<td>1966</td>
<td>12%</td>
<td>60%</td>
<td>28%</td>
</tr>
<tr>
<td>1971</td>
<td>10%</td>
<td>62%</td>
<td>28%</td>
</tr>
</tbody>
</table>

* An estimation of the percentage of total area employed for specific uses.

** Includes all uses other than residential or olive grove properties.

The major factor contributing to the decline of the olive industry was that residential sprawl usually brings about a substantial boost in the value of adjacent land in the initial stage of expansion. If a given parcel of farm-land is in the path of this expansion, the farmer/owner may consider it advisable, in a strictly economic sense, to sell the property. This would be especially true if the margin of profit was quite large. And this is exactly what happened in the case of the San Fernando Valley.

A case in point concerns Cristo Fusano and Sons, Inc. of Sylmar.35 In 1909, Cristo Fusano, an Italian immigrant, decided to break away from his employer (the Los Angeles Olive Growers Association) and begin his own olive processing plant--located directly across the railroad tracks from the plant operated by the Association on San Fernando Road. The new enterprise managed to weather the vicissitudes of the agricultural business world and proved itself to be a viable venture. After World War II, increased urbanization in the Valley caused the value of the acreage owned by Fusano and Sons to increase dramatically--along with the taxes. The cost of cultivating and sustaining the olive groves increased so much in fact, that in the late 1940's Fusano and Sons began to sell their acreage in the Valley and use the funds to purchase new acreage in the San Joaquin Valley, near Lindsay.

Today, the firm owns approximately 230 acres in the San Joaquin Valley, and has totally divested itself of its
holdings in the San Fernando Valley, save for the processing plant located on San Fernando Road. It was found, interestingly enough, that it was more profitable to truck the olives from their newly acquired northern groves down to their processing plant in the San Fernando Valley rather than construct a new plant nearer to the new groves.

According to Mr. Ralph Fusano, the San Fernando Valley does not possess the "right environment" for prime olive production; in particular, he refers to the many controlled experiments performed by the Agricultural Experiment Station at Davis, California which revealed that all olive varieties in California are unfruitful unless exposed to a certain amount of chilling during the winter months. Even though the San Fernando Valley has produced great quantities of olives throughout its agricultural past, the Davis experiments have shown that the valley is not as conducive (climatically) as the San Joaquin Valley for the production of prime olive fruits.

Still another important factor which led to the decline of the olive industry in the San Fernando Valley was the decreasing availability of low-cost physical labor—primarily pickers. Table 7 emphasizes that, on a statewide basis, the physical labor aspect of California agriculture has absolutely declined since 1945. When the Mexican National (so-called "Bracero") Program was terminated in 1964, inexpensive physical labor was almost nonexistent throughout the State.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Workers</th>
<th>Farmers and unpaid family workers</th>
<th>Hired year-round</th>
<th>Temporary domestic</th>
<th>Contract foreign workers #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945</td>
<td>381,492*</td>
<td>134,583</td>
<td>90,250</td>
<td>120,458</td>
<td>25,817</td>
</tr>
<tr>
<td>1950</td>
<td>403,883</td>
<td>159,592</td>
<td>104,800</td>
<td>132,017</td>
<td>7,475</td>
</tr>
<tr>
<td>1955</td>
<td>473,542</td>
<td>169,850</td>
<td>121,158</td>
<td>142,425</td>
<td>40,108</td>
</tr>
<tr>
<td>1960</td>
<td>434,100</td>
<td>147,500</td>
<td>118,900</td>
<td>125,000</td>
<td>42,700</td>
</tr>
<tr>
<td>1961</td>
<td>420,700</td>
<td>142,000</td>
<td>117,500</td>
<td>126,200</td>
<td>35,000</td>
</tr>
<tr>
<td>1962</td>
<td>323,900</td>
<td>93,800</td>
<td>94,300</td>
<td>102,500</td>
<td>33,300</td>
</tr>
<tr>
<td>1963</td>
<td>315,800</td>
<td>94,000</td>
<td>93,700</td>
<td>100,100</td>
<td>28,000</td>
</tr>
<tr>
<td>1964</td>
<td>318,400</td>
<td>92,600</td>
<td>92,800</td>
<td>105,000</td>
<td>28,000</td>
</tr>
<tr>
<td>1965</td>
<td>305,100</td>
<td>90,900</td>
<td>92,300</td>
<td>119,100</td>
<td>2,800</td>
</tr>
<tr>
<td>1966</td>
<td>302,900</td>
<td>90,000</td>
<td>90,800</td>
<td>120,900</td>
<td>1,200</td>
</tr>
<tr>
<td>1967</td>
<td>294,400</td>
<td>88,400</td>
<td>91,400</td>
<td>114,100</td>
<td>500</td>
</tr>
</tbody>
</table>

