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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

AN ECONOMIC HISTORY OF THE IMPERIAL VALLEY
OF CALIFORNIA TO 1971

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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AN ECONOMIC HISTORY OF THE IMPERIAL VALLEY
OF CALIFORNIA TO 1971

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ABSTRACT

The economic development of the Imperial Valley of California is unique in the history of agricultural areas in the United States. Blessed with a virtual 365 day growing season, an abundance of water diverted from the Colorado River via the All-American Canal and a series of irrigation channels, and a reliable labor supply from Mexico, Imperial County annually ranks in the top five counties in the United States in terms of value in agricultural production.

There is an optimal size of an agricultural unit in the Imperial Valley depending on what the individual farm produces. The Federal Reclamation Act of 1902, however, placed a 160 acre land limitation on all farms receiving water from Federally sponsored reclamation projects throughout the United States. Since water was available in the Imperial Valley from the Alamo Canal before 1902, the Act of 1902 was never seriously enforced there, although throughout the years, several attempts were made to enforce it.

A 160 acre farm in the Imperial Valley is far from being large enough to realize economies of scale, regardless of what is produced on the farm. A sizeable number of studies by prominent agricultural experts have demonstrated that economies of scale exist for most operating agricultural units of more than 1,500 acres. Depending on the quality of land, some crop and livestock operations do not become economically optimal until they reach approximately 2,500 acres.

In 1933 the U. S. Department of Interior, when pressed for an opinion regarding the applicability of the 160 acre land limitation law to the Imperial Valley ruled that the Act of 1902 did not apply. In 1964 the Department reversed itself and the controversy was not settled until 1971 when a United States Federal District Court decided that due to a long period of non-enforcement, the 160 acre limitation did not apply to the Imperial Valley.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	ix
LIST OF CHARTS	xi
LIST OF FIGURES	xii
Chapter	
I. INTRODUCTION	1
II. A BRIEF HISTORY OF THE IMPERIAL VALLEY	10
Land Policies in Colonial America	13
Effect of Revolutionary War	14
Early Policy of Disposing of the Public Domain.	15
The Land Acts, 1796-1862	17
Irrigating the Imperial Valley	20
The Aftermath of the 1902 Reclamation Act	25
Early Legal Tests of the 160 Acre Land Controversy	27
Labor in the Imperial Valley	28
Factors Contributing to Unity Among Mexicans and Mexican Americans	30
The Effects of a Changing Agricultural Technology	32
Problems With Mexico	34
Problems With Excess Salt in the Imperial Valley	35
Electric Power in the Imperial Valley	38
A Drive to Consolidation of Power Countries	43
III. A LEGAL HISTORY OF THE 160 ACRE LAND LIMITA- TION POLICY AS IT APPLIES TO THE IMPERIAL VALLEY OF CALIFORNIA	50
The Federal Reclamation Act of 1902	50
Attempts to Monopolize and Speculate in Land	52

Section 4 of the Act of 1902	52
Section 5 of the Act of 1902	53
Early Administration of The Act of 1902	55
An Early Modification of The Act of 1902.. . . .	56
The Fall-Davis Report of 1922	57
Other Notable Events in 1922	58
The Omnibus Adjustment Act of 1926	60
Section 45	60
Section 46	61
Early Problems in Interpretation of Reclamation	63
The Emergence of Two Philosophies Concerning Land Limitation on Federal Reclamation Projects	64
The Boulder Canyon Project Act of 1928	64
The Wilbur Letter	68
The Malan Case	73
Findings of Fact and Conclusions of Law	74
Finding No. 2	74
Finding No. 31	74
Finding No. 35	74
Finding No. 38	75
Conclusion XI of Malan Act	75
The State of Arizona, Complainant vs. Imperial Irrigation District et al, Defendants, United States of America, Intervenor, State of Nevada, Intervenor, The Supreme Court of the United States	76
Arizona's Position in the Case	77
The Barry Opinion	79
The United States of America, Plaintiff, vs. the Imperial Irrigation District of California, Defendant, The State of California, Intervening Defendant	82
IV. AN ANALYSIS OF SELECTED ECONOMIC INSTITUTIONS IN THE IMPERIAL VALLEY, CALIFORNIA	87
Labor	87
The International Commuter Phenomenon	88
Population and Labor Force	90
The Role of Mechanization	94
The Farm Family.	95
Attempts to Organize or Unionize Farm Workers in the Imperial Valley	95
Employment Trends	113
Agriculture	114
Non-Agriculture	115
Employment Outlook	116

The Market Faced by the Imperial Valley	
Farmer	116
The Controversy Involving Electrical	
Rates	118
The Imperial Irrigation District's	
Response to Criticisms of Electrical	
Rate Irregularities	121
Electric Power Rates--General	121
Electric Power Rates--Agricultural	122
Absentee Landowners	124
Cost of Electricity if Hydro-Generations	
Were Not Available	124
The Property Structure	125
Types of Land Ownership	127
Private Individual and Corporation	
Ownership	129
Ownership and Quality of Land	130
V. AN ECONOMIC JUSTIFICATION FOR ABANDONING THE	
160 ACRE LAND LIMITATION LAW IN THE IMPERIAL	
VALLEY OF CALIFORNIA	133
The Growth of Large and Corporate Farming.	133
Agricultural in the United States Today.	134
Labor	135
Capital	135
Capital and Credit Use in Agriculture	137
Closely Held and Publicly Held Farm	
Corporations	138
Factors Influencing Agricultural Invest-	
ment	140
The Southern California Situation	144
Report of the Governor's Task Force	146
Theoretical Concepts Concerning Risk	147
Transfer of Risk Through Contractural	
Arrangements	153
A Summary of the Carter-Dean Study	157
Sources of Data	162
A Summary of the Johnston Study	167
Objectives	169
Sources of Data	171
Empirical Analysis of Economies of Size	
With Fixed Rotations	180
Variable Costs of Production	182
Capacity of Farm Operations	183
Cost-Size Relationships	186
The Author's Investigation in 1971	189
VI. SUMMARY AND CONCLUSIONS	204

Chapter	Page
Conclusions	212
Major Problems and Deficiencies	212
Potentials for Economic Development	214
BIBLIOGRAPHY	219

LIST OF TABLES

Table	Page
1. Civilian Work Force Participation by Persons 14 and Over, 1970.....	96
2. Unemployment Rates, 1960-1969.....	97
3. Years of School Completed For Persons 25 Years and Over, 1970.....	98
4. Estimated Age Distribution of Braceros in Imperial County As of April 1, 1960.....	99
5. Mexican Border Crossers to the Imperial Valley From Mexicali, Mexico.....	100
6. Characteristics of Persons of Spanish Surname, 1968, Imperial County.....	101
7. Age By Sex, Imperial County Total, 1970.....	102
8. Population By Census Division and Community, Imperial County.....	103
9. Components of Population Change.....	104
10. County of Imperial, Selected Population Characteristics.....	105
11. County of Imperial, Selected Population Characteristics.....	106
12. Annual Average Total Civilian Work Force, Employment and Unemployment.....	107
13. Family Income in 1959.....	108
14. Electrical Rates Charged to Dr. Ben Yellen By the Imperial Irrigation District Compared to Rates Which Would Have Been Charged By Other Area Utility Cos.....	123

Table	Page
15. Percentage of Ownerships in Each Group and Acreages, By Type of Crop, and By Type of Ownership, Imperial Valley.....	128
16. Summary of Useable Farm Schedules, By Size Group and Type of Farm, Obtained in Imperial Valley, 1960.....	168
17. Number of Farms, By Size Groups, Imperial Valley Farm Operations, Survey, 1967.....	175
18. Land Rents Paid by Sample Farms, Imperial Valley, 1966.....	177
19. Average Distribution of Land By Farm Size Group, Imperial Valley, 1966.....	179
20. Capacity to Expand Acreage With Present Machinery and Use of Custom Services, Imperial Valley, 1966.....	181
21. Variable Costs of Crop Production per Acre, Imperial Valley, 1966.....	184
22. Nonland Costs of Production and Returns to Land, Imperial Valley Cash-Crop Farms, Fixed Rotations.....	187
23. Million Dollar Crops in the Imperial Valley, 1965.....	190
24. Average Total Production Costs Per Acre For Cotton in the Imperial Valley of California, Selected Years.....	191
25. Average Total Production Costs Per Acre For Lettuce in the Imperial Valley of California, Selected Years.....	192
26. Percentage Distribution of Number of Farms, Cash Receipts, Production Expenses and Realized Net Income By Value of Sales Classes, Selected Years.....	194
27. Agricultural Statistics of the Imperial Valley.....	195
28. 1968 ASCS And Great Plains Program Payments of \$5,000 or More Excluding Price Support Loans and Wool and Sugar Payments.....	198

LIST OF CHARTS

Chart	Page
1. Major Farm Inputs As A Percentage of Total Inputs	136

LIST OF FIGURES

Figure	Page
1. Approximate Area of Study	136
2. Variance of Net Income	150
3. Hypothetical Short-Run and Long-Run Average Unit Cost Curves for Farms of Different Sizes in the Imperial Valley of California	160
4. Average Total Cost Curves For Each Machinery Combination and Envelope or Planning Curve (Owner-Operator, Vegetable Crop Farm). . .	164
5. Average Total Cost Curves For Each Machinery Combination and Envelope or Planning Curve (Owner-Operator, Field Crop Farm). . .	166

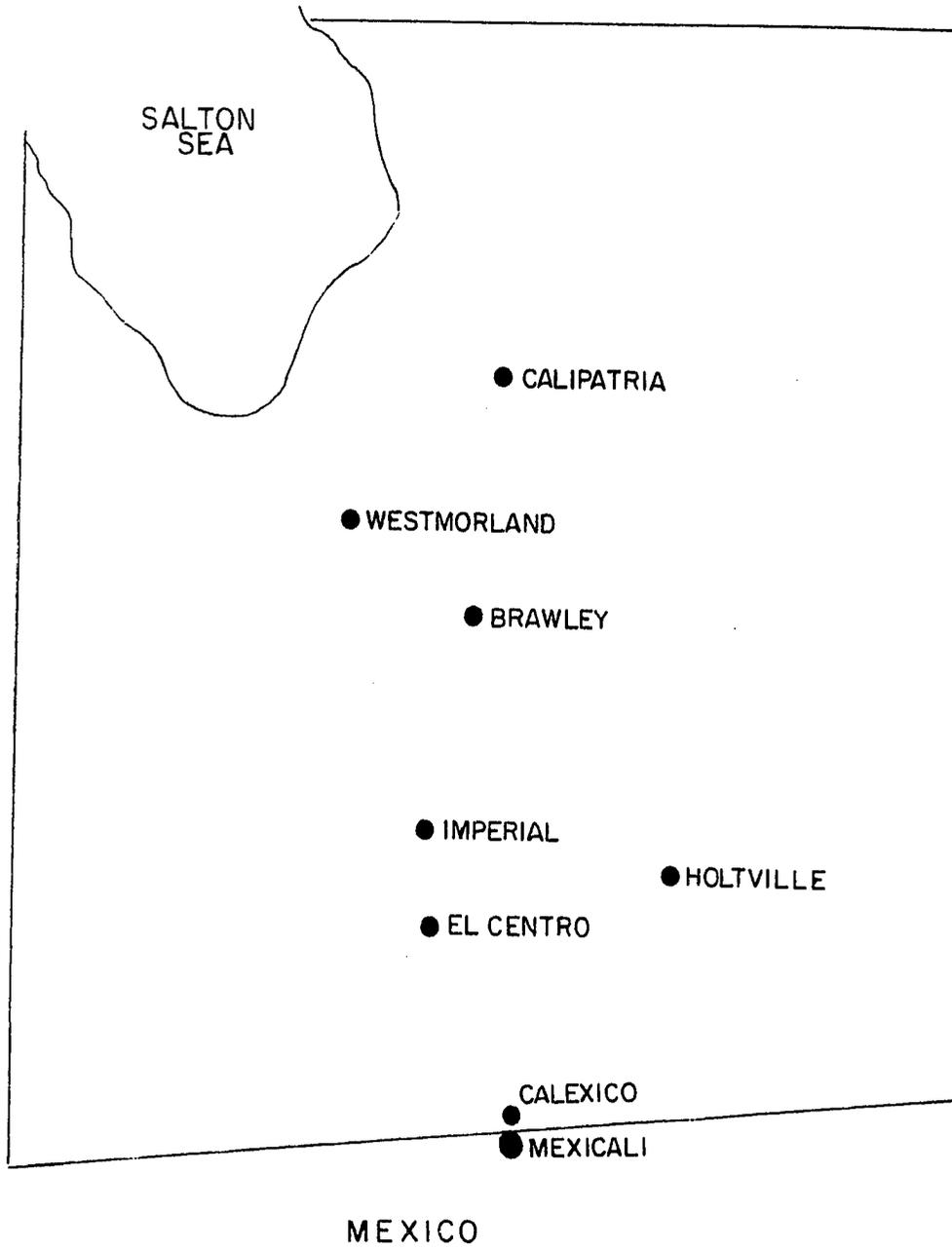
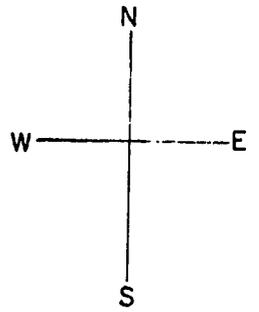
CHAPTER I

INTRODUCTION

The purpose of this study is to provide an economic history and evaluation in agricultural growth and development of the Imperial Valley of California. The Imperial Valley lies between the Mexican boundary and the Salton Sea bounded on the east by the sandhills at the Arizona border and on the west by the barren foothills of the San Diego Mountains. Figure 1 shows the geographic area of this study.

As an agricultural area the valley is unique for three important reasons. In the first place, the region is completely dependent on water supplied by the federal government through a system of irrigation canals which divert water from the Colorado River. Secondly, with the availability of water, the valley is blessed with a 365 day growing season which enables it to rank in the top five counties in the United States in terms of value of agricultural production per year. Thirdly, there is an abundant and reasonably cheap labor supply provided largely by Mexican-Americans and Mexicans. Although mechanization has been steadily changing the production

FIGURE 1
Approximate area of study



function from labor intensive to capital intensive, there are numerous crops which still require large amounts of human labor.

There is, however, a very significant aspect of agriculture in the area that is not only unique, it provides an excellent image of a long developing trend in the United States agricultural history. This trend is that of concentration--the tendency for fewer and fewer farms to provide more and more of the total agricultural output. Today something around 2.5 per cent of all farms produce more than the bottom 80 per cent. Small farmers are exiting agricultural careers in great numbers leaving land which is gobbled up by the larger units which have economies of scale. This type of activity, though, has been somewhat frustrated in the valley due mainly to attempts by various persons and organizations through the years to enforce federal land limitation laws.

The basic reclamation law was adopted by Congress in 1902, for the primary purpose of encouraging and facilitating the settlement and development of the vast areas of public lands in the arid and semi-arid regions of the Western States. The act provided for the development of irrigation water supplies and for the sale of such water to the settlers on the land. Taking a precedent from the homestead laws, the act provided that no person could make a permanent entry upon public land within any reclamation

project in excess of the acreage limit to be established by the Secretary of the Interior. The acreage which, in the opinion of the Secretary, would be reasonably required for the support of a family was set at 160 acres in 1902. This limit was adequate at the time given the ability of farmers and the available agricultural technology. Failure to enforce the law in the early years in the Imperial Valley has created a host of economic and legal problems in the latter years.

The methodology for this study includes extensive library research, the gathering of numerous public and private documents and a series of personal interviews obtained during a trip to the Imperial Valley during the summer of 1971. The study cuts across several highly related disciplines including sociology, law, political science and economics and insofar as separation of these is possible, the paper will concentrate mainly on economics. The organization will consist of six chapters and appendices.

Chapter II will present a general history of the area from 1539 when Francisco de Ulloa sailed into what is now the Gulf of California to 1971. Early attempts at irrigation will be described as will the resulting successes and failures including problems with Mexico over the diversion of Colorado River water, the construction of the All-American Canal as authorized under the Boulder Canyon Project Act of 1928, and the decision of the Imperial

Irrigation District to go into the electrical power business by means of an elaborate system of power generating dams along the Canal.

Chapter III will develop the legal history of the 160 acre land limitation insofar as the Imperial Valley is concerned. Major emphasis will be on the Wilbur letter (Ray Lyman Wilbur was U. S. Secretary of the Interior in 1933) to the Imperial Irrigation District. This letter ruled that the District was not subject to the acreage limitation. The entire legal history, however, and the underlying economic motives, from the Homestead Act of 1862 to final settlement in U. S. District Court in San Diego in January of 1971, will be discussed.

Chapter IV consists of an economic analysis of selected institutions from roughly 1901, when water was first made available to the valley through the Alamo Canal, to 1971. Four major topics will be discussed:

- (1) The labor market: Relations between Mexicans and other alien workers, on the one hand, and American farmers in Southern California, on the other, will be analyzed. Treatment of foreign agricultural workers was, for the most part, very severe. Conditions were poor and pay was extremely low. This situation was very common until Congress passed the "Bracero" Act during World War II. To facilitate the movement of farm labor from Mexico

into the United States, and to relieve to a large extent the deplorable conditions of most Mexican workers, the governments of the two countries entered into an international agreement in 1942. In this agreement the United States acted as prime contractor, subletting its labor contracts to U. S. farm employers. This law gradually became known as the "Bracero" Act and existed until 1964 when it was replaced by the current "Green Carders" system.

(2) The market the farmer faces for his inputs and his output: With vast improvements in transportation the valley farmer has increasingly found himself tied to a market truly national in scope. Many of his crops are duplicated in Arizona, New Mexico, Texas and Florida. His financial success is inexorably intertwined with these areas and subject to vagaries of an aggregate supply and demand and with occasional problems relating to attempts to unionize migrant agricultural workers in the area. On the other hand, the farmers have been faced with the fact that the costs of inputs, particularly capital and land, have been marching relentlessly upward while revenues have been very unstable.

(3) A fight over electrical rates: Since World War II it has been charged by various persons and

groups that many citizens of the valley are being cheated out of money on the grounds that they have been forced, over the years, to pay higher electrical rates than necessary with the excess being used to subsidize water shipments to farmers and in particular large farmers. An analysis of this situation will be offered.

(4) The property structure: An in depth survey will be presented showing types of farm ownership from the small, one man operation to huge corporate farms and also the continuing trend toward largeness. Also examined will be the problems and benefits of absentee owners in the valley.

Chapter V is a crucial chapter. In it an attempt will be made to judge the 160 acre limitation ruling from a purely economic standpoint. In 1962 a study entitled "Cost-Size Relationships for Cash Crop Farms in Imperial Valley, California" was presented by agricultural economists Harold Carter and Gerald Dean. Using a stratified sample of farmers in the valley and a series of empirically developed total cost curves for different crops and different size farms, they convincingly concluded that economies of scale were still present in most farms over 1,000 acres.

While the Carter-Dean study largely concerns itself with returns to management, Warren E. Johnston in a 1971 report used returns to land as a means of showing that

the 160 acre land limitation law is economically unsound. Johnston sampled 31 different farms in five preselected farm size ranges from 1-499 acres to those which had 2,500 acres or more. His conclusions are based on data obtained from these farms which are alleged to be representative of agricultural units in the Imperial Valley.

In the last ten years economists, politicians and other interested groups and individuals have repeatedly charged that monopoly abuses and certain diseconomies of scale offset most economic advantages of the large farms and have called for enforcement of the 160 acre law or at least a revision in the acreage limitation.

In the present study this conflict will be investigated using cost and price data since 1962. Aside from showing that both the Carter-Dean and Johnston studies were largely correct, it will also be shown that large farmers can obtain funds much cheaper than their smaller counterparts. This makes the large scale farms capital structures much more favorable. It is important to note that this paper does not take the position that farms of 160 acres or less cannot support a family despite increasing salinity of the soil, rising costs in general, a dim view of what to expect from the market and difficulty in procuring professional harvesters (also known as custom cutters) when the time is right. These and other problems associated with agriculture keep the relatively small units inefficient

as far as size of acreage is concerned. In order to examine fully the question concerning economies of scale in agriculture, a brief look will be taken at current theoretical and empirical investigations from both sides.

Chapter VI will present conclusions and a look at present problems including the need for new sources of water, the possibility of low cost geothermal power units, the attempts to find new uses for formerly useless land and the new methods to remove the heavy salt content of the soil.

CHAPTER II

A BRIEF HISTORY OF THE IMPERIAL VALLEY

The purpose of this chapter is to present an examination of the Imperial Valley. Those topics and issues which merit additional study will be separately analyzed in later chapters.

The first recorded history of this region begins about 1539 when Francisco de Ulloa, a Spanish navigator, sailed to the head of the Sea of Cortez, now known as the Gulf of California. After Ulloa's discovery came other explorers and Spanish padres, many of whom perished crossing this seemingly useless desert.¹

The majority of the survivors were the Kamia Indians who lived in what is now the Imperial Valley.² They depended on the overflow waters from the Colorado River. This method was not successful, since overflow could not be depended on, and the Indians eventually moved north for a more suitable agricultural climate.

It was across this desolate, waterless waste from Yuma, Arizona, to the mountains just east of San Diego that the Spanish explorer De Anza passed in 1774, searching for a land route from Northern Mexico to Monterey, California.

On this and his several later trips, he and his party suffered tremendous physical and economic hardships in traversing the one hundred or more miles from the Colorado River across the Imperial Valley to the mountains on the west.³

The same hardships were experienced by General Kearny and his army in 1847--some seventy years after De Anza's first trip--in his march through the area to San Diego in order to set up a military outpost. In crossing the desert west of the Colorado, Kearny's forces experienced the great privations. The animals were sometimes without water for up to sixty hours at a time and many of them died of thirst. It was not until the party reached the little stream known as Carisso Creek that the way again became less harsh. By this time, however, both men and beasts were so exhausted that they were in no condition for a serious test of combat.⁴

During the gold rush of 1849 and 1850, thousands passed through the Imperial Valley, and many lives were lost on this treacherous desert; about a decade later, the same route was traveled for several years by the Butterfield Stages en route from St. Louis to San Francisco.⁵ For all of these the trip from Yuma across the Imperial Valley to San Diego was the most feared and considered to be the most hazardous part of the journey.⁶

The purpose in describing these early explorations and inhabitants is to give an idea of the complete desolateness and virtual lack of water in what is now the Imperial Valley. The concensus of opinion at this time was that no one could survive for a long period in this desert wilderness.

About 1850, however, Dr. Oliver M. Wozencraft, a physician, who came to the area from San Francisco, and William P. Blake, later to win international recognition as a geologist and mining engineer, suggested the feasibility of diverting water from the Colorado River to irrigate the region.⁷ Wozencraft did not stop with the suggestion but spent the remaining years of his life vainly seeking to win the financial and political support necessary to make his dream a reality. After his death three men of a younger generation--Charles R. Rockwood, Anthony H. Heber and George Chaffey--overcame a succession of discouraging legal, financial and engineering obstacles to divert a portion of the flow of the Colorado and began the reclamation of the valley by irrigation. Before examining the serious attempts at irrigation of the region, it would be useful at this point to examine the Federal land policies which made the land in Southern California available to settlers. An appropriate starting place is with the land policy existing in Colonial America immediately prior to the outbreak of the War for Independence.

Land Policies in Colonial America

It is somewhat of a paradox, in view of the vast tracts of raw land in Colonial America, that there existed in many of the colonies an oppressive land monopoly. This situation was due, at the outset, to the policy of the English Crown of disposing of the land of the American Continent not to settlers in farm sized tracts, but to proprietors, speculators and Royal favorites in extensive tracts amounting in some instances to entire provinces.⁸ These large holdings in some cases were not subdivided at all, while in other cases they were subdivided not into small family size farms, but into extensive estates which were cultivated by slaves or tenants. These types of farms tended to be mostly in the South because of the climate and geography. The long growing season and the very wide flat coastal plain were beneficial to plantation type farms. Crops such as tobacco, indigo, rice and cotton* lended themselves well to the development of large plantations. Most landed estates in the American Colonies were kept in tact from generation to generation by those relics of feudal law, primogeniture by which property descended to the eldest son and entail, enabling the owner to place restraint upon the alienation of land by his descendents. Vacant lands which were plentiful offered no hope to

prospective farmers since these lands were the property of the Crown and were not open to settlement.⁹

The cumulative effect of these various restrictions was to create and perpetuate a system of land monopoly which made it difficult for the poor to acquire farms and which condemned a large share of the rural population to a perpetual status as farm tenants. This system of land monopoly was undoubtedly the element of English control which the small farmer, the laborer who hoped to become a farmer, and the frontiersman found most objectionable; and with the prospect of confiscation of the Tory estates¹⁰ as an incentive, it is not surprising that these people provided a powerful impetus which finally carried the struggle for independence to a successful close.

Effect of Revolutionary War

As early as 1774 when war cries were becoming increasingly loud, governors began surveying lands in unoccupied provinces and to sell lots of 100 to 1,000 acres at auction at a minimum price of six pence per acre with an annual quit rent.¹¹

The immediate effect of the Revolutionary War was to break completely this monopoly in lands. Within a year from the Declaration of Independence, Thomas Jefferson had secured laws in Virginia abolishing primogeniture and entail; and by close of the war practically all of the other

colonies had followed suit. The Tory estates were confiscated by the various Colonial legislatures and were parceled out as small farms; and in addition, title to the vast domain of the Crown within the Colonies was vested in the respective Colonial legislatures and these lands were opened to settlement.¹²

Early Policy of Disposing of the Public Domain

Near the close of the war the ownership of the lands west of the Alleghenies became a source of bitter controversy among the various states. It was argued by those states which could make no individual claim to Western territory that this area had been won by common sacrifice, and accordingly, that it should become common property. This view eventually prevailed with the various states relinquishing their respective claims, and thus was created the Public Domain.¹³ In 1784 Congress enunciated the principle that this vast domain should ultimately be organized as states. In that year a Congressional committee of five, headed by Thomas Jefferson, proposed a system based upon a rectangular survey. No action was taken in that year, but a year later another committee, composed of a member from each state, worked over the report of the previous year and offered a carefully considered proposal. With minor changes this proposal was passed as the Land Ordinance of 1785.¹⁴

Insofar as the ordinance set a physical basis for disposing of the public lands its effects were permanent. Government surveyors were to establish on unsettled land, horizontal lines called base lines and vertical lines called principal meridians. As the survey moved westward, other principal meridians were established. This ordinance reflected the prevalent conservative view that public land should be a major source of revenue.¹⁵ This cause was championed mainly by Alexander Hamilton who was perhaps the most influential man in Washington's cabinet. His chief opponent was Jefferson who argued that land should be given free to settlers who would live on and improve it.

Hamilton's forces won, and provisions relating to minimum size of tracts (640 acres), prices and terms were severe. All sales at public auction were to be for a minimum price of \$1.00 per acre with the terms being strictly cash. Thus the smallest possible outlay was the \$640.00 necessary to buy a square mile, an expenditure beyond the means of the average American in the 1700's. Moreover, a square mile of land was more than the small farmer wanted, for he would do well to clear and cultivate ten acres or so his first year, and a quarter section (160 acres) was as much as a man could handle without the aid of growing children. Only individuals of means and land companies formed by large investors could purchase land under the first law.

The Land Acts, 1796-1862

The Land Act of 1796 represented another victory for the conservative view. A system of rectangular survey, substantially the same as the one established by the Ordinance of 1785, was made permanent. The minimum purchase allowed by the Act of 1796 was still 640 acres, but the minimum price per acre was raised to \$2.00, the only concession to the cheap-land advocates being a credit provision that permitted half of the purchase price to be deferred for a year. Only a small amount of land was sold under this act before Congress in 1800 changed the minimum acreage to 320 and permitted the buyer, after a cash payment of one-half, to pay one-fourth in two years and the final fourth in four years. A law of 1804 further lowered the minimum purchase to 160 acres. In 1820, the minimum purchase was reduced to 80 acres and the price per acre to \$1.25, but the credit provisions, which had resulted in losses to the government, were repealed. Twelve years later the minimum purchase was reduced to 40 acres, so that in 1832 a pioneer could get a start with a \$50.00 expenditure. By this time pressures for free land, which had been exerted from the first, were beginning to get legislative results.¹⁶ In 1828 the House Committee on Public Lands reported in favor of a "free land" policy, and in his message of December 4, 1832, President Jackson expressed the opinion that the public lands should

cease as soon as practicable to be a source of revenue.¹⁷ In 1841 a general Preemption Act, called the "Log Cabin Bill" by its proponents, was passed. This law granted to anyone settling on land that was surveyed, but not yet put up for sale, the right to purchase 160 acres at the minimum price when the auction should be held.

Pressure remained on Congress to reduce the price of less desirable land passed over in the first surges to the West. In 1854 the Graduation Act provided for the graduated reduction of the minimum purchase price of such tracts so that if land remained unsold for as long as thirty years it could be had for as little as 12½ cents per acre.¹⁸ A remarkable gobbling up of such pieces took place, attesting to the fact that people were willing to gamble a little on probable appreciation of even the most unpromising real estate.

In the 1850's as agitation for free land continued, it became apparent that the passage of a homestead law was inevitable. Southerners, who at one time favored free grants to actual settlers, became violently opposed as time went on. The 160 acre farm usually proposed by homestead supporters was not large enough to make the working of slaves economical, and it seemed obvious to southern Congressmen that homesteading would fill the West with anti-slavery sentiment. By the same token, many northern Congressmen, who would normally have had leanings toward a conservative

policy, joined forces with the settlers in the West because they realized that free land meant free states.

Feelings between the North and the South were becoming increasingly bitter and federal land policy was a hotly contested issue. In 1860, a Homestead Act was passed but President Buchanan, fearing that it would precipitate secession, vetoed it. Two years later, with southerners out of Congress due to the Civil War, the Homestead Act of 1862 became law under Lincoln. Henceforth, any head of a family or anyone over twenty-one could have 160 acres of public land upon payment of small fees. The only stipulation was that the homesteader should either live on his place or cultivate and/or otherwise improve it for five years. An important provision was that, should he decide not to meet the five year requirement, he might obtain full title to the land by simply paying the minimum price of \$1.25 an acre. One drawback of this act, however, should be noted. Most of the unclaimed land that was covered under this act was in the Great Plains and mountains and was suited mainly to livestock due to the low annual rainfall. 160 acres was simply not economically feasible for livestock to be raised on to the extent that a living could be made.*

Aware that millions of acres of land in the West could be considered desert, Congress in 1877 passed the Desert Land Act of 1877.¹⁹ By the terms of this law 640

acres at \$1.25 an acre could be purchased by anyone who would agree to irrigate the land within three years. The serious defect of the act was that there were no clearly defined stipulations as to what constituted irrigation.

Irrigating the Imperial Valley

Through the previously mentioned efforts of Blake and Wozencraft, there was considerable interest in the possibilities for irrigation of the region. As early as 1887, the California Legislature passed the Wright Act²⁰ which authorized the organization of the California desert areas into irrigation districts.

Wozencraft was the first enthusiast for the development of the region, which he first visited in 1849 and described as the most "formidable of all deserts on the continent."²¹ He labored from 1850 to 1888 to carry out his ambition and in 1859 succeeded in securing from the California Legislature a grant to all state lands in the basin, providing his reclamation plans should be effected.²² Congress apparently was considering legislation which would be favorable to Wozencraft but the advent of the Civil War interrupted reclamation legislation.

The Colorado River had water in abundance. Aridity, it was widely believed, was a guarantee of fertility, but the general belief had been that a white population could

not endure the heat of the Colorado Desert. Chaffey, whose previously successful irrigation work in Australia convinced him to the contrary and, when Rockwood's California Development Company approached him as the leading irrigation engineer in the Southwest and invited him to overcome the difficulties in diverting the Colorado River to the desert, he responded with eagerness. A six-week reconnaissance of the region led to discovery of a canal route that could be developed for an estimated \$100,000²³, a mere pittance compared to the vast acreage that could thus be brought under cultivation. Chaffey contracted to do the work and then discovered that the company did not have either the promised option on the diversion point at Hanlon Heading or the represented right-of-way through Mexico, that it was bankrupt and in jeopardy of losing its charter, and that it was obligated to accept some \$350,000 worth of land scrip at par, which was about ten times the market value. His associates advised a break with this jumbled company, but he was determined to do the job. Within twelve months water was being delivered to Imperial Valley and by 1905, the population had mounted to 14,000 and 120,000 acres under cultivation. That same year, because of further difficulties with the California Development Company, Chaffey sold out his interests in the valley for \$100,000 and retired as engineer of the water company.²⁴

Life in the valley during those early years was marked by frontier simplicity and hardships. Tents and brush huts were more common than houses. Candles or kerosene lamps took the place of electric lights. Settlers in the newly established communities learned again to live without schools, churches, doctors, newspapers, hotels and other "luxuries" that were considered commonplace in the East. Wind, flash-floods and mud of an inconceivable tenacity added to the settlers discomfort in winter, and the intense heat of the long summers turned the valley into a purgatory for the inexperienced and unacclimated.²⁵

But these inconveniences and misfortunes sank into insignificance compared with the overwhelming disaster that threatened the valley beginning in the summer of 1905. Problems of silting and obstacles interposed by the United States and Mexican Governments induced the California Development Company, under the new leadership of Charles Rockwood, to cut a faulty canal entry from the river below Yuma, Arizona.²⁶ Aided by untimely flooding, the Colorado River ran uncontrolled into the canal and, from the summer of 1905 until February 1907, flowed through Imperial Valley to create the Salton Sea.* All attempts to close the new intake proved futile, and by the end of June a stream fifteen feet deep, carrying 14,000 second-feet of water was flowing through the ancient channel of a wash or arroyo called New River into the Salton Sea.²⁷ By the time the summer

floods had subsided in October, nearly the whole flow of the Colorado River, abandoning its old course to the Gulf, was emptying into this inland sink, and the rapidly rising waters of the new lake were encroaching upon nearby farm lands and the Southern Pacific Railroads' main line to New Orleans. The situation indeed was desperate, for unless the river could be turned back into its former channel, most of the Imperial Valley was doomed to become again a vast inland sea such as it had once been in the ancient past.²⁸

Unable to cope with the menace to the valley, the California Development Company surrendered the task of harnessing the rebellious Colorado to the Southern Pacific, and in effect, turned over the company's entire management and affairs to the railroad. Even with the resources of the railroad thrown into the battle, the Colorado refused to resume its way to the Gulf, and its defiant waters destroyed every device with which the railroad engineers sought to restrain them.²⁹ As against a normal volume of from 5,000 to 7,000 second-feet, the Colorado in March 1906 twice carried a flow of 70,000 second-feet, and the runoff in June was nearly 50 per cent larger than even the great summer flood in 1905. By that time the intake into New River was over half a mile wide, and week after week the whole flow of the swollen river poured into the Salton Sea.³⁰

The railroad engineers made two abortive attempts late in the summer of 1905 and early in 1906 constructed a quarter million dollar dam, later washed out by the flood. Appeals to President Theodore Roosevelt were fruitless because the break was below the line in Mexico; therefore, in the winter of 1906-1907 the railroad tried again. An heroic 52-drive, involving 6,000 carloads of rock and gravel and 1,200 piles costing \$1.6 million, finally closed the break and saved Imperial Valley. Yet the precarious position of the valley a few hundred feet below the level of the river denied the valley residents complete ease of mind until 30 years later when Boulder Dam brought the river under final control.³¹ Once the flood damage was repaired, the Imperial region grew into an almost model agricultural community. The fertility of the soil, coupled with the intense heat of the summers and the mild winter climate, produced enormous crops of nearly every variety. Letters written to the East by enthusiastic settlers lauded the new conditions and caused hundreds of curious persons to visit Imperial Valley, first as tourists, then as settlers.³²

It is worthwhile to pause here briefly to mention the federal legislation which initially laid down the terms for settlement in the valley as well as in other reclamation areas. After much debate Congress passed the Reclamation Act of 1902. The main provisions of the Reclamation Act were that the receipts from the sale of public lands in the

far west desert areas were to be used for the construction and maintenance of dams and irrigation works for the storage and distribution of water; and that those who benefited by the works were to pay the capital costs, and the operation and maintenance costs of such works as benefited them. And, to ward off impending threats of having the reclaimed lands grabbed by large land speculators, the Reclamation Act clearly embodied the 160 acre excess land provisions that no water should be delivered to any lands of one owner in excess of 160 acres*, and that the Secretary of the Interior should arrange for the sale of such lands should a landowner accept water through a reclamation project for 160 acres. A complete analysis of the impact of this act as well as other legislation and court interpretations will be postponed until Chapter III.

The Aftermath of the 1902 Reclamation Act

Under the terms of the 1902 Act more than 1,000 miles of main and lateral canals had been built in the Imperial Valley by 1909.³³ Two years later the Imperial Irrigation District was organized to acquire the properties of the bankrupt California Development Company which had already sold most of its assets to the Southern Pacific Railroad. By 1916 the District acquired all of the properties from the Southern Pacific; and over 200,000 of the valley's 600,000 acres were under cultivation.

As the growth of acreage brought under cultivation continued at a rapid rate, Congress became interested in studying the problems of the Imperial Valley with respect to intermittent floods and droughts; and after a six year battle led by Congressman Phil Swing and Senator Hiram Johnson, both of California, the Boulder Canyon Act was passed. It authorized the building of the Boulder Dam (now known as Hoover Dam) on the Colorado River, for the purpose of storing up the waters of the melting snows and releasing them slowly for irrigation of farms in the river basin states and the building of the All-American Canal to serve the Imperial and Coachella Valleys.³⁴

If the Swing-Johnson bills which fathered the Boulder Canyon Project had been simple, and were passed by Congress without argument, the intent of the Congress would not have become a matter of controversy for the ensuing 43 years. But this was not the case. There was much discussion in Congress, and substitutions of phrases, and finally an entire bill, so that it became confused as to whether the original meaning of the authors had been retained or not. A specific source of confusion was whether or not the 160 acre land limitation applied to the Imperial Valley. Several important administrative and court decisions followed in the 43 years since the passage of the Swing-Johnson bills.

Early Legal Tests of the 160 Acre Controversy

In 1933 while the 160 acre land limitation law was still being hotly contested among various reclamation projects, Secretary of the Interior, Ray Lyman Wilbur, wrote a letter to the Imperial Irrigation District stating that the lands in the valley, having already a water right, were entitled to have such vested right recognized without regard to the acreage limitation. Relying on that ruling, the District continued to deliver water to landowners regardless of farm size.

The Wilbur opinion immediately preceded a case in Imperial County Superior Court, in which it was ruled that the Imperial Irrigation District must supply water to landowners of acreage in excess of 160 acres.³⁵ It was argued on behalf of the defendant, Charles Malan, owner of 210 acres, that limiting water to only 160 of his acres would amount to taking his property without compensation. The Court reviewed the Boulder Canyon Act, and the All-American Canal contract with the Imperial Irrigation District, and held that the documents contained nothing to limit acreage.

While the opinion of the California Court is not binding on the Federal Government, it is at least authority for the view that excess land restrictions do not apply to the All-American Canal project; and the fact that the Federal Government, after the ruling, went ahead with construction, indicates acquiescence.³⁶

The fact of continued administrative interpretations were also stressed by the U. S. Supreme Court in the case of United States vs. Gerlock when it opined:

"Repeated appropriations of the proceeds of the fees not only confirms departmental construction of the statute, but constitutes a ratification of the Secretary of the Interior as agent of Congress in the administration of the act."³⁷

Thus it is seen that administrative interpretation and practice, since as early as 1911, has recognized existing or "vested" rights as removing the excess land laws from application to holders of such rights. Because the Boulder Canyon Act specifically recognized "prior vested rights", some Congressmen expressed the opinion that Congress could not legally enforce acreage limitation because they had been pre-empted by State Law, because of prior rights.