* Total for 1945 includes prisoners of war and volunteers.
# Almost entirely Mexican Nationals.

All of these mutually reinforcing conditions led to the demise of the once-thriving olive industry in the San Fernando Valley. By the end of the 1950's, the Valley was finished as a significant agricultural region. The landscape had been transformed from rural-agricultural to a sprawling, intermingled hodge-podge of residential, industrial and commercial uses. In the process of transformation, it had literally pushed the olive industry right out of the Valley.

Summary

From a successful outgrowth of Franciscan mission agriculture in the 18th century to its waning existence almost two centuries later, the olive has indeed had an impact on the scheme of man's pattern of habitation in the San Fernando Valley.

An historical geographic approach has been employed to examine the olive industry in the San Fernando Valley in an attempt to delineate the mutual relationships which existed between the industry and the Valley throughout the period when olive production was considered a viable endeavor. The olive has obviously played an important role in the cultural and economic geography of the Valley, but, then too, the Valley itself was beset with a number of various conditions which have correspondingly affected the success of the olive industry in that region.

In summary, the decline of the olive industry was
basically the result of four main factors. First, a steady in-flow of people whose demand for residential housing, and the associated commercial and industrial development, caused a persistent encroachment of urban activities into the olive district. The second condition which caused the demise of the olive industry was an increase in the valuation of orchard lands as the demand for new land for housing increased; thus, the growers were prompted to sell their holdings and realize handsome profits. A third reason for the demise was the non-availability of low-wage physical labor which disappeared when the Bracero Program was terminated in 1964, a situation that considerably raised the growers' operating costs. The fourth factor involved a study at the agricultural experiment station at Davis, California, where it was determined that the Valley possessed a climatic regime which was never really conducive to quality olive growth in the first place.

The combined pressure of these factors over the past several decades has certainly caused the deterioration of the once-flourishing olive industry in the San Fernando Valley.

As a result, the geographic concentration of olive acreage has changed considerably from the 19th to the 20th century. Although important in earlier years, olive acreage has tended to become concentrated in those parts of California's inland valleys subject to winter chilling and warm, fog-free summers.
FOOTNOTES FOR CHAPTER 5


3. Ibid.


9. Claude B. Hutchinson (ed.), *California Agriculture* (Berkeley: University of California Press, 1946), p. 41. Part of the census returns were lost.


12. Ibid., p. 33.


14. It was found that oils derived from sesame, cottonseed, poppy and coconut, for example, were being added.
to the olive oil by the foreign exporters.


16. As estimated by the county assessors (Hutchinson, *California*, p. 230).


21. Today, no orchards are planted solely for the produc­
tion of olives for oil alone. Olive oil production in California is largely a salvage operation, utiliz­
ing small, cull, or frozen and shrivelled fruits.


23. California Agricultural Experiment Station, *A History of Subtropical Fruits and Nuts in California* (Berke­


30. David W. Lantis, *California--Land of Contrast* (Bel­

32. The City of San Fernando relied on its own economic base as a market center for agriculture and livestock produced in the San Fernando Valley; however, in the early 1960's, the 51st State Agricultural District (which included a portion of the valley) was abolished, and the City of San Fernando became a true suburb of the City of Los Angeles (Louis Guzman, "The San Fernando Valley," Day Tours: Geographical Journeys in the Los Angeles Area, edited by Glenn Cunningham (Palo Alto: Pacific Books, Pub., 1964), p. 64).