Labor in the Imperial Valley

Historically the farmers have solved the problem of the labor shortage by encouraging immigrants who felt lucky to have the jobs they had--Chinese in the 1850's and later, and then roughly in order, Mexicans, Japanese, Filipinos, Armenians, Caucasians from the American Dust Bowl, Negroes, and braceros from Mexico, the first group not to be grossly mistreated, because there was an international treaty in force to safeguard housing, sanitation,

wages--a guaranteed standard of living. The bracero program expired in 1964 under pressure from reformers who wanted a better deal for native farm workers. Currently, Mexican laborers cross the border under a "Green Card" system, but the vast majority retain Mexican citizenship, and, in fact, live in Mexican border towns such as Mexicali. There is very little problem with illegal crossings of Mexican workers ("wetbacks") since the green cards which are actually work permits are relatively easy to obtain for both men and women.

Mexican immigrants poured into the state by the trainload during World War I to meet the demand for unskilled labor. With the end of the conflict, thousands of the workers returned to Mexico, but other thousands elected to remain permanently in California. Most of the newcomers settled in Southern California. Unfortunately, no concerted attack was made upon the problems of housing, wages, standards of living, education, and assimilation presented by the influx of such a large and less advanced population into our complex society.

The Mexicans furnished unskilled labor for railroads, construction jobs, and factories, and comprised the largest body of California's casual agricultural workers. By 1930, at least 250,000 Mexicans were living in the state, thus providing a great reservoir of labor upon which California farmers habitually drew.⁴⁰

The typical Mexican has his limitations, but these were far outweighed by his superior qualities in other fields. According to a fact finding committee appointed by Governor C. C. Young in 1928 to report on the problem of Mexican immigration into California, the Mexican does tasks that white workers will not or cannot do. He works under climatic and working conditions, such as excessive heat, dust, and temporary employment. He will work in gangs and will work under direction, taking orders.⁴¹

Factors Contributing to Unity Among
Mexicans and Mexican-Americans

Although the racial origins seem to imply divergence, two factors have served to unite the Mexican-American group. One factor creating Mexican-American unity is their common language. This alone is sufficient to promote a strong degree of unity. Another, even more powerful, unifying factor has been the Mexican-Americans' numerical capability of living within communities separate from Anglos, coupled with their ability for carrying their social relations into employing organizations. Thus Mexican-Americans, because of their language difference and social relations, tend to maintain separate subgroups within the overall organization.

This unity is not a result of a condition forced by the Anglo majority; rather it has occurred as a result of lack of initiation of effective integrative efforts on the part of both Mexican-Americans and Anglos. A closely related aspect of this uniting factor is religion. Whereas Anglos of the Southwest are primarily Protestant in religious orientation, Mexican-Americans are primarily Catholics. This unifying influence is even more significant if one realizes that within the Catholic religion itself there tends to be distinguishable Anglo and Mexican-American churches.⁴² Hence, there is a discernible divergence between Anglos and Mexican-Americans even within a common religious sect.

Spanish-speaking people in the United States have identified with the Southwest. The land in which they live is primarily an extension of the Mexican geography and climate from which they came. To this similar physical environment, the Spanish colonists carried cultural practices and institutions which were familiar to them and these have tended to survive. The Spanish speaking colonists were not immigrants to the Southwest. They never sought admission to the Union since they were already within the continental United States. Historically, Mexicans never migrated to the Southwest; they simply moved north from Mexico.⁴³

Living in a region which is geographically a projection of their homeland and having struck deep roots in

this region, Spanish-speaking settlers were not like the typical European immigrant minority in the United States. They did not cross an ocean; they moved north across a "mythical" border. Annexed by conquest, their cultural autonomy was guaranteed by treaty. In this respect, they resemble certain European minority groups, although a closer parallel would be the French-Canadians in the Province of Quebec.⁴⁴ Because of these facts, the contact between Anglo and Mexicans in the southwest has not been so much a problem in individual acculturation as a problem in the adjustment or fusion of two cultures, neither of which can ever hope to achieve a complete dominance over the other in this region. The territory in which the Spanish-speaking people live was rightly called a border land. Even the Anglos' numerical dominance has been consistently offset by the fact that the Mexican-Americans' culture, being better adapted, has shown a remarkable survival value. "In the Southwest the three great cultures of the Americas meet: the Anglo-American, the Indian, and the Spanish-Mexican-Mestizo."⁴⁵

A detailed analysis of the labor situation in the Imperial Valley will be presented in Chapter IV.

The Effects of a Changing Agricultural Technology

While labor has never been a barrier to economic development in the Imperial Valley, the emergence of more highly specialized farm machinery is one of the major

weapons in the arsenal of critics of the 160 acre limitation. They have convincingly demonstrated that the optimum size farm in terms of economic efficiency has increased dramatically.

Most farmers of the valley, many now farming thousands of acres, claim that any attempt to cut their holdings into 160 acre plots would result in economic disaster. Those who farm leased lands would not be affected. Others hold large acreages in joint ventures with relatives that constitute a "family farm" with accumulative rights. But the dream of some non-farm leaders that, by cutting up the land into small plots, poor people would soon dot it with homes is a fallacy. The high cost of farm implements would preclude most relatively poor people from being able to farm, even if the land were given to them. Also custom harvesters are often prohibitively expensive and not always available since bringing their equipment to such small units is often not appealing to them. Rich farmers, on the other hand, would know that it would not be economically feasible to spend tens of thousands of dollars for needed equipment to farm 160 acres.

Some of the so-called "big farmers" of Imperial Valley are men who started with small acreages many years ago, working hard and bearing many hardships in the early years as they struggled to tame the desert without the benefits of air conditioning and modern equipment. By sheer

determination, persistence and luck they succeeded, and gradually increased their acreages. These "big farmers" are an integral part of the community, working for its success, serving on governmental bodies and committees, supporting local institutions, paying local taxes and buying locally. They are an asset to the community and few would begrudge them an acre of land that they paid for and pay taxes on. The few individuals and groups who do begrudge them their large farms are in the minority and possess very little political clout. More will be said about these people in Chapter IV.

But, on the other hand, there are big farming interests from other areas who purchased large blocks of Imperial lands after being squeezed out of other operations by the sprawling growth of metropolitan areas. They have no interest in Imperial Valley; pay as little taxes as possible; do their buying elsewhere and return few profits to the land that supports them. Complaints of local residents over these huge operations are what led to the Congressional re-examination of the application of excess land laws to Imperial Valley.

Problems With Mexico

There have been two principal areas in which the United States and Mexico became involved in controversies since the formation of the Imperial Irrigation District.

The first problem dealt with the deplorable working conditions which Mexican agricultural workers were subject to. This was largely settled when the United States and Mexico entered into the international agreement which spawned the bracero program.

The second problem has two parts, one of which has not been completely resolved. Before the Colorado River was tapped to bring water to the Imperial and Coachella Valleys via the All-American Canal and its tributaries, Mexico was the recipient of large amounts of water from the Colorado. Deprived of substantial amounts of water, Mexican farmers in the Mexicali Valley were taking huge financial losses and many were forced off their land.

Currently the United States Government is releasing water to the Mexicali Valley but the Mexican Government is far from satisfied. The water being released, it claims, is too high in salt content. Continued heavy dosages of salt will ruin the land for agricultural purposes in a matter of a few years. Most Mexican farmers do not have the economic wherewithall to remove large amounts of salt from the soil as do many of their American counterparts.

Problems With Excess Salt in the Imperial Valley

Mention has been made of the Salton Sea but outside of furnishing recreational facilities, it has a very important use in agricultural operations in the area. The

Sea is used in an attempt to maintain the "salt balance" in the irrigation districts of Imperial and Coachella. The necessity of maintaining a salt balance has become a well established principle throughout the Southwest.⁴⁶ Ideally, this means that, in order to assure continued production of an irrigation project, it is necessary to remove from the project each year as much salt as is brought into it yearly with the irrigation water.

Virtually all of the affluent farmers in the Imperial Valley use drainage tile to remove salt from their land. The most popular and effective type seems to be tile made from rubber. This tile resembles tubing and is roughly nine inches in diameter. It is perforated on the top to let in the salt and water. The tile is laid in trenches which run the length of the field and are anywhere from three feet to nine feet deep depending on how fast water moves through the soil. The average trench is six feet deep. The trenches are dug in such a way as to make them parallel and are spaced from 50 feet apart to 300 feet apart depending again on the nature of land.⁴⁷ Bordering the farmers' land are concrete channels which catch this salty water and carry it to rivers or to the Salton Sea.

Fresh irrigation water arriving at the farmer's gate contains more than one ton of dissolved salt per acre foot, consisting of calcium, chloride, sulfate, bicarbonates, sodium and magnesium.⁴⁸

A high percentage of the water received by the Imperial Irrigation District, a so-called "tail-end" irrigation system, has been used by other upstream projects. The upstream projects each add salt to irrigation waters. Hence the last project to receive water is called a "tail end" project. Drainage water returned to the river naturally contains more leached salts than the irrigation water. Thus, the more times the water is used, the greater the salinity.⁴⁹

For the Imperial Valley farmer, each application of water to his land deposits more than 2,000 pounds of salt per acre foot. Fortunately for continued production of the land, practices have been developed which will successfully remove the deposits. Without such conservation measures as tiling, leaching, deep-plowing and other techniques, achieving a favorable salt balance would have been impossible.⁵⁰

Not all of the land in the valley, of course, is tiled due to the high cost of the tiling operation. The cost of tiling 160 acres has been known to be as high as \$48,000.00. This cost added to the cost of the land, labor and heavy equipment make tiling prohibitive for most small farmers and casts doubt on the overall profitability of most 160 acre tracts.

Engineers have estimated that the life of irrigated farmland without an adequate drainage system is

approximately twenty years after which such land is unsuitable for growing. Many farmers of such land have found other uses and some of these will be discussed in Chapter VI.

In the late 1960's farmers discovered that the salinity of the water reaching the Imperial Valley was increasing so that the aforementioned salt balance was not being achieved. This was due mainly to the so-called "tail-end" irrigation system that exists in the valley. Steps were taken in 1970 to correct some of the upstream drainage practices so that by the time irrigation water reached the Imperial Irrigation District, it would contain less salt and other chemicals harmful to the soil.

Electric Power in the Imperial Valley

The inclusion of power along with District water transportation and delivery was a "natural." Here was an area isolated by deserts and mountains from the larger metropolitan centers, an area where reasonably priced electric power is so essential to progress and the betterment of living conditions. When the District entered the business, power was imported from sources four hundred miles away and rates were high. Also, very few farms had been able to get electric service.

Imperial Valley is an area--like many throughout the world--where water is "king." To assure and make permanent an adequate water supply, the residents were

faced with paying the cost of building new diversion works on the Colorado River and a new main canal system.

The people fully realized that additional revenue was needed to supplement revenue from sale of water. With the construction of the All-American Canal, there would be possibilities to develop substantial amounts of hydroelectric power. It was good business to use this by-product of the water supply to provide the new source of revenue.

The District's decision to enter the power business has proved to be a farsighted move. With locally-generated District Power, a less costly system and more dependable energy source were available. After construction of the All-American Canal, low-cost hydroelectric energy would become a by-product of a modern irrigation system...owned by the people of Imperial Valley.

The District had proved its ability to operate and maintain an efficient canal network successfully, solving many difficult problems. There was every reason to assume that they would be equally successful with a power system.

A large, well-equipped operating headquarters and competent engineering, accounting and purchasing sections were available and could serve both water and power sections with equal facility. Moreover, executive and administrative costs could be spread over the two sections, resulting in savings to each.

The success of the District's power development has been greater than was anticipated at the start, even by the most ardent advocates. After over a quarter-century of operations, it can be truly stated that combined power and water make a fine team. With rising costs of operations, an irrigation district with a power resource producing additional revenue is indeed fortunate.

In the early 1930's, anticipating the completion of the All-American Canal and power possibilities presented by the 80-mile gravity-flow canal, the District attempted to negotiate with the power company for the purchase of its properties and business in the Imperial Valley. The District was informed that no part of the power system was or would be for sale.

In order to build a market for All-American Canal power, the District entered into a purchase contract in 1934 for diesel-electric generation units and constructed a distribution system in the City of Brawley.

However, initial operations of the diesel-electric generating units was delayed until May 18, 1936, as a result of an injunctive action by the power company in the courts attacking the right of the District to contract for the purchase of generating equipment and the constitutionality of the state law giving irrigation districts the right to develop and distribute electric power.

The District's planned power development included installation of hydroelectric plants along the proposed All-American Canal over a period of years as the needs of the local area required. In addition, the District was planning to extend power service to rural areas.

In an unsuccessful attempt to defeat the bond election for District power development, the power company contended that energy output from the canal would be far in excess of the needs of the valley within the foreseeable future, and if canal power was to be developed, markets outside the valley must be found....Southern Sierras was the logical purchaser of the excess energy.

The power company further contended that since they had the market, would it not be better for their organization to proceed with the development of power on the canal--"saving" the residents of Imperial Valley the necessity of spending additional sums of money.

The District had applied for Rural Electrification Administration loans to construct rural lines and install generating units.

The application met with immediate and aggressive opposition from other Colorado River Basin states and from the private power company, with the result that the application was denied.

A temporary injunction against the District halted action by the REA on the Imperial Irrigation District

request for funds and stopped power construction work. During this period the power company made a similar application to REA for funds, contending that the District was under injunction.

At this point the District found that the power company had constructed power lines along county roads and across District canals without securing the necessary rights of way. On this basis, the District secured an injunction against the power company, halting their REA application for funds.

After trying the case in several state courts--the District winning on all points at each step--the company appealed to the United States Supreme Court. Early in 1936 the Supreme Court found for the District.⁵¹

To this point, competition had consisted of legal maneuvers. But in May, 1936, the District entered the power business in the City of Brawley, starting an era of intense competition for individual power customers. This competitive period was to last until 1943.

District rates were 20 per cent less than those of the power company. The power company immediately made a similar rate reduction. Sales crews for both the District and the power company worked house to house, block by block. In this period it was not unusual for power company or District personnel to help a family move their furniture from one residence to another simply to "get the meter."

If a storm or mechanical difficulties of one of the competitors caused a power interruption, day or night, sales crews from the competing organization would "hit the streets", changing meters and connecting service.

However, the District made a very rapid growth in both customers and load, despite every device the power company could use to stop the trend. The District's major difficulty was providing sufficient generating capacity to meet the ever-increasing demands.

It is important to note that District power rates charged today are essentially the same as originally established in 1936.⁵² The policy of the Board of Directors at that time, as it is today, was to charge the same rate to all customers throughout the system--regardless of population density. Maintenance of both the "single rate" philosophy and the low rates established during the depression and competitive era are possibly due to efficient operations, customer growth, and increase in per-customer consumption.

A Drive to Consolidation of Power Companies

The District's offer to purchase power company properties had been turned down on several occasions. However, in 1943, the company finally agreed to negotiate a sale to the District of all power company business and properties in Imperial County and in the Coachella Valley

in Riverside County. The contract provided for exchange of power for a period of five years, to be followed by purchase from the District of all the company's power requirements to serve the adjacent area in Baja California, Mexico, during the next twenty years.

Under the terms of this agreement, the District-- on an interchange basis--supplied power to Baja California, Mexico, until July, 1964, at which time government-owned generation plants went on the line. The purchase contract also defined power service area boundaries of the District and the power company in Imperial and Riverside Counties for a twenty five-year period--both agreeing not to serve power in the other's service area.

The contract, having received approval from the necessary state and federal commissions, was executed as of October 15, 1943, the District taking over the business and properties purchased from the company on the same date.⁵³ The competitive period had thus ended, and the District became the sole source of electrical energy for both the Imperial and a major portion of the Coachella Valleys. In 1937, the total power system produced 5,800,000 kilowatt hours of electricity and had 1,300 customers. In 1965, this same system supplied 590,089,100 kilowatt hours to 36,040 customers.

This chapter attempted to present a very general history of the Imperial Valley. In Chapter III, a more

detailed presentation of the legal history of reclamation and land limitation in the valley will be offered.

FOOTNOTES

¹U. S. Department of Interior, Bureau of Reclamation. The All-American Canal System: Boulder Canyon Project. Yuma, Arizona, 1960, p. 3.

²Ibid., p. 3.

³Imperial Irrigation District, Office of Public Information, "Historic Salton Sea", Imperial, California, 1960.

⁴Robert G. Cleland, From Wilderness to Empire: A History of California. New York: Alfred Knopf, 1962, pp. 218-219.

⁵This route was chosen mainly to avoid the sometimes impassable Rocky Mountains farther north.

⁶Cleland, p. 364.

⁷Ibid., p. 320.

⁸B. P. King, The Excess Land Provisions of the Federal Reclamation Laws. Billings, Montana, 1941, p. 1.

*Cotton did not become an important cash crop until 1792 when Eli Whitney invented the cotton gin.

⁹Ross Robertson, History of the American Economy. New York: Harcourt, Brace and World, Inc., 1964, pp. 29-42.

¹⁰King, p. 3.

¹¹Joseph A. Batchelor, The Economic Development of Western Civilization. Unpublished manuscript Indiana University, 1954, p. 96. (Mimeographed).

¹²King, p. 4.

¹³Ibid., p. 5

¹⁴Robertson, p. 102.

¹⁵Ibid., p. 104.

¹⁶Ibid., p. 105.

¹⁷King, p. 6a.

¹⁸Robertson, p. 107.

* Wheat was not to become a major cash crop in the Great Plains until years later, when harvesting methods were improved.

¹⁹Robertson, p. 251.

²⁰Andrew F. Rolle, California: A History. New York: Thomas Y. Crowell Co., 1963, p. 363.

²¹Robert G. Cleland, A History of California: The American Period. New York: The Macmillan Co., 1922, p. 450.

²²Ibid., p. 450.

²³John W. Caughey, California: A Remarkable State's Life History. Englewood Cliffs, New Jersey: Prentice Hall, 1970, p. 359.

²⁴Ibid., p. 359.

²⁵Robert G. Cleland, From Wilderness to Empire: A History of California. New York: Alfred Knopf, 1962, p. 321.

²⁶David W. Lantis, et. al., California: Land of Contrast. Belmont, California: Wadsworth Publishing Co., Inc., 1970, p. 79.

* The Salton Sea lies in the extreme northern portion of the Imperial Valley.

²⁷Robert G. Cleland, From Wilderness to Empire: A History of California. p. 323.

²⁸Ibid., p. 323.

²⁹Ibid., p. 323.

³⁰Ibid., p. 323.

³¹Caughey, p. 360.

³² Robert de Roos, The Thirsty Land. New York: Greenwood Press, 1968, p. 363.

* Note that the act does not limit the land that could be owned but only the water that could be received.

³³ Rolle, p. 363.

³⁴ Nettie Brown, "Is Imperial Valley Doomed by Land Limitations?", Imperial Hometown Review. Jan. 26, 1965.

³⁵ Malan, et. al. vs. Coachella Valley County Water District, Superior Court, State of California, Imperial County, No. 15460, 1933.

³⁶ Brown, p. 3.

³⁷ Ibid., p. 3.

³⁸ Richard G. Lillard, Eden in Jeopardy. New York: Alfred A. Knopf, 1966, p. 80.

³⁹ Lantis, p. 355.

⁴⁰ Robert G. Cleland, From Wilderness to Empire: A History of California. p. 368.

⁴¹ Cleland, p. 369.

⁴² Carlton J. Whitehead and Albert L. King, Managing Mexican-American Employees. Lubbock, Texas: Business Research Report Series Number 10, Texas Tech University Press, 1972, p. 7.

⁴³ Ibid., p. 7.

⁴⁴ Carey McWilliams, Brothers Under the Skin. Little, Brown and Company, 1951, p. 113.

⁴⁵ Ibid., p. 120.

⁴⁶ The Imperial Irrigation District Office of Public Information, "The Historic Salton Sea", 1965, p. 26.

⁴⁷ F. W. Flanagan, United States Department of Agriculture Soil Conservationist, District Conservationist, Imperial County, California. Private interview held in El Centro, California, July 13, 1971.

⁴⁸The Imperial Irrigation District Office of Public Information, "The Imperial Irrigation District", 1965, p. 11.

⁴⁹Ibid., p. 11.

⁵⁰Ibid., p. 11.

⁵¹The Imperial Irrigation District Office of Public Information, "The First 30 Years in the Power Business", 1965, p. 13.

⁵²Ibid., p. 13.

CHAPTER III

A LEGAL HISTORY OF THE 160 ACRE LAND LIMITATION POLICY AS IT APPLIES TO THE IMPERIAL VALLEY OF CALIFORNIA

The Federal Reclamation Act of 1902

The Congressional Actions and court decisions and interpretations of acts which, in one form or another, distributed public land in the American West to settlers will not be reexamined here. The reader is asked to refer to Chapter II. Rather those governmental laws, acts, decisions and opinions which played a major part in the 160 acre land limitation controversy in the Imperial Valley will be scrutinized and analyzed. In an effort to prevent this chapter from becoming overly voluminous, only those legal events which the author feels to be important in developing the 160 acre limitation problem will be discussed.

The obvious point in time to begin the analysis is when the U. S. Congress passed the Federal Reclamation Act on June 17, 1902, hereinafter referred to as the 1902 Act. Although this act was not designed to apply specifically to the Imperial Valley, it laid the foundation for all subsequent litigation and controversy involving the 160 acre

land limitation in the area. Its purpose has been to provide a means by which the U. S. Government advances the cost of construction of projects to make irrigation water available to lands in the arid and semi-arid regions of the West. By their nature many of the features of such projects have served other purposes and part of the cost has been allocated to such purposes.

Under reclamation law the benefits to irrigation water users are threefold:

1. Interest--free Federal financing
2. Financial assistance from hydroelectric power and municipal water revenues to meet a part of costs allocated to irrigation
3. Allocation of joint costs so that all purposes served share equitably in the benefits of multi-purpose construction.¹

As originally enacted, the reclamation law was probably expected to affect mainly public lands, although it was understood that some water would be made available to lands already in private ownership. From the beginning, however, increasingly large areas of private land have been included in the reclamation projects.

Section 3 of The Act of 1902 (32 Stat. 388)² limited the size of tract that could be entered on the public lands of a reclamation project. The only provision applying the limitation to private lands was in Section 5: "No right in the use of water in private ownership shall be sold for a tract exceeding 160 acres to any one landowner, and no such sale shall be made to any landowner unless he be an actual bona fide resident on such land."³

It should be noted here that current interpretations of the reclamation laws permit the wife and children to be considered eligible for the water so long as they live on the farm or in close proximity to it. More will be said in Chapter IV on what is meant by close proximity and the so-called "absentee" owners. Thus a family of six in the Imperial Valley operating a farm receiving water would legally be entitled to receive 960 acres of this type of land provided, of course, they possessed the economic wherewithall to obtain the land.

Attempts to Monopolize and Speculate in Land

Nothing in The Act of 1902 required a private land owner to include all of his land in a project. He could legally apply for water for one farm unit and hold his excess lands for sale to settlers at far higher prices than could be obtained had the project not been built. This appears to have been practiced on a large scale.⁴ The framers of The Act of 1902 apparently did not foresee the extent to which attempts to monopolize and the hordes of speculators that were to become quite prevalent in the subsequent years.

Section 4 of The Act of 1902

This section sets up the requirements that after contracts for construction shall have been let the Secretary

of Interior shall give public notice of:

1. The limit of area per entry of public lands, this limit to be eased upon the amount of land necessary for the support of a family
2. The amount of construction charges per acre for both public and private lands
3. The number of installments, not to exceed ten, which construction charges are to be repaid and the date due of each installment.⁵

While the section clearly gives the Secretary complete control over the matter of establishing farm units, it may be noted that the opinion prevailed in Congress that, in the usual case, the unit would be established at 160 acres. The comments of the Senate Committee as to this are as follows:

The fact is recognized that in some portions of the country 40 acres is sufficient for the support of the average-sized family; as for instance, in California, New Mexico and Arizona, where fruit and vegetables are the chief products grown on irrigated lands. In more northerly climes, however, where grain and storage for stock are grown, 160 acres would be necessary for the support of a family.⁶

Section 5 of The Act of 1902

Section 5 of The Act of 1902 brings up once again the case of Public Lands. It withheld patent until all water rights charges had been paid and which required reclamation and cultivation of one-half of the irrigable area of the entry justified the confidence of Congress that the possibility of speculation had been eliminated. As to private lands, however, The Act of 1902 reflected no such

painstaking care in draftsmanship to prevent these evils. This very section of The Act which is not unlike the Sherman Act of 1890, as far as vagueness is concerned, is what caused many of the problems and hardships in the later years of the Imperial Valley. With reference to private lands, The Act of 1902 merely required.

1. That no water right should be sold to any one landowner for in excess of 160 acres
2. That the purchaser of the right must reside on or in the neighborhood of the land
3. That the right should not permanently attach until final payment has been made. The language of The Act of 1902 did not prevent owners of private lands, excess and non-excess alike, from capturing the benefits of Federal Reclamation which were mentioned previously.

Immediate problems in interpretation began to arise: how shall wives and children be treated if they live on the land or in the "neighborhood"? What constitutes a neighbor or an absentee owner? (A very serious problem in later years). When is a person practicing good business when he risks money to acquire and operate land and when is he considered to be taking advantage of people for selling land at higher prices?

The Act did not contain any provision designed to penalize the owners of private lands for holding such land out of cultivation for speculative purposes. It did not, by express language, impose any continued residence requirements upon owners of private lands, and finally, it did not, by express language, prevent the accumulation of private lands in excess of 160 acres. Many of these deficiencies

in the law were obviated by administrative regulations, but others, especially the failure of The Act to prevent profiteering by private landowners, remained as an objectionable feature of Federal Reclamation for many years.

Undoubtedly, the reason for these deficiencies was that those who sponsored the legislation did not appreciate the extent to which private lands would be reclaimed under its terms. This is evident from the following statement of Senator Clark of Wyoming:

"...in the consideration of this measure it should not be forgotten that as a landowner the Government itself will be the greatest beneficiary. Millions of acres of its own domain will be taken from what might be termed its worthless securities and made its most valuable. The number of acres in Government ownership, compared to the number in present private ownership, that will be benefited must be 50 to 1 or more."⁸

Early Administration of The Act of 1902

The first step in the administration of the Reclamation Act was to make the withdrawals of public lands as provided by Section 3, and this was done either before or soon after the surveys had been begun in connection with a particular project.⁹ These withdrawals were made by giving appropriate notice through the local land office that certain described lands could not be entered at all in the case of first form withdrawals, or in the case of second form withdrawals, could not be entered only subject to the provisions of both Homestead laws and the Reclamation Act of 1902.

It became apparent at an early date that the construction of projects would be much less rapid than had been anticipated and that the provision of The Act remitting entry upon project lands prior to the time when water was ready for delivery would prove a source of hardship to the settler and a source of difficulty in the administration of The Act. To avoid these difficulties the Secretary was requested to withdraw project lands from settlement under his general power of supervision over the Public Domain but this request adverted to the undesirable effects of premature settlement, a condition which it was said existed to a greater or lesser extent on all of the projects.¹⁰

From this it is obvious that the House Committee Amendment to Section 3, which added the provision for withdrawing project lands from entry "except under the homestead laws" weakened the administration of The Act by depriving the Secretary of his general power of withdrawals of public lands included in Reclamation projects. In spite of this instruction, however, the consequences of premature settlement became so serious that it was necessary eventually to resort to the subterfuge of withdrawing all project lands under the first form.¹¹

An Early Modification of The Act of 1902

To prevent the private landowner from realizing such unearned profit at the expense of settlers, it was

provided in the Reclamation Extension Act of August 13, 1914, (38 Stat.689), that no contract could be let or work begun for the construction of any reclamation project until the owners of private lands under the project had agreed to dispose of their excess land upon terms and at a price to be designated by the Secretary of the Interior.

Notwithstanding the provisions of the 1914 act, private landowners continued to realize substantial speculative profits. In 1923, a Committee of Fact Finders was appointed by Secretary of the Interior Hubert Work. The Committee filed a report which demonstrated that there was widespread evasion of the excess land laws. Some of its recommendations to insure compliance were included in the Omnibus Adjustment Act of May 25, 1926 (44 Stat. 648).¹²

The Fall-Davis Report of 1922

After World War I, the control of the Colorado became the major engineering and conservation problem of the Southwest. A comprehensive plan finally emerged that called for the erection of one or more huge dams across the river, both to prevent recurring floods and to provide an immense supply of water for irrigation, the generation of enough hydroelectric power to revolutionize industry and transportation in the Southwest, and the construction of a canal running wholly through American territory into the Imperial Valley.

Between 1918 and 1922 the United States Reclamation Service, the Southern California Edison Company, and a number of individuals made preliminary investigations of possible dam and reservoir sites along the river; and in 1920 the Kinkaid Act instructed the Secretary of the Interior to make a survey of the Colorado and embody the findings in a report to Congress. The work was done by Arthur Powell Davis, chief of the Reclamation Service, and Frank C. Weymouth, the bureau's chief engineer. The material obtained by the survey was embodied in the so-called Fall-Davis Report of 1922 and became the basis for the proceedings and legislation leading to the construction of Hoover Dam.¹³

Other Notable Events in 1922

The year 1922 witnessed two further developments in the Colorado River program. In its long journey from the northern Rocky Mountains to the Gulf of California the Colorado and its important tributaries pass through the territory of seven states; and while most of the river's course lies within the United States, its lower reaches and outlet are under Mexican jurisdiction. The use and control of its waters, as emphasized in the Report to the Federal Government on the Problems of the Colorado Basin, thus require both interstate and international agreements.

The concurrence of the representatives of seven states was brought about through the good offices of Herbert Hoover, Secretary of Commerce, and chairman of the Colorado River Commission. The formal agreement, officially known as the Colorado River Compact, was signed in the Ben-Hur Room of the Palace of Governors at Santa Fe, New Mexico, on November 24, 1922.

Under the compact, the participating states were divided into those of the upper Colorado basin-Wyoming, Utah, Colorado, and New Mexico-and those of the lower basin-Arizona, California, and Nevada. Each division was allocated 7,500,000 acre feet of water, while an additional million-acre feet were assigned to the lower-basin states until 1963.

In the meantime a bill for the construction of a dam in Boulder Canyon, introduced by Congressman Phil D. Swing of San Bernardino, California, had begun its long and tortuous course through the House and Senate. The measure immediately encountered strong and skillfully directed opposition. Army engineers had an honest difference of opinion as to the most desirable location for the dam; electric power companies fought the measure, both openly and by undercover methods; and the state of Arizona adopted a suspicious and hostile attitude toward California and proved a major obstacle to the bill's early passage.¹⁴ In defense of the proposed site in Boulder Canyon, the Reclamation Bureau issued the following report:

There are eight possible dam sites at which power may be developed below Grand Canyon; namely, Parker, Mohave Valley, Bulls Head, Boulder Canyon, Devils Slide, Spencer Canyon, Bridge Canyon, and Diamond Creek, studies of each of which sites have been made by our engineers....The final results of these studies demonstrate conclusively that for power development as for flood control and irrigation storage the most feasible development on the lower river under existing conditions is the construction of a single large reservoir at Boulder Canyon.¹⁵

The Omnibus Adjustment Act of 1926

Section 45

In 1926 Congress enacted legislation known as the Omnibus Adjustment Act which had as its principle purpose the charging off of various items of construction charges in connection with nearly all of the projects. Section 45 of this Act, however, provided that before any project could receive the benefits of these charge-offs, the project water users would be required to repay remaining project costs through the medium of a joint liability contract executed by an irrigation district or by a water users' association.

Section 45 also provided for the repeal of the variable repayment plan set up by the 1924 legislation and substituted therefor a plan of repayment by fixed installments over a maximum period of forty years in addition to any previous period of repayments.

Under the impetus of the 1926 Act there has been a wholesale transfer of functions in irrigation districts

and water users' associations. On the projects and divisions of projects where water was first delivered after 1926, joint liability contracts have in every case been negotiated with irrigation districts and, of course, collections are made by the districts. Also, these contracts ordinarily provide for the transfer of operation and maintenance to the districts after completion of the project and upon notice by the Secretary.¹⁶

Section 46

Section 46 of the 1926 Act contains the provisions by which the acreage limitations imposed by the reclamation laws are currently applied. It provides that no water shall be delivered until a contract between the United States and an irrigation district has been executed, by which contract the district agrees to pay the United States the cost of construction and of operation and maintenance of the project works:

Such contract or contracts with irrigation districts hereinbefore referred to shall further provide that all irrigable land held in private ownership by any one owner in excess of one hundred sixty irrigable acres shall be appraised in a manner to be prescribed by the Secretary of the Interior and the sale prices thereof fixed by the Secretary on the basis of its actual bona fide value at the date of appraisal without reference to the proposed construction of the irrigation works; and that no such excess lands so held shall receive water from any project or division if the owners thereof shall refuse to execute valid recordable contracts for the sale of such land under terms and conditions satisfactory to the Secretary of the Interior and at prices not to exceed those fixed by the Secretary of the Interior.

It is evident from an examination of the legislative history of the various reclamation laws that the purpose of land limitations, and indeed the fundamental purpose of the reclamation laws themselves, insofar as irrigation is concerned, has been to encourage settlers to make their homes upon the land.

Section 46 has been construed from the beginning to mean that one receives water when one takes a delivery of water to the surface of his lands. However, there can be no doubt that some water delivered to lands in the vicinity of those of an excess landowner will find its way to the underground, will stabilize the underground, or reduce the rate at which it is being mined, and that the excess landowner can then pump this water to the surface of his land. The realization of this benefit has not been treated as the receipt of the project water by such excess landowner and, while he is required under State law to pay for benefits received as a result of construction of the project, he has not been required to comply with Federal excess land laws or to sign a recordable contract.¹⁷

The Interior Department has prescribed a form of contract known as a recordable contract which requires that the lands be sold within a period of ten years from the date of delivery of water to such lands. While some landowners have initiated a program for disposition of their lands during the ten year period, others have used the term as

one within which they could realize the greatest benefits from the project and have made no effort whatsoever to dispose of their lands within the prescribed term.

In the Central and Imperial Valleys of California no limit has been placed on the time within which a landowner must request to have water delivered to his excess lands. He may wait ten, fifteen, or more years before he calls for project water. The delay is sometimes deliberately availed of by landowners to determine by actual experience whether they will get sufficient benefits from the stabilization of the ground-water table to stave off the need for even calling for direct delivery of water and thereby subjecting their lands to reclamation law.¹⁸

Early Problems in Interpretation of Reclamation Laws

It was now apparent that the reclamation programs and laws had given rise to more complexities in the application of acreage limitations not initially contemplated. For example:

1. There are a number of areas which have been exempted from the operation of the excess land laws. The exemption of the Imperial Valley will be discussed later in the chapter.
2. Another troublesome area in the administration of the acreage limitations is created by the use of corporations, trusts, or limited partnerships as the landholding entity. All of such devices raise questions as to whether the form of legal title or the substance of ownership is to prevail.
3. The extent to which large blocks of nonexcess holdings are combined under a single lease should be ascertained and its consistency with land limitation policy considered.¹⁹

The Emergence of Two Philosophies Concerning
Land Limitation on Federal Reclamation Projects

In essence, there are two major schools of thought on the excess land laws. One holds that the technical and business character of modern agriculture is such that the large-scale farm will largely displace the homestead farmer and, that, therefore, realism and the public interest require modification of the excess land laws. Obviously, if such a policy is to be examined, other factors requisite to the public interest should also be considered.

The other school of thought holds that the irrigation phase of the reclamation program of the United States cannot be justified except as a means by which farmers will be given an opportunity to make their homes on the land. If this is to continue to be the policy of the United States, then the law should be modernized where necessary and such loopholes as may presently exist should be closed.²⁰

The Boulder Canyon Project Act of 1928

Because of the extremely arid climatic conditions in the area, no dryland farming is practicable. The soils are extremely fertile and the topography of the below-sea-level area is well fitted to irrigation farming.

Although the idea of bringing water from the Colorado River to the arid lands of the Imperial Valley was

conceived as early as 1849, it was not until the period of 1892-95 that developments were physically initiated to divert Colorado River water for use in the valley area through a canal which ran for a portion of its course through Mexico and then back into the United States. Under the system constructed by the privately financed California Development Company, approximately 5,000 acres of valley lands were in irrigated cultivation by 1903. Despite this encouraging start, the years of 1905-07 saw a disastrous flood in the valley when the company's canal heading on the Colorado River was lost and the entire flow of the river poured into the sub-sea-level valley raising the surface of Salton Sea, formerly nearly dry, to 195 feet below sea level and extending its area to approximately 330,000 acres. It was only with the financial backing of the Southern Pacific Railroad that the break was finally closed in 1907 and the Colorado River returned to its course.²¹

As a result of financial reverses suffered by the company, especially indebtedness incurred to the Southern Pacific in connection with the company's successful efforts to control the river break, the interests of the California Development Company passed to the Southern Pacific, and subsequently, in 1916, to the then newly organized Imperial Irrigation District. Despite problems occasioned by the financial situation and the series of remedial transactions land had continued to be brought under irrigation and by

1910 there were reportedly some 180,000 acres of valley lands thus cultivated. This trend continued and by 1922 as noted in Senate Document 142, 67th Congress, 2nd Session, which analyzed the problems of the Imperial Valley and vicinity as they related to the then contemplated construction of the Boulder Canyon project under the reclamation program, the irrigated acreage in the valley had increased to 415,000, with an expected ultimate acreage of 515,000.²²

Following a series of investigations, the Boulder Canyon Project Act (act of Dec. 21, 1928; 45 Stat. 1057) provided for the diversion of water, to be stored behind the herein authorized Hoover Dam on the Colorado River, to the lands of the Imperial and Coachella Valleys, over a route entirely within the boundaries of the United States. As plans and work moved forward to make such water deliveries a certainty, the Imperial Irrigation District entered into a repayment contract with the United States on December 1, 1932, for its proportionate amount of the costs of constructing the All-American Canal system and appurtenant works.²³

On October 12, 1940, water was turned into the East Highline Canal of the Imperial Irrigation District, permitting for the first time the irrigation of more than 400,000 acres of the land in the Imperial Valley of California through a canal system constructed entirely in

the United States. Many aspects of the growth and development of the area, during the ensuing fourteen years are summarized in Committee Print 13, entitled "The Contribution of the All-American Canal System, Boulder Canyon Project, to the Economic Development of the Imperial and Coachella Valleys, California, and to the Nation" as issued in 1956 for the use of the Committee on Interior and Insular Affairs, House of Representatives of the Congress of the United States. It is therein noted that:

1. The value of crops and livestock produced increased from \$26.7 million in 1940 to \$129.6 million in 1954, or by 4.8 times. During this same period the index of prices received by farmers increased only 2.4 times.
2. Total agricultural production in railroad-carlot equivalents increased from 53,000 in 1940 to 109,000 in 1954.
3. Acreage irrigated increased by 38,000 acres from 414,000 acres in 1940 to 452,000 acres in 1954.
4. Production of electric power from hydroelectric plants constructed and under construction on the All-American Canal would require consumption of about one-half million barrels of fuel oil annually if this power had to be produced from oil-fired steam plants.
5. The assessed valuation of Imperial County increased from \$36,176,000 in 1940 to \$72,612,000 in 1954.
6. The volume of retail trade in the Imperial Valley increased from \$23.7 million in 1939 to \$104.3 million in 1953.