33. These percentages and those to follow are only estimates by the author, for there is no agricultural census data available which make this sort of delimitation. Each land use type was cut out and weighed on a Mettler H31 analytical balance and then divided by the total weight of the individual pieces to determine the individual percentages.


35. The author conducted a personal interview with Mr. Ralph Fusano of Fusano and Sons, Inc. on November 30, 1971.


CHAPTER 6
CONTEMPORARY OLIVE PRODUCTION IN CALIFORNIA

Venerable groves of olives still stand in the foothill region around Sylmar in the San Fernando Valley, serving as a living reminder of an important period in the Valley's agricultural past. Cristo Fusano & Son's olive packing and processing plant on San Fernando Road is the last evidence that the olive was ever of any commercial importance in the valley area. Olives have not been commercially harvested in the San Fernando Valley since 1967.1 Olive production has moved out of the San Fernando Valley and into the inland valleys of the State.

Distribution

Nowadays, the important olive producing areas are located in the Sacramento and San Joaquin Valleys, which, because of relatively cold winters and warm, fog-free summers, are more suitable for olive production than the coastal plains and valleys of the State. Figure 1 depicts the relative change in geographic concentration of olive-bearing acreage in California from 1930 to 1967, a trend which still persists today. In addition, Maps XVIII through XXIII show the distribution of olive cultivation from 1920 to 1972.

Currently, in the San Joaquin Valley, Tulare County alone accounts for about one-third of the State's total acreage, while Butte and Tehama County, both located in the
Regional Distribution of Total California Olive Bearing Acreage, 1930-1967

Figure 1

DISTRIBUTION OF OLIVE ACREAGE
IN CALIFORNIA, 1920

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

DISTRIBUTION OF OLIVE ACREAGE IN CALIFORNIA, 1930

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

DISTRIBUTION OF OLIVE ACREAGE IN CALIFORNIA, 1940

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

Source: California Dept. of Agriculture, Crop and Livestock Reporting Service, Acreage Estimates of California Fruit and Nut Crops—By Counties, 1919-55.)
DISTRIBUTION OF OLIVE ACREAGE IN CALIFORNIA, 1950

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)


MAP XXI
DISTRIBUTION OF OLIVE ACREAGE IN CALIFORNIA, 1964

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

DISTRIBUTION OF OLIVE ACREAGE
IN CALIFORNIA, 1972

1 dot = 100 acres

(Note: The location of dots within each county is based upon county statistics and the distribution pattern depicted in California Agricultural Experiment Station Extension Service Circular 540, October, 1966.)

Source: California Dept. of Agriculture, Fruit and Nut Acreage, Bearing and Non-Bearing as of 1972 (Sacramento, 1972)
Sacramento Valley region, contain another one-third. Most of the remaining acreage is scattered throughout the Central Valley region.

Generally, total olive acreage (bearing and nonbearing) in California has held fairly constant at around 30,000 acres since 1919; however, during the four-year period from 1969 to 1972 there were about 13,750 trees planted, and this should appreciably increase harvest yields by 1980.

Production

The yields from commercial olive harvests in California have fluctuated widely throughout the past. In part, this is due to an inherent characteristic of olive trees to bear profusely in alternate (or near-alternate) years. Climate is the other main factor controlling the variability of annual olive yields, with unseasonable frosts having the greatest effect on the size of the harvest. In 1972, for example, a year which was normally considered to be an off year in the alternate bearing cycle of olives, state-wide production was further hampered by unseasonable frosts in March and October, which trimmed the size of the harvest to about 24,000 tons—about one-half the size of the 1971 harvest.

Of the 58 counties in California, all but 19 are olive producers. Table 8 shows the five leading olive-producing counties in California for selected years from 1909 to
<table>
<thead>
<tr>
<th>Year</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
</tr>
</thead>
<tbody>
<tr>
<td>1909</td>
<td>San Diego</td>
<td>Butte</td>
<td>Los Angeles</td>
<td>Riverside</td>
<td>Santa Barbara</td>
</tr>
<tr>
<td></td>
<td>(1,275)</td>
<td>(1,121)</td>
<td>(775)</td>
<td>(641)</td>
<td>(638)</td>
</tr>
<tr>
<td>1930</td>
<td>Tulare</td>
<td>Butte</td>
<td>Fresno</td>
<td>Los Angeles</td>
<td>Sacramento</td>
</tr>
<tr>
<td></td>
<td>(7,519)</td>
<td>(3,537)</td>
<td>(1,934)</td>
<td>(1,827)</td>
<td>(1,501)</td>
</tr>
<tr>
<td>1950</td>
<td>Tulare</td>
<td>Butte</td>
<td>Tehama</td>
<td>Glenn</td>
<td>Sacramento</td>
</tr>
<tr>
<td></td>
<td>(9,870)</td>
<td>(6,158)</td>
<td>(4,281)</td>
<td>(1,398)</td>
<td>(1,380)</td>
</tr>
<tr>
<td>1954</td>
<td>Tulare</td>
<td>Butte</td>
<td>Tehama</td>
<td>Fresno</td>
<td>Glenn</td>
</tr>
<tr>
<td></td>
<td>(12,422)</td>
<td>(7,161)</td>
<td>(4,529)</td>
<td>(1,612)</td>
<td>(1,163)</td>
</tr>
<tr>
<td>1959</td>
<td>Tulare</td>
<td>Butte</td>
<td>Madera</td>
<td>Tehama</td>
<td>Fresno</td>
</tr>
<tr>
<td></td>
<td>(26,941)</td>
<td>(8,324)</td>
<td>(5,007)</td>
<td>(4,327)</td>
<td>(2,123)</td>
</tr>
<tr>
<td>1964</td>
<td>Tulare</td>
<td>Tehama</td>
<td>Butte</td>
<td>Madera</td>
<td>Glenn</td>
</tr>
<tr>
<td></td>
<td>(26,810)</td>
<td>(6,652)</td>
<td>(5,383)</td>
<td>(3,266)</td>
<td>(2,056)</td>
</tr>
<tr>
<td>1969*</td>
<td>Tulare</td>
<td>Butte</td>
<td>Tehama</td>
<td>Glenn</td>
<td>Kings</td>
</tr>
</tbody>
</table>

* Source gave only relative rankings for 1969—no production figures.

1969. Tulare County, with 34 per cent of total statewide production, Butte County with 15 per cent, and Tehama County with 14 per cent are the leading olive-producing centers in California today.

Although olive production ranks ninth in bearing acreage among the many different crops raised in California, the State's production accounts for less than one per cent of the total world production.

**Uses of Olive Fruit**

California's commercial olive crop is processed in several different ways, but currently the industry is primarily based upon the production of canned black-ripe and green-ripe olives, which represents about 75 per cent of the olives harvested (Table 9).

No orchards are planted strictly for the production of olive oil at this time because California is still unable to produce oil as cheaply as Mediterranean countries (chiefly Spain and Italy). California supplies only about six per cent of the olive oil consumed in the United States.