7. In 1954, nearly \$2,300,000 was collected as a result of the California retail-sales-tax levy, and the property-tax levy produced \$5 million.
8. Fruit and vegetables equivalent to over 42,000 railroad carloads were produced in the Imperial and Coachella Valleys in 1954, with shipments to almost all of the 48 states and Canada. A large portion of these important foods was shipped during the winter months to supply the off-season demand.
9. Increase in population, car and truck registration, building permits, postal receipts, and other economic indicators reflect the beneficial effect of an assured water supply through the facilities of the All-American Canal system.²⁴

The Wilbur Letter

The years 1932 and 1933 produced two very significant events which caused great pleasure to those who wished no acreage limitation in the Imperial Valley. On December 1, 1932, the United States Government entered into a contract with the Imperial Irrigation District to determine rules and regulations concerning the deliverance of water to the valley via the All-American Canal. Much more will be said about this contract in the Malan Case which was filed January 12, 1933, and heard beginning March 16, 1933. This case will be discussed thoroughly later in the chapter.

One could argue convincingly that a letter on February 24, 1933, was the single most important document

in the fight to exempt the Imperial Valley from acreage limitation. This letter was written by the then U. S. Secretary of the Department of Interior, Ray Lyman Wilbur, to the Imperial Irrigation District. It should be noted that the Wilbur letter was solicited by the District. Shortly after his letter Secretary Wilbur resigned his position. The reason or reasons for his resignation, however, are unclear. Due to its extreme importance in subsequent litigation and opinions, the complete letter will be presented below:

Feb. 24, 1933

Imperial Irrigation District,
El Centro, California

Gentlemen:

Information at hand indicates that in connection with the contract with your district signed by me on behalf of the United States under date of December 1, 1932, some questions have been raised concerning the maximum area of land in single ownership that may be irrigated from the proposed All-American Canal. My attention has been specifically called to the suit now pending in the Superior Court of Imperial Valley, California, entitled Charles Malan v Imperial Irrigation District et al. Among other things the complaint in this case contains the following allegation:

"And it is further provided by the reclamation law of the United States that water shall not be delivered from any canal so constructed by the Secretary of the Interior under the said reclamation law to any landowner owning more than 160 acres of land."

The foregoing is an inaccurate statement of the reclamation law in this respect. Presumably this allegation is intended to refer to section 5 of the reclamation act of June 17, 1902, which reads in part as follows:

"No right to the use of water for land ownership shall be sold for a tract exceeding 160 acres to any one landowner, and no such sale shall be made to any landowner unless he be an actual bona fide resident on such land, or occupant thereof residing in the neighborhood of said land, and no such right shall permanently attach until all payments therefor are made." (Emphasis supplied).

It will be noted that while the reclamation law provides that no water shall be sold for a tract of land in excess of 160 acres in single ownership, it does not provide, as alleged, that no water shall be delivered from a canal constructed by the Government to any tract exceeding 160 acres in area.

The All-American Canal contract with the Imperial Irrigation District does not provide for the sale of storage water for use in the Imperial and Coachella Valleys. The contract, in Article 17, provides merely for the delivery of water for use in these valleys through the works to be constructed by the United States. No charge whatever is made for the water so to be delivered, and under the provisions of the Boulder Canyon Project Act no such charge can legally be made. From section 1 of this act for convenient reference the following is quoted:

"Providing, however, that no charge shall be made for water or for the use, storage or delivery of water for irrigation or water for potable purposes in the Imperial or Coachella Valleys."

Early in the negotiations connected with the All-American Canal contract the question was raised regarding whether and to what extent the 160-acre limitation is applicable to lands to be irrigated from this canal. Upon careful

consideration the view was reached that this limitation does not apply to lands now cultivated and having a present water right. These lands having already a water right are entitled to have such vested right recognized without regard to the acreage limitation mentioned. Congress evidently recognized that these lands had a vested right when the provision was inserted that no charge shall be made for the storage, use, or delivery of water to be furnished these areas.

In connection with the activities of the Bureau of Reclamation it has been held that the provisions of section 5 of the reclamation act restricting the sale of a right to use water for land in private ownership to not more than 160 acres will not prevent the recognition of a vested water right for a larger area and protection of the same by allowing the continued flowage of the water covered by the right through the works constructed by the Government. (Opinion of Assistant Attorney General, 34 L.D. 351; Anna M. Wright, 40 L.D. 116). On many projects it has been the practice to recognize vested rights in single ownership in excess of 160 acres and to deliver the water necessary to satisfy such rights through works constructed by and at the expense of the Government. This is true of the Newlands project, the North Platte project, the Umatilla project, and others.

The provision quoted from section 5 of the reclamation act relates to land in private ownership. This, of course, would not apply to the tributary public lands to be included within the boundaries of the district. While this particular provision would not be applicable to the public lands that may be entered to a far unit required for the support of a family. This area will be such as may be fixed by the Secretary, consisting of not less than 10 nor more than 160 acres. (Section 9 of the Boulder Canyon Project Act and Act of June 27, 1906, 34 Stat. 519).

The foregoing has been long settled by decisions of the Department and by the practice in carrying such decisions into effect.

Sincerely yours,

Ray Lyman Wilbur/s
Ray Lyman Wilbur
Secretary.

The letter is pretty much self explanatory. The subject of "prior vested rights" to water was the major point and basis causing the opinion of Mr. Wilbur.

The Imperial Irrigation District was not then, 1902, and is not now, a Federal reclamation project. The General Provisions of the original Reclamation Act of 1902, Section 383, reads as follows:

"Nothing in this chapter shall be construed as affecting or intending to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of this chapter, shall proceed in conformity with such laws, and nothing herein shall in any way affect any right of any State or of the Federal Government or of any landowner, appropriator, or user of water in, to, or from any interstate stream or the waters thereof."25

For example, it can be shown that the Imperial Irrigation system was built in part before 1902 and was therefore not subject to all of the provisions and regulations of The Act of 1902. The Coachella Valley, on the other hand, used Federal Government money to build their

irrigation system but there was a major string attached. The Government flatly stated that no money would be forthcoming unless the Coachella Valley consented to the 1960 acre provision. They did. One must remember, however, that in good years, 160 acres is equal to at least four times the acreage of a typical farm in the Midwest in terms of value of production. This is due, of course, to the very long growing season in Southern California.

It would be scarcely two months later before there would be a court test of acreage limitation.

The Malan Case

On March 16, 1933, in The Superior Court of the State of California in and for the County of Imperial heard the case of the Coachella Valley et al vs. Charles Malan et al. The issue was that the Coachella Valley wanted the 160 acre limit enforced in the Imperial Valley, and Mr. Malan held more than 160 acres. Briefly, the court ruled that the Imperial Irrigation District must supply water to landowners of acreage in excess of 160 acres. It was argued on behalf of the defendant, owner of 210 acres, that limiting water to only 160 acres would amount to taking his property without compensation. Several specific sections are taken from the Malan transcript in an effort to demonstrate the legal thought and philosophy that led to the ultimate conclusion.

Findings of Fact and Conclusions of Law

Finding No. 2.

That Imperial Irrigation District is and ever since on or about the 25th day of July, 1911, has been an irrigation district duly and regularly organized and existing under and by virtue of the California Irrigation District Act, approved March 31, 1897, and the acts amendatory thereof and supplementary thereto and that said irrigation district is situated entirely within the County of Imperial, State of California, and is now, and at all times since on or about July 25, 1911, has been acting as and exercising the rights of an irrigation district under the laws of the State of California, and the boundaries of said Imperial Irrigation District have not been changed since prior to July 1, 1931.²⁶

Finding No. 31.

That the defendant Charles Malan is the owner of more than 160 acres of land within Imperial Irrigation District and is an assessment payer and taxpayer therein.²⁷

Finding No. 35.

That under said Contract between the United States and Imperial Irrigation District dated the 1st day of December, 1932, the delivery of water will not be limited

to 160 acres in a single ownership and that the lands of the defendant Charles Malan in excess of 160 acres will not be denied water because of the size of said ownership, and that water service to lands regardless of the size of ownership will not be in any manner affected by said contract, so far as the size of individual ownership is concerned.²⁸

Finding No. 38.

The said contract entitled, "Contract for Construction of Diversion Dam, Main Canal and Appurtenant Structures and Delivery of Water", between the United States and Imperial Irrigation District, dated the first day of December, 1932, is not illegal and is not invalid and is not unauthorized and is not void for the reasons or for any of the reasons stated, mentioned or alleged in any of the defenses contained in either or any of the answers of any of the defendants herein or illegal or invalid or unauthorized or void for any reason or at all.²⁹

Conclusion XI

In its opinion, the Court reviewed the Boulder Canyon Project Act and the provisions of the contract and concluded that "there is nothing in the statute or in the contract limiting the acreage to which water may be sold and delivered." This conclusion was embodied in Paragraph

XI of conclusions of law as follows; "That neither the United States nor Imperial Irrigation District is limited by the terms of said contract or by any law applicable thereto in the delivery of water to any maximum acreage of land held in a single ownership."³⁰

It should be reiterated that while the opinion of the California Court is not binding upon the Government, it is at least authority for the view tht the excess lands restrictions do not apply to the All-American Canal Project. Also, the fact that confirmation of the contract was made a condition to construction of the project and the fact that Government, after confirmation of the contract, went ahead with construction indicates administrative acquiescence in the views expressed by the California Court.³¹

The State of Arizona, Complainant, vs.
Imperial Irrigation District et al³², Defendants,
United States of America, Intervener, State of Nevada,
Intervener. The Supreme Court of the United States, 1958.

The State of Arizona, and to a lesser extent, Nevada, were interested primarily in resolving two issues. Firstly, they claimed that there was an inequitable distribution of water from the Colorado River among the three states. California, it was alleged, was appropriating more than its share of water, for drinking, irrigating and establishing hydroelectric facilities.

Secondly, they sought enforcement of the 160 acre land limitation laws where appropriate.

Arizona's Position in the Case

Stated most favorable to Arizona its position is about as follows:

1. That the 160 acre land limitations of the federal general reclamation laws are applicable to Imperial Irrigation District because language in the Boulder Canyon Project Act recites that the Project Act is supplemental to the Reclamation Act.
2. Therefore, if applicable, the delivery by Imperial Irrigation District to and the use by "excess land owners" on their lands of water through the All-American Canal project in said District is allegedly illegal and, if illegal, the use of water can not be "beneficial."
3. Such alleged illegal use of water, in time, terminates the appropriative right and a new and consequently junior appropriation must be made.
4. That the alleged "excess land" abuses in Imperial Irrigation District should be weighed against such abuses, if any, in Arizona in considering the "equities" of the case as between Arizona and the California defendants.
5. It is asserted that Section 46 of the Omnibus Adjustment Act (44 Stat. 453; 43 USC 423e) is applicable to contracts made pursuant to the Boulder Canyon Project Act and, if applicable, the Imperial Irrigation District--United States, December, 1932, All-American Canal Contract is invalid.³³

Legal counsel for the Imperial Irrigation District filed a Brief of its position with the Supreme Court of the United States. The rebuttal to Arizona's position came in the following form:

1. The Coachella Valley et al vs. Charles Malan et al. The Superior Court of the County of Imperial, Imperial, California, January, 1933. The court found in March of 1933 that the Imperial Irrigation District was not subject to the 160 acre land

- limitation law that was enforced in other irrigation districts. The reader is invited to refer to an earlier section of this Chapter for a more detailed discussion of the Malan Case.
2. The Wilbur letter of February, 1933, U. S. Secretary of the Interior, Ray Lyman Wilbur, after studying the legal history of the Imperial Irrigation District, concluded that the District was not obligated to follow the general 160 acre land limitation law. A complete text of the letter is presented in an earlier section of the Chapter.
 3. In the twenty-five years following the Malan Case and the Wilbur letter, the Federal Government chose not to enforce the 160 acre land limitation law in the Imperial Valley. This led many farmers in the region to consolidate lands or, in general, build their properties to the point where, in 1958, farms larger than 160 acres were quite common. Indeed, a general belief that the Federal Government's position had been established let to farms which consisted of thousands of acres. More will be said about these large farms in Chapter V.³⁴

The Special Master of the Supreme Court after hearing arguments from both sides ruled out the inclusion of the acreage limitation controversy as irrelevant in the water suit. The Special Master did, however, in 1964, apportion water of the Colorado River in the following way: 4,400,000 acre feet of existing water to California, 2,800,000 acre feet to Arizona and 300,000 acre feet to Nevada.³⁵ These figures were subject to availability but an approximate ratio has been established.

The decree of the Special Master was no sooner in before the Interior Department issued a revised ruling that was intended to cover the 160 acre controversy in the Imperial Valley.

The Barry Opinion

Virtually nothing in the way of major legislation or court decisions involving acreage limitations in the Imperial Valley occurred in the ensuing twenty-five years. Likewise there was a paucity of important letters, opinions or legal conflicts on this section. But on December 30, 1964, Interior Solicitor, Frank M. Barry, acting on instructions from Secretary Stewart Udall, reviewed the legal history of the Imperial Valley and concluded that the Valley was indeed to come under the 160 acre limitation law.

Mr. Barry stated that:

"Section 9 of the Boulder Canyon Project Act expressly applies the 160 acre limitation to public lands in the project. Hence we are only concerned here with privately owned lands. Since Secretary Wilbur's ruling was limited to lands then irrigated from the Colorado River, this opinion considers lands to which an antecedent water right was assumed to be appurtenant. Thus, the question considered here is: Are privately owned lands in the Imperial Irrigation District, assuming they have appurtenant water rights, subject to the excess land laws?"³⁶

Mr. Barry said a holding that the landowners are exempt from acreage limitations must find support in clear language of the Boulder Canyon Project Act. "Substantial rights were conferred by that Act. A grant by the United States of rights, privileges or immunities is construed against the grantee and what is not expressly granted is reserved."³⁷

In section 4 of the Project Act, the Secretary is directed to estimate and announce the per-acre charge and the number of annual installments. This is his estimate of the consideration to be paid by the water user for the sale referred to in Section 5. When Section 5 states "no right to the use of water for land in private ownership shall be sold" for more than 160 acres, it obviously means that the use of project facilities shall not be made available to a single owner for service to more than 160 acres.³⁸

He said, "Section 14 of the Project Act incorporated reclamation law, and the land limitation provisions of Section 46 of the 1928 Act are part of reclamation law. Nothing in the Project Act exempts lands in the Imperial Valley from Section 46. Therefore the land limitations of Section 46 are a part of the Project Act...."³⁹

Section 46 of the Omnibus Adjustment Act made the execution of repayment contracts mandatory before the expenditure of Federal funds for construction, operation and management of irrigation works. It also provides that such contracts will contain provisions that water will not be delivered to lands in excess of 160 acres in one ownership unless the owner agrees to dispose of such excess lands under terms satisfactory to the Secretary of the Interior. These provisions were adopted by Congress to prevent land speculation.⁴⁰

Mr. Barry said, "So firmly established are the excess land provisions of the reclamation law that Congress

suspends their operation only where extraordinary circumstances dictate. When Congress has seen fit to waive or modify the excess land laws in certain projects, it has always found it appropriate to enact positive legislation setting forth the exemption or other modification in unmistakable terms. Where Congress deems a departure from its established policy to be in order it so provides by express terms, and not by implication."⁴¹

Concerning the Wilbur letter, the Interior Department "has found Secretary Wilbur's ruling to be without legal foundation. The question now is whether the Wilbur ruling, the long practice of nonenforcement and the assumed reliance (by private land owners) can have the effect of validating the exemption which initially was without legal justification. The answer is, of course, that they cannot." Mr. Barry stated, citing Supreme Court decisions which overturned invalid administrative positions of more than 60 and 40 years standing and requiring compliance with the law.⁴²

"The interpretation in the Wilbur letter of the meaning of the Project Act was clearly wrong and could not affect a change in the statutes enacted by Congress. The fact that the Department has failed for over 30 years to enforce acreage limitations in Imperial Valley cannot legitimize a violation of public policy contrary to the spirit and letter of the law....Privately owned lands in

Imperial Irrigation District, even those assumed to have vested Colorado River water rights, are subject to the excess land laws," Solicitor Barry concluded.⁴³

Following Barry's opinion, Secretary Stewart L. Udall stated that, "I am instructing Commissioner of Reclamation Floyd E. Dominy to commence discussions with the District in order to implement Solicitor Barry's opinion. We expect these discussions to begin immediately and to conclude in a reasonable period of time. On that basis, Reclamation will continue to delivery water to the District during this interim period."⁴⁴

The United States of America, Plaintiff, vs.
The Imperial Irrigation District of California, Defendant,
The State of California, Intervening Defendant.

Between 1964 and 1967, no farmer in the Imperial Valley was forced to divest himself of any "excess lands" due to the Barry opinion. Seeking stronger means of enforcement, the United States moved against the Imperial Irrigation District. In 1967 the case was filed in United States District Court in San Diego, California, but it was not until December 2, 1970, that Judge Howard B. Turrentine began hearing arguments. Eight days later the case was concluded and on January 5, 1971, Judge Turrentine, after hearing the legal history beginning with The Reclamation Act of 1902, ruled that:

"At no time from 1933 to the present has Congress taken any action in derogating of the propriety of

the Wilbur interpretation or of the long standing administrative practice which followed it.

It has been observed that to attribute significance to the inaction of Congress is often a shaky business. In this case, however, some weight must attach to this knowing inaction. Congress would hardly have ignored the Department's failure to enforce an important provision of reclamation law.

The court accordingly holds that the defendant Imperial Irrigation District is not bound by the land limitation provisions of reclamation law in the delivery of Colorado River water to any of the privately owned lands within the boundaries of Imperial Irrigation District.

The Court further holds that the land limitation provisions of reclamation law have no application to privately owned lands lying within the Imperial Irrigation District."⁴⁵

The Federal Government was given until April 9, 1971, to appeal the decision, but U. S. Solicitor General Griswold declined.

Thus the long history of the applicability of the excess land laws to the Imperial Irrigation District has apparently come to an end.

FOOTNOTES

¹U. S. Department of Interior, Acreage Limitation Problem: A Study Prepared Pursuant to a Resolution of the Committee on Interior and Insular Affairs of the United States Senate (Washington, D. C.: Government Printing Office, 1964), p. ix.

²The Federal Reclamation Act of 1902.

³Ibid.

⁴U. S. Department of Interior Study, p. x.

⁵B. P. King, The Excess Land Provisions of the Federal Reclamation Laws. Billings, Montana, 1941, p. 15.

⁶U. S. Senate Report Number 254, 57th Congress, First Session, p. 8.

⁷King, p. 19.

⁸Congressional Record, vol. 35, p. 2221.

⁹Testimony of F. H. Newell, Director of the Reclamation Service, before the Senate Committee on Irrigation and Reclamation of Arid Lands, July 22, 1909, Senate Report Number 1261, 61st Congress, Third Session, p. 85.

¹⁰King, p. 27.

¹¹Ibid., p. 27.

¹²U. S. Department of Interior Study, p. ix.

¹³Robert G. Clelland, From Wilderness to Empire: A History of California. New York: Alfred Knopf, 1962, p. 337.

¹⁴Ibid., pp. 337-338.

¹⁵Ibid., p. 338.

¹⁶King, p. 113.

- ¹⁷U. S. Department of Interior Study, p. xi.
- ¹⁸Ibid., p. xi.
- ¹⁹Ibid., pp. xi-xii.
- ²⁰Ibid., pp. xii-xiii.
- ²¹Ibid., pp. 52-53.
- ²²Ibid., pp. 52-53.
- ²³Ibid., pp. 52-53.
- ²⁴Ibid., pp. 52-53.
- ²⁵Reclamation Act of 1902, Ch. 1093, Sec. 8,
32 Stat. 390. June 17, 1902.
- ²⁶The Coachella Valley et al. vs. Charles Malan
et al. In the Superior Court of the State of California,
In and for the County of Imperial., January, 1933., pp. 2-4.
- ²⁷Ibid., p. 26.
- ²⁸Ibid., p. 28.
- ²⁹Ibid., p. 29.
- ³⁰Ibid., p. 33.
- ³¹Remarks made by R. F. Carter, Manager of Imperial
Irrigation District, in response to a magazine article,
July, 1956.
- ³²Other co-defendants are major water distribution
districts including the cities of Los Angeles and San Diego.
- ³³The State of Arizona, Complainant, vs. Imperial
Irrigation District et al., Defendants, United States of
America, Intervener, State of Nevada, Intervener. The
Supreme Court of the United States, 1958.
- ³⁴Ibid., pp. 1-2.
- ³⁵Ibid., pp. 58-59.
- ³⁶Memorandum Number M-36675 to the Secretary of the
Interior from Solicitor Frank M. Barry, December 30, 1964.
Subject: Excess Land Laws, Imperial Irrigation District.

³⁷Ibid., p. 6.

³⁸Ibid., p. 6.

³⁹United States Department of the Interior, News Release for December 31, 1964, p. 2.

⁴⁰Ibid., p. 2.

⁴¹Ibid., p. 2.

⁴²Ibid., p. 3.

⁴³Ibid., p. 4.

⁴⁴Ibid., p. 1.

⁴⁵United States of America, Plaintiff, vs. Imperial Irrigation District, A Corporation, In the United States District Court for the Southern District of California, January 5, 1971.

CHAPTER IV

AN ANALYSIS OF SELECTED ECONOMIC INSTITUTIONS IN THE IMPERIAL VALLEY, CALIFORNIA

As was indicated in Chapter I, this Chapter will focus on four topics: the labor situation, the market the valley farmer faces for his output along with costs associated with said output, the controversy over electrical rates charged to individuals and groups and the property structure in the valley with respect to different types of farm ownership and the various sizes of farms in the Imperial Irrigation District.

Labor

The labor data for Imperial County present a general picture of a population which lags well behind the State of California in educational attainment level, income, and job opportunities. However, before these data can be discussed in detail, a problem peculiar to the area must be discussed.

The International Commuter Phenomenon

The agricultural industry in California has long been dependent upon Mexican citizens as a source of farm workers. The volume of agricultural jobs in the State has attracted many Mexican immigrants over the years, and during the period of the "bracero" program workers were recruited in Mexico for temporary farm work in the United States. As the "bracero" program drew to a close between 1960 and 1965, a large number of Mexican farm workers were able to obtain immigrant visas from the United States. Many of these immigrants settled in border communities in Mexico. This provided them with close access to United States farm jobs, and a home in their native country. The actual number of people who live in Mexicali, Mexico, and work in Imperial County is not known but occasional border-crossing surveys performed by the U. S. Department of Immigrant and Naturalization give some indication. One survey, taken in December, 1967, counted close to 10,000 residents of Mexicali who crossed the border to work or seek work in Imperial County.¹ Almost a fourth of them held U. S. citizenship. A similar survey done in 1966 gave comparable results. These surveys would indicate that, at least during the months of the surveys, roughly 30 per cent of the Imperial County work force lived in Mexicali.²

Little is known about these workers, except that most of them work in agricultural jobs (Tables 1 and 12). Some labor union spokesmen have stated that the commuters depress local wages and take income out of the County, but there are no data yet available which would either substantiate or refute these claims. Aside from the matter of worker welfare, the existence of the commuters raise several questions which should be mentioned prior to discussion of the population and the work force.

Since the commuters work in Imperial County, they are included in work force data, in both the employed and unemployed components. The extent to which they affect the total unemployment figure is not known. If it could be determined that the inclusion of commuters in the work force contributes significantly to the size of the County's unemployed total, would the approach to reducing local unemployment be the same as if all the jobless workers resided in the County? The characteristics (education, occupation, etc.) of local resident workers and commuters differ (Tables 3, 6, 11 and 12). The answer to these questions would have important implications for manpower planning policy.

Little is known about the mobility of these workers. It has been surmised that most of the commuters work in agriculture or in other seasonal industries. How many of these workers move to northern counties during

local slack periods, and how many withdraw temporarily from the labor market pending resumption of seasonal activities? If many of the workers spend long periods of unemployment locally (in Mexicali), they represent a potentially large source of undetected unemployment (Table 2).

As has been mentioned, many of the commuters are U. S. citizens, and all could eventually be, if they are not now, eligible for U. S. citizenship. What is their tendency to seek permanent homes in the United States. If they were able to obtain higher paying, more stable jobs, would they prefer to live in Imperial County? Overall economic planning which would anticipate expansion in non-farm employment should consider the effects of possible immigration to Imperial County by the commuters. From 1961 to 1971 there has been a 38 per cent increase in border-crossings (Table 5).

These questions are at the moment unanswerable without the use of expensive and difficult surveys. However, they are raised here to add an important dimension to the population and work force data which follow.

Population and Labor Force

The relatively slow growth in the number of year round jobs can probably be cited as the primary reason for a high level of unemployment in Imperial County.

During 1969, non-farm wage and salary employment reached a seasonal low in August of 17,350, and peaked in December with a total of 18,950 workers. The difference between these two figures--1,600--represented 8.4 per cent of the December peak level.³ This means that in the non-farm sector alone at least one worker in twelve was laid off some time during the year. If the agricultural sector is also considered, the number of jobs affected by the seasonal layoffs increases to nearly one to four, with 7,500 jobs being affected. Total unemployment during 1969 was lowest during August when an estimated 1,900 workers were unemployed, and was highest in March when the jobless total was 3,700 (Table 2).

Most of the seasonal fluctuations in employment occur in industries tied to agricultural activities. The precise extent to which the seasonally unemployed tend to migrate to jobs outside the County is now known. That they do migrate to a considerable extent is demonstrated by the fact that of all local unemployment insurance claimants surveyed during January, 1963, 48 per cent of the men and 44 per cent of the women had last worked outside of Imperial County. Those who do not migrate apparently withdraw from the local labor force, without physically leaving the area, and await a seasonal upswing in hiring. Consequently, in Imperial County peak periods of employment are usually associated with high unemployment,

and slack periods with low unemployment. Unless all laid-off workers out-migrate during slack work periods, which seems unlikely, current estimates of the work force imply a large amount of undetected unemployment or a very low participation rate, the level of which would contradict or is not revealed by census data.

Throughout the 1950's and 1960's, the natural increase in the population averaged approximately 1,500 per year. Assuming a constant expansion of the working age population of 1,500 per year, application to this addition each year of the 1960 work force participation rate for Imperial County would indicate that to accommodate new entrants to the labor force about 900 jobs a year would have to be created. Given that employment in the agricultural sector at best held even during the 1960's, all expansion would have to have been centered in the non-farm sector. However, non-farm employment has only increased by an average of 400 jobs per year.⁴

Between 1950 and 1960, the County experienced a new outmigration equal to over 8 per cent of its 1950 total population. Considering that there must have been some immigration during that ten-year period, the net out-migration total of 5,200 probably understates the actual total out-migration figure. It is doubtful that this trend of out-migration was broken during the 1960's, but the net migration figure turned from negative to

positive between 1960 and 1966.⁵ Population figures for that period seem to indicate that there was a considerable amount of immigration, possibly of workers seeking to fill farm jobs vacated by the loss of "braceros."

Comparison of 1950 and 1960 census data tend to support a thesis that the out-migration which took place during the 1950's was of people in the prime working age group. Despite the fact that the total population for Imperial County increased by 11.3 per cent between 1950 and 1960, the number of residents aged 25 to 44 decreased by 0.5 per cent. The 25-to-44 age group for the entire state increased by 28.2 per cent during the ten-year period. The number of persons in the County in the 15-to-24 age group decreased by 11.0 per cent during the decade while statewide this group increased by 48.2 per cent.

The effect of large scale seasonal unemployment, slow growth in year-round jobs, and the presumed out-migration of younger workers are evident in much of the demographic data for Imperial County.

The educational attainment level of Imperial County's population is significantly below that of the entire state (Table 3). One possible reason for this is that those who leave the area to seek work elsewhere probably tend to be persons with more years of schooling. The high proportion locally of Spanish surname individuals does not explain the overall lower education level, as

non-Spanish surname persons alone did not compare favorably with the whole state in educational attainment (Table I).

In 1960, among the 58 counties in California, Imperial County ranked 54th in the per cent of workers in "white collar" jobs, 56th in per cent of workers in manufacturing jobs, and 53rd in per cent of persons 14-17 years old enrolled in school.⁶

The median family income of County families in 1959 (\$5,507) was 18 per cent below the statewide figure for that year. Moreover, Imperial County's population per household was 3.53 compared to the state's ratio of 3.05. While 14 per cent of all of California's families earned under \$3,000 in 1959, 21 per cent of the County's families earned less than that amount (Table 13).

In 1968, average worker earnings in Imperial County were considerably below those for all workers in the state. Considering only employees covered by Unemployment Insurance, average earnings for that year were \$7,318 statewide compared with \$5,447 in Imperial County.⁷ This phenomenon has not changed considerably in the 1960's.

The Role of Mechanization

Larger farming units have made it more feasible to invest in expensive machinery by spreading costs over more acres. By the same token, smaller farms have been

forced to expand to a certain minimum size in order to take advantage of mechanical aids. For example, a grower must plant at least 100 acres of canning tomatoes in order to gain the most efficiency from a tomato harvester.⁸

During 1971, bulk handling of cannery tomatoes increased fourfold over 1970. More than 540,000 tons of fruit were loaded from harvesters directly into bulk containers on trucks. This amounted to over 13 per cent of the four million tons of fruit delivered. As this method of harvest eliminates the need for tractors and forklifts, a significant labor saving is possible.⁹

The Farm Family

The number of farmers and unpaid family workers continued to decline. Increased production costs have put many small farms out of business. Smaller farms have been consolidated with other farms in an attempt to form more profitable enterprises. The number of corporate farm holdings has also increased and urban sprawl continues to take its toll of farmland. More will be discussed on this topic in a later section of this chapter.

Attempts to Organize or Unionize Farm Workers in the Imperial Valley

There have been many abortive attempts to organize farm workers since the Wobblies' first effort in 1905. The

TABLE 1

CIVILIAN WORK FORCE PARTICIPATION
BY PERSONS 14 AND OVER - 1970

Item	Imperial County		
	Population 14 and over	Civilian Work Force	Participation Rate
<u>Total</u>	<u>43,500</u>	<u>24,500</u>	<u>56.3</u>
Male	22,800	17,500	76.8
Female	20,700	7,000	33.8
<u>Minority groups</u>			
Spanish surname			
Male	5,600	4,400	78.6
Female	5,400	1,600	29.6
Other than white			
Male	2,100	1,400	66.7
Female	1,500	400	26.7

SOURCE: U. S. Census, 1970.

TABLE 2

UNEMPLOYMENT RATES - 1960 - 1969

Year	Imperial County	
	Total Unemployment	Rate
1960	2,300	6.7
1961	2,800	8.7
1962	2,800	9.1
1963	2,900	9.4
1964	3,100	9.7
1965	3,200	10.3
1966	3,000	9.6
1967	3,100	9.8
1968	2,500	8.2
1969	2,700	8.6

SOURCE: California Dept. of Human Resources Development.

TABLE 3

YEARS OF SCHOOL COMPLETED FOR
PERSONS 25 YEARS AND OVER - 1970

Years of School Completed	Imperial County			
	Persons 25 years and over			
	Total	Spanish Surname	Other than Spanish Surname	% of total
<u>Total</u>	<u>37,400</u>	<u>11,900</u>	<u>25,500</u>	<u>100.0</u>
0 - 4 years	8,700	6,600	2,100	8.2
5 - 8 years	10,200	3,200	7,000	27.5
9 - 12 years	13,400	1,700	11,700	45.9
13 years and over	5,100	400	4,700	18.4

SOURCE: U. S. Census.

TABLE 4

ESTIMATED AGE DISTRIBUTION OF BRACEROS IN IMPERIAL
COUNTY AS OF APRIL 1, 1960

<u>Age Group</u>	<u>Total</u>
<u>Total</u>	<u>5,300</u>
15-19 years	286
20-24 years	981
25-29 years	1,060
30-34 years	928
35-39 years	965
40-44 years	583
45-49 years	254
50-54 years	111
55-59 years	64
60-64 years	32
65-69 years	36

SOURCE: U. S. Census.

TABLE 5

MEXICAN BORDER CROSSERS TO THE
IMPERIAL VALLEY FROM MEXICALI, MEXICO

Calendar Year	Number	Increase
1971	13,304,313)	
	)	6 per cent
1970	12,497,237)	
	)	6 per cent
1969	13,353,087)	
	)	6 per cent
1968	14,207,338)	
	)	7 per cent
1967	13,304,585)	
	)	6 per cent
1966	12,540,375)	
	)	4 per cent
1965	12,059,503)	
	)	3 per cent
1964	11,669,536)	
	)	3 per cent
1963	11,335,898)	
	)	10 per cent
1962	10,308,644)	
	)	7 per cent
1961	9,610,583)	

SOURCE: Data Furnished by Officer in Charge, Eldon W. Woolley, Immigration and Naturalization Service, Calexico, California, June 9, 1972.

TABLE 6

CHARACTERISTICS OF PERSONS OF SPANISH SURNAME - 1968
IMPERIAL COUNTY

Age by Sex	Total	Male	Female
Total	18,550	9,367	9,183
Under 5 years	2,901	1,505	1,369
5 - 9 years	2,746	1,295	1,451
10-14 years	2,279	1,198	1,081
15-19 years	1,490	633	867
20-24 years	1,369	772	597
25-29 years	1,097	497	602
30-34 years	1,315	550	765
35-39 years	1,311	636	675
40-44 years	654	246	408
45-49 years	732	365	367
50-54 years	609	344	265
55-59 years	1,144	879	265
60-64 years	347	166	181
65-69 years	213	108	105
70-74 years	215	123	92
75 years and over	128	52	75
<hr/>			
Total Spanish Surname	18,550		
Native	12,999		
Foreign Born	5,551		
Born in Mexico	5,166		
<hr/>			
<u>Labor Force</u>			
Male 14 years and over	5,556		
Civilian labor force	4,429		
Employed	4,053		
Unemployed	376		
Per cent unemployed	8.5		
Female 14 years and over	5,446		
In labor force	1,617		

SOURCE: California Department of Employment Southern Area
Research and Statistics, April, 1968.

TABLE 7

AGE BY SEX
IMPERIAL COUNTY TOTAL
1970

<u>Age Group</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
<u>Total</u>	<u>66,805</u>	<u>34,590</u>	<u>32,215</u>
Under 5 years	8,915	4,570	4,345
5 - 9 years	8,414	4,317	4,097
10-14 years	7,196	3,539	3,657
15-19 years	5,141	2,494	2,647
20-24 years	3,711	1,760	1,951
25-29 years	4,059	1,966	2,093
30-34 years	4,542	2,161	2,381
35-39 years	4,414	2,143	2,271
40-44 years	3,988	2,040	1,948
45-49 years	3,666	1,914	1,752
50-54 years	3,284	1,868	1,416
55-59 years	2,569	1,493	1,076
60-64 years	1,893	1,022	871
65-69 years	1,570	870	700
70-74 years	1,197	726	471
75 years and over	2,246	1,707	539

SOURCE: California Department of Employment Southern Area,
Research and Statistics, April, 1968.

TABLE 8

POPULATION BY CENSUS DIVISION AND COMMUNITY*
IMPERIAL COUNTY

Place	Feb. 1966	April 1960	% Change
Brawley division	14,467	12,302	+ 17.6
Brawley City	14,467	12,302	+ 17.6
Brawley rural division	3,341	3,412	- 2.1
Calexico division	11,360	10,060	+ 12.9
Calexico City	9,850	7,992	+ 23.2
Calipatria division	4,211	3,949	+ 6.6
Calipatria City	1,953	1,853	+ 5.4
El Centro division	19,280	15,987	+ 20.6
El Centro City	19,280	15,987	+ 20.6
El Centro rural division	8,954	6,528	+ 37.2
Holtville division	5,732	5,259	+ 9.0
Holtville City	3,538	3,080	+ 14.9
Imperial division	4,514	3,814	+ 18.4
Imperial City	3,271	2,630	+ 24.4
Imperial east division	608	849	- 28.4
Imperial west division	1,150	825	+ 39.4
Westmoreland division	2,220	1,847	+ 20.2
Westmoreland City	1,414	1,205	+ 17.3
Winterhaven-Bard division	2,182	1,973	+ 10.6

*For comparison with unadjusted figures, see "Current Population Reports--Special Census", Series P-28, No. 1416, May 26, 1966, published by the Bureau of the Census.

SOURCE: California Department of Employment Southern Area, Research and Statistics, April, 1968.

TABLE 9

COMPONENTS OF POPULATION CHANGE - 1950, 1960, 1966

	Item	Imperial County
Population	1966	78,000
Population	1960	66,800
Population	1950	60,000
Change	1950-1960	
Amount		+ 6,800
Per cent change		+ 11.3
Change	1960-1966	
Amount		+ 11,200
Per cent change		+ 16.8
Components	1950-1960 <u>1/</u>	
Natural change		+ 15,850
Net migration		- 5,200
Components	1960-1966	
Natural change		+ 8,100
Net migration		+ 3,100

1/ Difference between total absolute change and components is net loss to armed forces.

SOURCE: Overall Economic Development Plan, Prepared by the Imperial County Economic Development Commission March, 1970

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TABLE 11

COUNTY OF IMPERIAL
SELECTED POPULATION CHARACTERISTICS

AGE GROUP	TOTAL	PER CENT	WHITE	PER CENT	BLACK	PER CENT	OTHER RACES	PER CENT
Under 6 Years	8,947	12.0	8,284	12.0	292	11.3	371	12.0
6 - 9 Years	7,344	9.9	6,768	9.8	255	9.9	321	10.4
10-11 Years	3,819	5.1	3,510	5.1	147	5.7	162	5.2
12-13 Years	3,787	5.1	3,493	5.1	140	5.4	154	5.0
14-15 Years	3,625	4.9	3,319	4.8	138	5.3	168	5.4
16 and Over	46,970	63.1	43,432	63.1	1,614	62.4	1,924	62.1
16-21 Years	7,910	10.6	7,244	10.5	294	11.4	372	12.0
22-45 Years	20,438	27.4	19,042	27.7	595	23.0	801	25.8
45 and Over	19,459	26.1	17,938	26.1	750	29.0	781	25.2
55 and Over	11,731	15.8	10,733	15.6	493	19.1	555	17.9
65 and Over	5,540	7.4	5,016	7.3	230	8.9	294	9.5

SOURCE: "California Manpower Indicators From the 1970 Census", Manpower Package No. 1 General Population Characteristics, State of California Department of Human Resources Development, Employment Data and Research February, 1972.

TABLE 12

ANNUAL AVERAGE TOTAL CIVILIAN WORK FORCE, EMPLOYMENT AND UNEMPLOYMENT

Item	1963	1964	1965	1966	1967	1968	1969
Total civilian work force	30,900	31,900	31,100	31,300	31,700	30,600	31,400
Unemployment total	2,900	3,100	3,200	3,000	3,100	2,500	2,700
Unemployment rate	9.4	9.7	10.3	9.6	9.8	8.2	8.6
Employment total	28,000	28,800	27,900	28,300	28,600	28,100	28,700
Non-agricultural wage and salary <u>1/</u>	14,750	15,300	15,900	16,000	16,500	17,350	18,000
Manufacturing	1,600	1,600	1,550	1,350	1,500	1,450	1,500
Food processing	750	700	700	650	550	550	600
Stone, clay, glass	500	550	500	350	350	400	400
Other manufacturing	350	350	350	350	600	500	500
Non-manufacturing	13,150	13,700	14,350	14,650	15,000	15,900	16,500
Construction	450	550	600	550	550	500	450
Transportation, communication, utilities	900	900	950	1,050	1,150	1,100	1,100
Trade	4,900	5,000	5,250	5,150	5,300	5,650	6,100
Wholesale	1,050	950	1,050	1,050	1,250	1,300	1,400
Retail	3,850	4,050	4,200	4,100	4,050	4,350	4,700
Financial, insurance, real estate	450	500	500	550	500	500	500
Services	2,000	2,100	2,200	2,200	2,150	2,250	2,400
Government	4,450	4,650	4,850	5,150	5,400	5,800	5,950
Federal	650	650	600	700	750	850	900
State and local	3,800	4,000	4,250	4,450	4,650	4,950	5,050
All other non-agricultural <u>2/</u>	3,050	3,050	3,100	3,150	3,150	3,200	3,200
Agriculture	10,200	10,450	8,900	9,150	8,950	7,550	7,500

1/ Excludes domestics.