The other important type of olive commercially retailed in the United States is the Spanish green. These are usually Manzanillo or Sevillano olives that have undergone a fermentation process which produces a sharp, vinegary taste. However, California supplies only about 10 per cent of the Spanish green olives consumed in this country--most of the remaining 90 per cent is imported from Spain.
<table>
<thead>
<tr>
<th>Year (in tons)</th>
<th>Canning</th>
<th>Oil</th>
<th>Greeks†</th>
<th>Sicilians §</th>
<th>Green</th>
<th>Fresh</th>
<th>Other* Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951 42,000</td>
<td>24,900</td>
<td>9,700</td>
<td>1,400</td>
<td>1,200</td>
<td>2,600</td>
<td>200</td>
<td>2,000</td>
</tr>
<tr>
<td>1952 64,000</td>
<td>33,300</td>
<td>22,400</td>
<td>1,300</td>
<td>1,300</td>
<td>3,300</td>
<td>600</td>
<td>1,800</td>
</tr>
<tr>
<td>1953 57,000</td>
<td>24,400</td>
<td>23,400</td>
<td>1,000</td>
<td>900</td>
<td>4,500</td>
<td>900</td>
<td>1,900</td>
</tr>
<tr>
<td>1954 28,000</td>
<td>16,900</td>
<td>5,200</td>
<td>900</td>
<td>300</td>
<td>2,100</td>
<td>400</td>
<td>2,200</td>
</tr>
<tr>
<td>1955 50,000</td>
<td>29,400</td>
<td>11,500</td>
<td>1,200</td>
<td>1,000</td>
<td>4,400</td>
<td>700</td>
<td>1,800</td>
</tr>
<tr>
<td>1956 36,000</td>
<td>26,700</td>
<td>3,900</td>
<td>400</td>
<td>400</td>
<td>2,700</td>
<td>200</td>
<td>1,700</td>
</tr>
<tr>
<td>1957 70,000</td>
<td>38,200</td>
<td>17,800</td>
<td>1,400</td>
<td>1,700</td>
<td>7,400</td>
<td>1,200</td>
<td>2,300</td>
</tr>
<tr>
<td>1958 37,000</td>
<td>25,900</td>
<td>3,100</td>
<td>700</td>
<td>1,000</td>
<td>3,800</td>
<td>300</td>
<td>2,200</td>
</tr>
<tr>
<td>1959 68,000+</td>
<td>33,800</td>
<td>21,300</td>
<td>900</td>
<td>1,100</td>
<td>6,400</td>
<td>600</td>
<td>1,900</td>
</tr>
<tr>
<td>1960 27,000</td>
<td>20,400</td>
<td>2,300</td>
<td>600</td>
<td>1,500</td>
<td>6,400</td>
<td>800</td>
<td>1,600</td>
</tr>
<tr>
<td>1961 66,000</td>
<td>44,300</td>
<td>7,800</td>
<td>900</td>
<td>1,500</td>
<td>6,400</td>
<td>800</td>
<td>1,600</td>
</tr>
<tr>
<td>1962 44,000</td>
<td>26,100</td>
<td>7,800</td>
<td>700</td>
<td>1,000</td>
<td>6,000</td>
<td>700</td>
<td>1,700</td>
</tr>
<tr>
<td>1963 52,000</td>
<td>37,700</td>
<td>5,700</td>
<td>500</td>
<td>700</td>
<td>5,000</td>
<td>600</td>
<td>1,800</td>
</tr>
<tr>
<td>1964 57,000</td>
<td>39,100</td>
<td>7,500</td>
<td>700</td>
<td>1,700</td>
<td>4,600</td>
<td>600</td>
<td>2,800</td>
</tr>
<tr>
<td>1965 54,000</td>
<td>37,500</td>
<td>6,200</td>
<td>800</td>
<td>1,100</td>
<td>4,900</td>
<td>700</td>
<td>2,800</td>
</tr>
<tr>
<td>1966 50,000</td>
<td>37,800</td>
<td>3,800</td>
<td>400</td>
<td>1,000</td>
<td>3,100</td>
<td>700</td>
<td>3,200</td>
</tr>
<tr>
<td>1967 63,000</td>
<td>45,500</td>
<td>4,800</td>
<td>800</td>
<td>1,100</td>
<td>6,700</td>
<td>600</td>
<td>3,500</td>
</tr>
<tr>
<td>1968 14,000</td>
<td>10,230</td>
<td>1,470</td>
<td>140</td>
<td>270</td>
<td>800</td>
<td>200</td>
<td>890</td>
</tr>
<tr>
<td>1969 86,000</td>
<td>62,800</td>
<td>4,600</td>
<td>500</td>
<td>1,500</td>
<td>6,500</td>
<td>400</td>
<td>9,700</td>
</tr>
<tr>
<td>1970 70,000</td>
<td>51,700</td>
<td>5,200</td>
<td>600</td>
<td>1,500</td>
<td>6,600</td>
<td>400</td>
<td>4,000</td>
</tr>
</tbody>
</table>

* Includes chopped and other processes, and estimated tonnage used on farms where grown.
† Includes 2,000 tons not harvested.
‡ A Style of curing olives developed by the Greeks.
§ A style of curing olives developed by the Silsilians.