2/ Includes domestics and self-employed.

SOURCE: California Department of Human Resources Department, March, 1970.

TABLE 13
FAMILY INCOME IN 1959

Family Income	Total Population				Spanish Surname			
	Imperial County		California		Imperial County		California	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All families	15,200	100.0	3,991,500	100.0	3,358	100.0	304,800	100.0
Under \$3,000	3,200	21.2	562,700	14.1	1,020	30.4	58,300	19.1
\$3,000 - \$4,999	1,600	10.5	290,900	7.3	552	16.4	72,800	23.9
\$5,000 - \$9,999	8,100	53.2	2,266,200	56.8	1,597	47.6	141,000	46.3
\$10,000 and over	2,300	15.1	871,700	21.8	189	5.6	32,700	10.7
Median Family Income	\$5,507		\$6,726		\$4,177		\$5,533	

SOURCE: U. S. Census, 1960.

TABLE 13 (continued)

Family Income	Other Than White			
	Imperial County		California	
	Number	Percent	Number	Percent
All families	567	100.0	276,500	100.0
Under \$3,000	174	30.7	68,600	24.8
\$3,000 - \$4,999	117	20.6	34,000	12.3
\$5,000 - \$9,999	243	42.9	146,900	53.1
\$10,000 and over	33	5.8	27,000	9.8
Median Family Income	\$3,301		\$4,971	

SOURCE: U. S. Census, 1960.

success of Cesar Chavez in overcoming some of the difficulties of organization in creating the United Farm Workers Organizing Committee in Delano, California is unlikely to be duplicated in the East where small farms and predominately row crops, which spoil if not picked on time, compound other difficulties. The obstacles are formidable in view of such problems as the dispersed nature of the industry, the seasonality of employment and the powerful political pressure of growers, who have been able successfully to maintain the exclusion of farm workers from the representative election and unfair labor practices provisions of the National Labor Relations Act (Taft-Hartley Act) of 1947. Growers have long argued that extension of the National Labor Relations Act to agriculture would be disastrous.

Though the Hawaii agricultural pattern is not entirely comparable to that in the United States owing to the greater number of nonmigratory workers, the legislative picture gives some indication that recognition of farm worker organization is not necessarily disastrous. In 1945 Hawaii passed an Employment Relations Act, sometimes called the "little Taft Hartley Act" covering most farm workers. This has been described as beneficial. "It does provide an opportunity for agricultural employees to achieve protection under a law designed to encourage collective bargaining, the determination of bargaining units and the prevention of unfair labor practices. On the whole, the labor relations picture has been reasonably stable.... (and) a beneficial factor in the development of Hawaii's agricultural industries." (U. S. Senate, 1967, 939-40).¹⁰

The farm production cycle is generally fixed by the calendar and the laws of nature, and if delayed or interfered with beyond narrow time limits will bring financial ruin. Thus, farmers are uniquely vulnerable to control of their labor supply by a union. They would be under irresistible and compulsive pressure to accept whatever demands the union might make, no matter how unreasonable or arbitrary such demands might be.

A further obstacle to organization is the passivity of the migrant farm worker. Though migrants have much to gain from active attempts at organization, their reaction to occasional organizational attempts has been apathy, fear, and a very realistic concern that their subsistence level would not enable them to survive a strike.

Thus the migrant labor system is perpetuated; by growers through appalling labor practices, by migrants through their adaption to a situation they cannot control, by government through benign neglect, and by society through sheer indifference.

In 1952 Cesar Chavez opened a new chapter in California labor history by launching a drive to organize the migratory farm workers. He was one of them, born into and brought up in such a family. As a youngster he spent more time in the fields than in schools, and he continued in this shifting, sporadic, low-paid work, the only kind of employment he knew, until 1952. At that time he went

to work in the AFL-CIO's Community Service Organization and its efforts among Mexican laborers. Having failed to persuade this organization to start a farm workers' union, Chavez decided in 1962 to try to do so himself.¹¹

From Delano as a base he launched the National Farm Workers Association (NFWA) and began soliciting members. In this union he set up a death-benefit plan, a credit union, and a newssheet, "El Malcriado." The appeal was primarily to Mexicans. By August, 1964, membership was phenomenal at 50,000.¹²

This new union scored several victories. It won a suit against a grower who was paying less than the \$1.25 an hour then required by the country-cousin clause of the federal minimum wage law. It won a court order that Tulare County improve the housing at two labor camps.¹³

In September, 1965, as the grape harvest shifted from Coachella Valley to the San Joaquin, a group of Filipino grape pickers came to Delano, bringing with them a union organization under the AFL-CIO. They struck for pay equal to what the growers were paying imported pickers. On September 16, a quickly called meeting of Chavez' union faced the issue of joining the strike. The fervor of Mexico's Independence Day rally readily transferred to the cause. "Viva Mexico!" transmuted to "Viva la Huelga (the strike)! Viva la Union!" Chavez soon became the guiding spirit in collaborating unions and eventually they coalesced.¹⁴

The major reason why unions in the Imperial Valley have only been sporadically successful is the fact that they receive decent wages in the United States and are able to return to Mexico (primarily Mexicali) daily where the cost of living is much cheaper. Thus, attempts to convince migrant workers that they are being economically exploited have not been fruitful.

Migrant Mexican workers in the northern areas of California must maintain some sort of residence even if only on a temporary basis. During this time they must pay American prices for American goods and services which makes their real income below that of their counterparts in the Imperial Valley.

The late U. S. Senator Robert Kennedy, on a fact finding trip to Southern California in 1969, could find virtually no evidence of economic exploitation or racial discrimination. He subsequently switched his investigations to areas north of the Imperial and Coachella Valleys.

Employment Trends

Total employment in Imperial County was estimated at 31,500 in February, 1971, compared with 31,300 during January, 1971. The February mark was the highest since November, 1970, when the employed total reached 31,800. Farm jobs accounted for all of the over-the-month increase, offsetting a small decline in non-farm employment. The

agricultural sector provided practically all of the 2,600 jobs added since 1970.¹⁵

Agriculture

During mid-February, 1971, 9,850 workers were employed in the farm sector, which represented a gain of 350 since January, 1971. The current period of peak farm activity began in October, 1970, when work on a variety of crops got underway. Dominating hiring in the late fall through the end of the year were growers of lettuce, sugar beets and cotton. Pre-harvest work was the main activity in lettuce and sugar beet fields at that time, while cotton was in the harvest phase.¹⁶

One year ago the total farm employment figure was 7,550. The over-the-year difference in the number of farm jobs mainly reflected bad weather during the mid-week of February, 1970.¹⁷

The peak farm employment level for the second half of 1970 was reached in November, when the farm job count totalled 10,550. Then the pace of pre-harvest work slackened and farm employment fell to 8,200 in December.¹⁸

As the lettuce harvest got into full swing in January, the number working in the farm sector again expanded, reaching 9,500 in that month. Diminishing demand for cotton harvest workers in January was offset by the starting of the asparagus harvest. In addition to the above mentioned crop activities, the mustard, tomato and carrot

harvests, and preparatory work on cantaloupe, onion, and watermelon acreages were important users of seasonal farm labor during January and February.¹⁹

Non-Agriculture

Non-farm wage and salary employment totalled 18,350 during February, 1971. A net reduction of 150 in retail trade employment was the only measurable change in this sector since January, 1971. The number working for non-farm establishments declined by 350 since a semi-annual peak was reached in December, 1970. Most of the reductions in force since that month have taken place in the retail trade sector, where there were 450 fewer jobs in February than in December. With the ending of the cotton harvest there was a layoff of 50 workers in the trucking and warehousing industry in January. A gain of 50 jobs in the service sector plus the addition of 150 seasonal workers to wholesale trade payrolls partly offset the December-to-January losses.²⁰

During 1970 total employment averaged 29,100 compared with 28,700 in 1969, for an increase of 1.4 percent. Average monthly farm employment was unchanged from year to year, although there were variations in comparisons by month. Average non-farm wage and salary jobs showed a gain of 2.2 percent between 1969 and 1970.²¹

Employment Outlook

The level of total employment over the next several months is not expected to vary significantly from the 1970 experience, and will follow the usual seasonal fluctuations associated with activity in the farm sector.

After a sharp decline in farm employment between March and April, field activity will pick up again in May, reaching a peak for the spring-summer season during June, at which time agricultural employment should go well over the 8,000 mark. During May and June, the principal employers of farm labor will be growers of cantaloupes, tomatoes and sugar beets. These crops all require a high level of labor relative to machines.²²

The Market Faced by the Imperial Valley Farmer

Agriculture in the Imperial Valley is not altogether unique when compared with farming operations across the United States. The costs of all agricultural inputs have increased drastically since World War II while farm revenues have been highly unstable. The important point in the Imperial Valley is that the farmer who operates a relatively small unit cannot survive when costs greatly exceed revenues. The large farms and most corporate farms, on the other hand, have the economic wherewithall to withstand years when the high risk crops grown in the Imperial Valley do not pay for themselves. There are two major reasons for this occurrence.

Although freezes are not common in the Valley, they can wreak economic disaster. For example, in 1970, a freeze occurred which destroyed much of the lettuce crop. Many of the smaller farmers in the Valley were forced to sell their farms when they could not pay back borrowed capital. In most cases these farms were acquired by larger farmers in the area with the intent of expanding their operations.

In the second place, an Imperial Valley farmer must compete with not only other California farmers but with many states which produce the same crops as grown in Southern California. Florida, Mississippi, Texas, New Mexico and Arizona are the chief rivals.

Since weather, for the most part, cannot be altered, the main dilemma facing the valley farmer, as far as the market he faces is concerned, lies in the area of transportation.

Transportation rate differentials wherein it often costs more to ship products from Imperial County to the Los Angeles market than from Texas to Los Angeles has a crippling effect on potential industry--particularly the cattle industry. With other states offering the incentives of no inventory or personal property taxes, property tax reductions, in addition to the lower federally established freight rates, it is difficult to compete for new industry. The Overall Economic Development Plan Committee of the

Imperial Valley asked the area's state legislators to investigate the freight rate differential. The matter is still being considered.

Market surveys indicate that limited but expanding affluent markets exist in Europe and Asia for fresh food products during the winter months. Development of this market could lead to increased market potentials for Imperial County products with the establishment of a regional air cargo facility to serve the lower Colorado River Basin and western Arizona and Mexican producers utilizing air cargo marketing. A feasibility study has been completed and a marketing corporation is in the planning stages.

The Controversy Involving Electrical Rates

Chapter II presented a short history of the Imperial Irrigation District's success in harnessing the water of the Colorado River to provide electrical power. Since 1945, however, it has been charged by various persons and groups that many citizens of the valley have been cheated out of money on the grounds that they have been forced, over the years, to pay higher electrical rates than necessary with the excess being used to subsidize water shipments to farmers and, in particular, large farmers.

Very typical of the complaint against high electrical rates comes from Dr. Ben Yellen, a Brawley, California

physician. Among his supporters are Dr. Paul Taylor, a professor at the University of California at Berkeley, the National Farmers Union of Denver, Colorado, and Peter Barnes, a writer for "The New Republic."

In 1966 Dr. Yellen voiced his opinions in a mimeographed "newsletter":

Many Americans believe that oppression and swindling of the people is something that is seen in foreign countries which are under dictatorship. It is hard for them to believe that here in the United States, that a local governmental agency like the Imperial Irrigation District can be cheating the populace out of \$14 millions yearly for the benefit of a ruling class of big ranchers which is the power structure in Imperial and Riverside Counties of California.

The big landowners, who are mainly absentee, own 70 percent of the land in defiance of the U.S. Reclamation Laws which are not enforced by the corrupt U. S. Department of Interior. The power structure controls the local news media so that no explanations are given to the people about the swindling.

Concisely stated, the Imperial Irrigation District of Imperial County and the Coachella Valley County Water District are engaged in a conspiracy to defraud 110,000 people out of \$14 millions yearly by charging the electricity users 3 times the correct price for electricity so that the big ranches can be subsidized to get irrigation water at 1/4 the correct price. Here are big corporations that benefit: Tenneco owning Heggeblade and Marguleas; Purex Corp. owning Freshpict Foods; United Fruit owning Interharvest; Dow Chemical in conjunction with the Bud Antle Co.; The Irvine Co.; CBK Industries; S. P. Land Co. in conjunction with others.

The reader must understand clearly the difference between a governmental agency which sells electricity and an investor owned corporation which does likewise. The Southern California Edison Co. is an example of an investor owned utility whereas

the Imperial Irrigation District and Coachella Valley County Water District are examples of governmental agencies selling water and electricity.

Investors in the Southern California Edison Co., which is regulated as to its rates by the California Public Utilities Commission, are paid dividends out of the profits. This company pays heavy property taxes in the cities and counties it operates in. From its profits, Southern California Edison pays 48 percent Federal income tax and also pays a heavy State income tax.

The Imperial Irrigation District and the Coachella Valley County Water District do not pay dividends, do not pay property taxes, do not pay Federal and State income taxes. Therefore commodities like water and electricity which are sold by them, should be sold at a price which is much less than if sold by an investor owned utility.

But these governmental agencies controlled by the big farmers instead sell the electricity at much higher prices. For example the Southern California Edison Co. sells 1,000 kilowatthours of electricity in Palm Springs for \$18.04 and the Imperial Irrigation District sells the same amount for \$18.75 which is 71 cents more.

But the Southern California Edison Co., when it charges \$18.04, is paying heavy Palm Springs, Riverside County, and school district property taxes which lighten the property tax burden of the Palm Springs residents. The Imperial Irrigation District pays no such property taxes so that the electricity users who pay \$18.75 per 1,000 kilowatthours have to pay \$4.5 millions in extra property taxes to the cities and counties. They really pay \$26.00 for their electricity.

The rate for electricity of the Imperial Irrigation District should be between \$7.00 and \$8.00 for 1,000 kilowatthours.

The Imperial Irrigation District's Response
to Criticisms of Electrical Rate Irregularities

Robert F. Carter, General Manager of the Imperial Irrigation District, wrote a letter to the public in 1966 specifically answering Dr. Yellen's charges.

The following facts of record are set forth to enable you to inform those persons who are interested in a refutation of charges made against Imperial Irrigation District by Dr. Ben Yellen, newsletter publisher and pamphleteer of Brawley, California.

Normally, it is not necessary, nor is there time to answer the petty charges hurled by a disgruntled critic at a public institution, although many times the charges are composed of innuendos, distortions, and half truths, with a sprinkling of unrelated facts. However, because of the incessant and increasing barrage of these "newsletters" throughout Imperial and Coachella Valleys, people are beginning to wonder what the facts really are.

It is, therefore, our intention here to present information from the records of Imperial Irrigation District, a public corporation organized in 1911, under the California Irrigation Act; information that will deal particularly with statements made in "Newsletter from Dr. Ben Yellen, Brawley, California, January 27, 1966, titled "\$6 Millions Swindle of People Living in Coachella Valley."²³

Electric Power Rates--General

Dr. Yellen makes the statement, "to the West of you, the Southern California Edison Co. supplies electricity at practically the same rates as the Imperial Irrigation District."

The fact of the matter is disclosed in the following tabulation comparing Imperial Irrigation District charges for electric power at Dr. Yellen's place of business, located at 128 South 8th Street, Brawley, California, with what the charges would have

been if served by six other utility companies in the southwest. This is shown in Table 14.

First, a comparison of the Imperial Irrigation District charges with what they would have been if served by Southern California Edison over a three year period, 1963-65, shows Imperial Irrigation District's charges to be 14.2 percent under what Southern California Edison's would have been.

Secondly, had Dr. Yellen been served by California Electric Power Company, predecessor to Imperial Irrigation District, for the same three-year period, his charges for electric power would have been 28.3 percent over what was charged by Imperial Irrigation District.

Electric Power Rates--Agricultural

Dr. Yellen states that: "Finally, the ranches in many instances use pumps for pumping water. The Imperial Irrigation District gives these ranches electricity rates which are 1/5 those that you homeowners and businesses like motels, stores, and others have to pay."

It would be difficult to make a meaningful comparison between agricultural and commercial power rates because of so many variables involved; e.g. number and horsepower of units, and range of kwh consumption. However, a significant manner of comparing costs to customers for various classes of service is on the basis of average revenue in cents per kilowatt-hour realized by the District. In 1965, for example, the average revenue in cents per kilowatt-hour for residential service was 1.93¢, for commercial service it was 1.83¢, and for agricultural pumping it was 1.35¢. So, instead of the agricultural pumping rates being anything like 1/5 of (or 80 percent below) those for residential or commercial service as Dr. Yellen alleged, the average revenue per kilowatt-hour for agricultural pumping services reveals it to be only 30 percent less than the return on residential and 26 percent less than the return on commercial service.²⁴

TABLE 14

DR. BEN YELLEN

128 So. 8th

ACCOUNT NO. 301-B-1320

1965	Kwhr	I.I.D.	So. Calif. Edison Palm Springs	San Diego Gas & Electric	Calif. Electric Power Co.	City of Los Angeles	Arizona Public Services	Salt River
January	480	\$ 16.40	\$ 20.90	\$ 17.77	\$ 22.95	\$ 13.14	\$ 17.86	\$ 15.02
February	440	15.20	19.30	16.41	21.31	12.22	16.81	13.77
March	430	14.90	18.90	16.07	20.90	11.99	16.53	13.46
April	630	20.90	24.82	22.22	29.10	16.59	21.92	18.64
May	780	25.40	28.42	26.57	35.25	18.89	25.93	22.37
June	1160	34.88	37.54	37.59	48.24	28.14	35.67	31.39
July	1580	42.44	47.46	49.37	60.42	36.12	45.65	41.57
August	330	11.90	14.90	12.67	16.80	9.69	13.28	10.33
September	1180	35.24	38.02	38.17	48.82	28.52	36.14	31.97
October	880	28.40	30.80	29.47	39.35	22.11	28.63	24.77
November	660	21.80	24.14	23.09	30.33	17.28	22.72	19.33
December	510	17.30	21.94	18.74	24.18	13.83	18.69	15.88
		<u>\$284.76</u>	<u>\$327.14</u>	<u>\$307.09</u>	<u>\$397.65</u>	<u>\$228.49</u>	<u>\$299.82</u>	<u>\$258.50</u>

SOURCE: Information compiled by the Imperial Irrigation District.

Absentee Landowners

Dr. Lellen makes the charge that "In Imperial Valley, 70 percent of the farmland is owned by absentee landlords." This charge is abjectly refuted by the records of the Imperial Irrigation District Assessor-Collector's office, which show an absentee ownership of land in Imperial Valley of 40 percent. Dr. Yellen states that "In Imperial Valley, the Imperial Irrigation District sells both electricity and water. If it were controlled by the Public Utilities Commission it would not be permitted to charge higher prices for the electricity so that it could sell water to the ranches below cost." As a matter of fact, Imperial Irrigation District does not pay for the water it diverts from the Colorado River, and, according to stipulations of the Boulder Canyon Project Act, the District cannot be charged for that water. The District can and does charge for the cost of diverting and delivering water to the users by way of its vast network of 1,785 miles of canals and 10,801 various irrigation structures. These same lands are served by 1,376-mile long drainage system having an aggregate of 2,303 miscellaneous structures. Thus, to say that water is being sold to ranches below cost is simply erroneous.²⁵

Cost of Electricity if Hydro-Generations were not Available

To further demonstrate the fallacy of Dr. Yellen's charges of exorbitant power rates in the Imperial and Coachella Valleys, the following hypothetical comparison is offered. In 1965, Imperial Irrigation District produced 223,117,941 kilowatt-hours of hydrogeneration at a total cost of \$557,679, or 2.4995 mills per kilowatt-hours. In the same period, the District produced 93,222,600 kilowatt-hours of steam generation at a cost of \$1,406,319, or 15.0856 mills per kilowatt-hours. Of this amount, \$622,428, or 6.6768 mills per kilowatt-hour represents the cost of fuel and represents the primary difference between hydro and steam generation.