Projection for Future Growth of the Olive Industry

Agricultural economists at the University of California at Davis have projected that in 1980 California olive production will reach 62,000 tons per year and increase to 80,000 tons annually by the year 2000, which is a sizeable increase over the current annual average of roughly 51,000 tons. Further projections of acreage, production and yields per acre for the years 1980 and 2000 appear in Table 10.

<table>
<thead>
<tr>
<th>Year</th>
<th>Production Bearing Nonbearing Total (in tons)</th>
<th>Yield per Acre (in tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>52,000 tons 27,590 10,360 37,950 1.11</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>62,000 tons 34,066 4,681 38,747 1.82</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>80,000 tons 36,866 5,065 41,931 2.17</td>
<td></td>
</tr>
</tbody>
</table>


The projection, then, is for continued growth of the California olive industry up to the year 2000, based upon the production of black- and green-ripe olives.

In another vein, the author anticipates that the olive tree will continue to be incorporated into California landscaping themes, thus providing a picturesque cultural link between future patterns of habitation and those of the days.
of early Spanish California, when olive culture was first introduced by the Franciscan missionaries.

Summary

Contemporary commercial olive production in California is the outgrowth of 200 years of experimentation and refinement of the harvesting, processing, preservation, and marketing techniques employed in that industry. Sophistication of the canning process in 1910 can be cited as the single-most important technological advancement that contributed to the ultimate success of the olive industry in the State.

After a slow but impressive beginning of olive culture in the Franciscan missions situated among the plains and valleys of California's coastal ranges, the industry worked its way into the present-day production areas of the inland valleys of the State. The San Joaquin and Sacramento valleys presently produce the vast majority of olives commercially harvested in the State.

Olive bearing acreage and yields per acre have increased in recent years, and it is projected by agricultural economists that the olive industry will continue to experience economic growth at least until the year 2000. This growth is primarily based upon the production of black- and green-ripe olives, which have proven to be quite popular with consumers throughout the nation since the turn of the twentieth century.
FOOTNOTES FOR CHAPTER 6

1. Interview with Mr. Ralph Fusano on November 30, 1971. It seems that the only reason that olives were harvested in 1967 was because it was a lean year throughout the state; thus, it became economically feasible to harvest olives wherever they were available, for the reduced supply the following marketing year would command an increase in olive prices which would offset the added cost to harvest the fruits.


4. Los Angeles Times, November 15, 1972; Part III, p. 16.


6. It should be noted that changes in county boundaries which occurred between 1907 and 1919 tend to skew the county rankings during that time. Butte County, for example, annexed part of Glenn County in 1915. However, it is doubtful that these boundary changes would significantly affect the ranking of the top five olive-producing counties. For further information regarding the boundary changes occurring between 1907 and 1919, consult U.S. Bureau of the Census, Fourteenth Census of the United States: 1920, Vol. II, Part 3, California (Wash., D.C.: G.P.O., 1922), p. 281.


9. California produces more than 99 per cent of the olives grown in the United States, but the average yield of 56,600 tons produced between 1960 and 1964 accounted for only 0.7 per cent of world production (Ibid., pp. 4-5).

CHAPTER 7
SUMMARY AND CONCLUSIONS

The fact that the olive has been cultivated on a commercial scale in the San Fernando Valley—a region where the olive tree is not indigenous—has provoked an extensive search for the actual path of diffusion of this fruit in an attempt to establish a chronological sequence of events which connect the olive industry in the San Fernando Valley with the place of origin in the eastern Mediterranean.

A study of this type proves not only to be interesting, but provides us with a better understanding of the presence of certain vestigial elements in the contemporary cultural landscape.

Using a chronological approach, the paper began with a discussion of notable proposals regarding the origin of olive cultivation. Several scholars have theorized that the eastern Mediterranean is the place of origin. Archaeological evidence of olive stones in Palestine dating back to the 4th millennium B.C. and agricultural villages in the Levant dating back to the 7th millennium B.C. serve to reinforce the assumption that olive cultivation originated in the eastern Mediterranean.

The author suggests that olive cultivation was carried to the mid-Mediterranean region as a part of the cultural baggage of Neolithic people diffusing out of the Near Eastern agricultural hearth. Examination of the literature
written by geographers, historians, anthropologists and paleobotanists revealed that olive cultivation was probably diffused both along the northern and southern shores of the Mediterranean during the third through the first millennium B.C., and was finally introduced into the Iberian peninsula by the seafaring Phoenicians in about 1000 B.C.

Olive cultivation became a viable and valuable economic resource for the inhabitants of Iberia, and in the fifteenth century this agricultural practice was transported to the New World by the agriculturalists who sailed with Columbus. A rather comprehensive perusal of the literature written about plant and animal diffusion in Spanish America gave only disjointed clues as to the actual route of diffusion for olive cultivation in the New World. Thus, the best evidence of the actual diffusion route from the West Indies into California came through an examination of the many locations of Spanish settlements between these two points, along with the chronology of their establishment. This writer observed that, prior to its introduction into California, the olive never displayed the same popularity and omnipresence in the New World as was the case throughout the Old World source area. Basically, this can be attributed to a climatic difference between the Mediterranean region and that of Middle America, but, in addition, there is also the fact that cultivation of the olive (and other tree crops for that matter) was of only secondary concern in the struggle for survival in this new land--grain farming and livestock
raising received primary attention in the latter years of Spanish expansion through the northern Mexican mainland and Baja California.

Although many scholars feel that the olive was introduced into California in 1769 through the Franciscan mission at San Diego, the author failed to find any substantive data to support the fact that olives were successfully introduced into California prior to 1774, when the San Diego mission was relocated to its present position. The author feels that olive seeds from San Blas were planted at the new mission site in 1774, or shortly thereafter.

By 1801, the practice of olive cultivation had diffused throughout the chain of Franciscan missions in California, which were established at selected sites among the fertile valleys and alluvial plains along the coastal mountain ranges of the State.

One of these coastal valleys—the San Fernando Valley—was chosen by the author as a focus for a detailed case study to determine the impact olive cultivation had on the pattern of sequential habitation in this region. An historical geographic approach was used to show the importance and distribution of this agricultural activity through time. The Sylmar Grove, locally proclaimed to be the largest olive grove in the world during the period from about 1910 to 1925, was probably, in reality, no larger than some of the contiguous Mediterranean groves.

Although the San Fernando Valley supported the large
Sylmar Grove and a few allied packing houses to process the fruit, the industry was concentrated in the northeastern sector of the Valley and had only a minor influence upon the total agricultural production of this region. Olive production in the San Fernando Valley never really approached the proportions attained in the inland valleys of the State.

Geographic concentration of olive acreage has had an historic change from the early sites chosen by the Franciscan padres to the contemporary locations in the Sacramento and San Joaquin Valleys which have been scientifically proven to be preferable olive-producing areas. It is expected that the olive industry will continue to grow and thrive in these areas at least until the year 2000.
BIBLIOGRAPHY


Alta California Daily. August 22, 1858.


Carter, Charles Franklin (trans.). "Duhaut-Cilly's Account of California in the Years 1827-28," *Quarterly.*


Santa Barbara: The Schauer Printing Studio, 1929.
92 pp.


Hartmann, H.T. "Effect of Winter-Chilling of Fruitfulness and Vegetative Growth in the Olive," Proceedings,


Los Angeles County Horticultural Commissioner. *Fruit Crop Acreage, Los Angeles County*. 1919, 1922-23.


Reed, Howard S. "Major Trends in California Agriculture," *Agricultural History,* Vol. XX, No. 4 (October, 1946), Pp. 252-55.


PERSONAL INTERVIEWS

Mr. John Nelson, Assistant Curator, Presidio Museum of Natural History, San Diego, California, September 2, 1971.


Mr. John Griggs, Librarian, The Lloyd Library, Cincinnati, Ohio, October 14, 1974.