Assuming no hydro-generation and that the 223,117,941 kilowatt-hours of hydro-generation had been produced by steam generation, the resulting additional fuel cost would have been

\$1,489,714, using the fuel factor of 6.6768 mills per kilowatt-hour. Needless to say, such a case would obviously have resulted in substantially higher power costs to consumers. It could also be said that savings effected by hydro-generation amounting to nearly one million dollars in 1965 was made possible because of the 2,624,364 acre-feet of water brought into Imperial Valley to irrigate the land and serve the people. It could further be stated that the payments presently being made from power proceeds toward repayment of the All-American Canal Contract obligation, which amounted to \$300,000 in 1965, and in 1970 will amount to \$450,000, are more than offset by the savings resulting from hydro-generation. Theoretically then, the land, or the water it represents, could charge power \$630,000 in 1965 and over \$480,000 in 1970 for the benefit of hydro-generation made possible by the All-American Canal.²⁶

The Property Structure

In 1936, about 430,000 acres of farm land were included in 2,640 ownerships. In 1971, there existed a little over 500,000 acres of farm land in approximately 2,000 ownerships. The trend toward large farms has already been discussed several times in previous sections of the study.

Since 1936 data on types of ownership has been extremely difficult, if not impossible, to obtain, the most exhaustive study done occurred in 1936 by agricultural economist Adon Poli. Some of his findings presented here are valid for use in this study since the relative proportions of types of landowners has not changed appreciably since 1936. The large owners have tended to shun virtually all types of published publicity. This explains the paucity of data on farm types of ownerships since the Poli report.

Nonresident Ownership

Nonresident ownership of farm land in the Imperial Valley is rather extensive. About 40 percent of the total number of farm land owners do not live in the valley but collectively control almost one-half (40 percent) of the total acreage in farms. Nonresident owners lease about 84 percent of their land to others as compared with about 41 percent leased by resident owners.

The high proportion of nonresident ownership in Imperial Valley is largely due to speculative investment in land, particularly that of low value; foreclosures by lending agencies and individuals; and retirement to other localities of former owner-operators.

Principal consequences associated with absentee ownership of farm land are:

1. A high percentage of tenancy
2. Lack of owners' interest in the community and in the operation of the farms
3. Frequent landownership transfer
4. Deterioration of land and buildings²⁷

Types of Landownership²⁸

With the exception of a very small acreage, all land farmed in the Imperial Valley at the present time is in private ownership. As a considerable acreage of this land is held by absentee owners, and as some land is owned by corporations, it seemed desirable to ascertain the extent and influence of these classes of ownership. Consequently, this privately owned land has been classified into four major types of ownership which designate both residence of owner and show whether the land is controlled by individuals or corporations. A fifth group has been devised to include individuals and agencies owning land in the valley, but not logically fitting into the four major categories.

Except for the two sections dealing specifically with nonresident ownership and corporate ownership, all analyses are made on the basis of the five initial ownership classes. The sections dealing with nonresident and corporate ownership, however, represent combinations of the four major ownership classes that are made to indicate the extent and significance of nonresident ownership and of corporate ownership--two general types which merit separate discussion.²⁹

Resident private individual owners are individuals who own agricultural land in the valley and who live within the limits of the Imperial Irrigation District. This group represents the largest proportion (57 percent) of the number of owners as well as the largest percentage (42 percent) of the farm land in the valley, (Table 15). Although the land held under this type of ownership is distributed throughout the valley, the greatest concentration is in the eastern part,

TABLE 15

PERCENTAGE OF OWNERSHIPS IN EACH GROUP AND ACREAGES,
BY TYPE OF CROP AND BY TYPE OF OWNERSHIP, IMPERIAL VALLEY, 1936¹

Type of Ownership	Ownerships in Each Group Percent	Total Farm Land Per- cent	Percentage of acreage in:			
			Crops Per- cent	Field Crops Per- cent	Garden Crops Per- cent	Permanent Crops Percent
Resident						
Private Individual	56.8	41.6	41.7	41.2	41.3	55.4
Corporation	1.3	6.6	7.3	5.8	13.9	4.6
All Resident Ownerships	58.1	48.2	49.0	47.0	55.2	60.0
Nonresident						
Private Individual	36.1	31.0	31.7	32.5	31.1	14.2
Corporation	3.9	16.7	15.9	16.7	12.1	20.7
All Nonresident Ownerships	40.0	47.7	47.6	49.2	43.2	32.9
Other ²	1.9	4.1	3.4	3.8	1.6	5.1
All Types	100.0	100.0	100.0	100.0	100.0	100.0
All Private Individuals	92.9	72.6	73.4	73.7	72.4	69.6
All Corporations	5.2	23.3	23.2	22.5	26.0	25.3

¹Based on records of Imperial Irrigation District and Imperial County Assessor, covering 2,640 ownerships and 430,000 acres of farm land.

²Includes land owned by the Imperial Irrigation District, public agencies, and unclassified ownerships.

SOURCE: Adon Poli, "Landownership Tenure in Imperial Valley, California." University of California Press, March, 1942.

particularly in that section of the area lying east of Brawley and north of Holtville.

Resident corporate owners are corporations that own agricultural land in the valley and have their business address within the limits of the Imperial Irrigation District. This ownership group is relatively less important than most of the other groups as it represents only about 1 percent of the total number of ownerships and controls but 7 percent of the cultivated area of the valley. The land tracts controlled by these owners are principally in the southern and western sections of the valley, (Table 15).

Private Individual and Corporate Ownership

The farm land in Imperial Valley is owned principally by two major types of owners--private individuals and corporations. Private individuals represent a very large proportion (93 percent) of the number of ownerships and a somewhat small proportion (73 percent) of the farm acreage (Table 15). These private individuals represent two general types of owners--those who operate their own farm acreage and those who acquire land for purposes other than farming and who usually lease to others.

While corporations include a relatively small proportion (5 percent) of the number of ownerships, they nevertheless own a significant proportion (23 percent) of the farm land. Corporate owners in Imperial Valley are not all of the same type. For this reason there is

considerable difference in the area and quality of farm land cropped, in types of crops produced.

Ownership and Quality of Land

The variation in the quality of farm land held by the various types of owners is significant in that it influences materially the importance of the area of farm land held by each type as expressed in terms of acreages. The fact that an individual owns or controls a certain specified acreage of land is not in itself significant unless the suitability of this land for producing farm products is known, at least in a general way. For example, an individual who owns 100 acres of land consisting of excellent soils frequently controls more farm wealth than one who controls several thousand acres of land consisting of very poor soils. The smaller acreage of excellent land is probably capable, under proper management, of producing high yields of almost any crop, while the larger acreage of very poor land might be practically useless for crop production.

FOOTNOTES

¹The Imperial County Economic Development Commission, Overall Economic Development, March, 1970 (Imperial County, California: Board of Supervisors, 1970), p. 4.

²Ibid., p. 4.

³Ibid., p. 5.

⁴Ibid., p. 5a.

⁵Ibid., p. 5a.

⁶Ibid., p. 5a.

⁷Ibid., p. 5b.

⁸California, Rural Manpower Report, 1971 (Sacramento, California: Department of Human Resources Development, 1971), p. 11.

⁹Ibid., p. 11.

¹⁰Dorothy Nelkin, On the Season: Aspects of the Migrant Labor System. Ithaca, New York: New York State School of Industrial and Labor Relations, 1970, p. 78.

¹¹John W. Caughey, California: A Remarkable State's Life History. Englewood Cliffs, New Jersey: Prentice Hall, 1970, p. 583.

¹²Ibid., p. 583.

¹³Ibid., p. 583.

¹⁴Ibid., p. 584.

¹⁵California, Area Manpower Review for Imperial County, California. El Centro, California: Department of Human Resources Development, 1971, p. 4.

¹⁶Ibid., p. 4.

¹⁷Ibid., p. 4.

¹⁸Ibid., p. 4.

¹⁹Ibid., p. 4.

²⁰Ibid., p. 4.

²¹Ibid., p. 5.

²²Ibid., p. 7.

²³Robert F. Carter, General Manager of the Imperial Irrigation District, "An Open Letter to the Citizens of Imperial County, California, April 27, 1969".

²⁴Ibid.

²⁵Ibid.

²⁶Ibid.

²⁷Adon Poli, "Landownership and Operating Tenure in Imperial Valley, California", U. S. Department of Agriculture, Bureau of Agricultural Economics, March, 1942, p. 1.

²⁸Ibid., p. 14.

²⁹Ibid., p. 14.

CHAPTER V

AN ECONOMIC JUSTIFICATION FOR ABANDONING THE 160 ACRE LAND LIMITATION LAW IN THE IMPERIAL VALLEY OF CALIFORNIA

In this Chapter two important studies will be summarized and analyzed plus the results of the author's investigation of farm size in the valley. Before advancing to the unique contribution made by each study, some background information will be presented which is common to all three works.

The Growth of Large and Corporate Farming

The structure of agriculture, its organization and control, is changing. Although the changes now perceived are not sudden developments, they will determine the nature of tomorrow's agribusiness. The focus of this article is on corporate farming, one of the institutional changes being observed in agriculture.

Small-unit agriculture has been a dominate feature of our agrarian past. The family farm has been cherished and protected because it represents the ideal of a democratic free-enterprise society. The farmer is laborer, manager, and, frequently, land-and-capital owner all in one.

At his best, he is an entrepreneur in the truest sense. The atomistic structure of agriculture approaches the assumptions of a competitive economy.

Yet, almost from the day the first fence went up on the prairie, agriculture began changing. The extension services of land grant universities distributed information on research in animal husbandry, cultivation practices, farm management, production economics, and marketing. The use of purchased nonfarm inputs increased rapidly. An agricultural revolution was under way. It has never stopped.

Agriculture in the United States Today

Land, labor, and capital are still agriculture's principal resources, and the farmer is still the entrepreneur masterminding their productive combination. Yet, the mix of resources is ever changing and the entrepreneurial role of the farmer is much changed from the nearly self-sufficient status of pioneer farmers.

Land

Although our national land base has remained nearly stable at just about 1.4 billion acres for crop and livestock production during recent decades, substantial changes are occurring within this base. Total cropland has been declining at a rate of about 2 million acres per year since 1954, whereas total land in farms has been declining at an

average of 3.5 million acres per year since 1950. We now have around 3 million farms as defined by the Census. The number of farms in the United States has been declining nearly 100,000 per year causing the average farm size to increase to around 360 acres.¹

Labor

The decline in the farm labor force is evident in Chart 1. The factors leading to outmigration of rural youth and adults seem likely to continue:²

1. Increasing prices for land and labor, relative to capital resources, encourage capital substitution for land and labor in the production process.
2. Inadequate supplies of seasonal labor and increasing labor skill requirements encourage mechanization--a capital-for-labor substitution.
3. Continued high levels of economic activity and a tight labor market have made movement to urban employment relatively easy.
4. The demand for additional farm land by expanding farms has made liquidation of small holdings and early retirement more feasible and attractive.
5. Rural nonfarm job opportunities have grown and the potential for continued growth in recreation and small-scale industrialization seems likely to continue to offer opportunities for rural living and nonfarm employment.

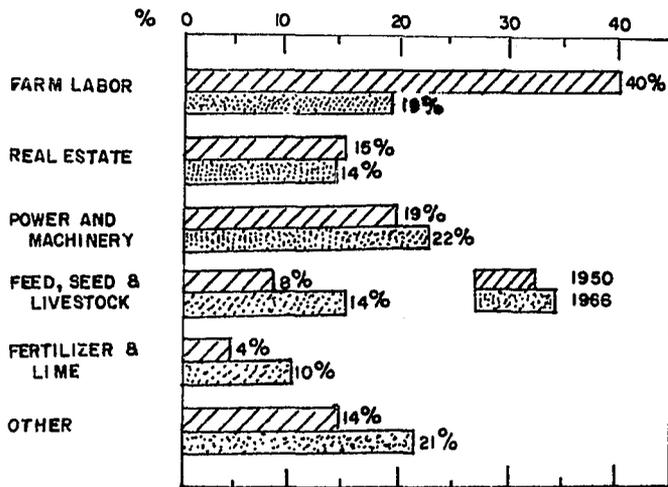
The net impact of these changes is for pressure to remain on the rural labor resource, and it is likely that substantial off-farm migration is yet ahead.

Capital

Capital has become agriculture's fastest growing productive resource, as also seen in Chart 1. As the

CHART I

Major Farm Inputs as a percentage of total inputs



SOURCE: Handbook of Agricultural charts, U.S. DEPARTMENT of Agriculture, 1967.

capital needs for efficient and profitable farming have increased, new procedures for acquiring sufficient capital have evolved. Leasing of equipment, hiring of custom services, vertical coordination, contract production, and use of merchant and dealer credit have grown in popularity. Corporate farming as a means of obtaining equity capital is often discussed, as are other credit innovations such as low equity and semipermanent financing. The accumulation of sufficient capital for efficient farming is a problem--implying that the need for farm credit will continue to be extensive.

Capital and Credit Use in Agriculture

Requirements for financing production assets and production expenses have increased steadily in the aggregate and at a much more rapid rate on a per farm basis. The total investment in production assets has increased from \$125 billion in 1956 to \$215.4 billion in 1967. On a per farm basis, the increase has been \$28,456 in 1956 to \$73,120 in 1967--an increase of 156 percent. In addition to rising prices, farm mechanization, production specialization, enlargement of farm size, and more rapid capital turnover due to technical obsolescence have increased the needs for more capital in agriculture.

Production expenses have risen from \$22.3 billion in 1956 to nearly \$34 billion in 1967. Average expenses rose from \$4,957 per farm in 1956 to more than \$10,000 in

1967. However, almost all of the increase has been for large farm operations. Although only 16 percent of all farms had sales over \$20,000 in 1966, they accounted for 70 percent of all production expenses, averaging over \$44,000 per farm. More importantly, these farms realized over 56 percent of the total net farm income in the United States.³ These conclusions thus seem apparent: the most profitable farm operations have large gross dollar sales and are very capital intensive. The magnitude of these requirements places substantial strain on rural financial resources and on traditional methods of farm finance. One of these methods--the use of credit--has been a principal means of obtaining funds by corporate farms.

Closely Held and Publicly Held Farm Corporations

A closely held corporation is one in which the ownership and the control of the corporation belongs to a small number of shareholders. The entire outstanding stock may be owned by a single individual, the members of a family, or a small group. Officers and directors own the majority of stock and, thereby, control the corporation.

A publicly held corporation generally has widely distributed stock held by unrelated stockholders. The right to buy and sell stock in publicly held corporations at competitively bid market prices is not normally restricted. Separation of ownership from management is quite common.

Most farm corporations are closely held family corporations. Their reasons for incorporating are typically: (1) to facilitate gift transfer of property for estate and retirement planning, (2) to provide for business continuity, (3) to gain income tax advantages, (4) to limit personal liability, and (5) to improve access to capital.⁴ These motives, however, are not always clear-cut advantages for the closely held corporation. Liability may not be limited if the major stockholder must sign personally for obligations of the corporation or if most of his assets are invested in the corporation. There is no assurance of improved management through incorporation, since owner, director, and officer are likely to be the same person after incorporation as before. The availability of equity and debt financing to a farm may not be enhanced. An established market does not exist for the securities of a closely held farm corporation, but family members may choose to leave capital in the farm business rather than receive dividends. Some financial institutions place restrictions on lending to farm corporations.

Tax considerations are numerous and complex, requiring careful attention prior to incorporation. Some of the most important are amount of net farm income, motives of property transfer and estate development, and alternative tenure arrangements.

To date, most studies of corporate farming have dealt with the family farm and closely held corporations. Most findings have been favorable toward incorporations. There is general agreement that the corporate form does facilitate the transfer of the farm from generation to generation within the family. Also, as farm size increases, capital, tax, business continuity, and liability considerations encourage the investigation of the corporate form of organization.

Studies of family farm corporations in Indiana, Iowa, Kentucky, Oregon, South Dakota, Alabama, Michigan, and Minnesota have been conducted. In general, they conclude that incorporation, rather than being a threat to the family farm, can aid its development and survival.

Factors Influencing Agricultural Investment

Most of the present concern in agriculture does not apply to family farm corporations but to other closely held, or publicly held, investor corporations entering or engaged in farming. Closely held corporations which represent a compact of business and professional men and, occasionally, farmers, appear to be increasing in number.

Many people are motivated to invest in agriculture because they are convinced that its future is very promising. For example, a feasibility study made on a "conservative basis" (assumed corn at \$1.28 per bushel) in 1966 by

a private consulting firm concluded that with good management a continuous corn farm of about 2,000 acres in Iowa could yield 12.1 percent on stockholders' equities after tax the first year and 18 percent by the sixth year. Farmers continue to invest their savings into agriculture and land values continue to climb. Although studies follow different assumptions and computational techniques, they do show returns sufficient to attract new investors.

Other factors also may be encouraging agricultural investment. Land, as an inflation hedge, is a primary consideration. Speculation on further real estate appreciation for land near urban or industrial centers, or on land with mineral or irrigation potential, may induce some agricultural investment. Other personal motivations, such as the desire to be a "part of agriculture," must also be considered.

Another line of thought by investors in closely held farm corporations reaches the same investment decisions, but for different reasons. These investors anticipate farm prices remaining low or near support levels. They anticipate continued increases in the costs of purchased farm inputs and only modest increases in retail food prices. Because of this squeeze on farm earnings, they conclude that only the best-managed, adequately financed, and most efficient farm operations will remain in business. These investors view profits in agriculture as a function of the operation's size, efficiency of production, and marketing procedures.

They conclude that incorporation with sufficient capital can provide a competitive advantage in reaching profitable operating and market levels.

Publicly held corporations investing in agricultural production and marketing or diversifying into agricultural production are numerous. Concern has been expressed with their entry into agricultural production. Their motives are frequently questioned by farmers and farm-related organizations and may be quite different than those previously discussed. Some additional considerations behind their entry into farming are the following:⁵

1. Vertical Integration. Technological innovations have been a primary consideration in integration. The reasons for integration into contract agricultural production by vested interest firms are usually suggested as being (a) to protect their markets for farm inputs, (b) to increase volume of farm input marketings, (c) to guarantee an amply supply of farm products, or (d) to insure consistent quality of product.
2. Diversification. Conglomerate firms and nonagricultural firms entering agriculture may be doing so for protective diversification into the food industry--a reasonably stable industry with growth closely tied to population. A desire to offset seasonal or Government related business vulnerability may also be an issue.
3. Tax Advantage. The possibility of realizing substantial capital gains, of realizing favorable rates of depreciation on machinery and equipment,

and of incurring losses through cash accounting methods in certain years may produce considerable tax savings to some firms and individuals. These motives are not well understood and are difficult to research.

4. Inflation Hedge. Past rates of appreciation on farm land and rural real estate with development potential have been impressive. Although there is no assurance of continued increase in land prices, acquisition of farm land remains an attractive inflationary hedge for firms with adequate liquidity. Because of other considerations such as rapid transportation, urban sprawl, population growth, and expanding recreation needs, land may be acquiring a renewed investment appeal.
5. World Food Needs. Although world famine is not new, our awareness and sensitivity to it is. Major industrial firms reviewing the development of our commodity donation programs and the expansion of dollar export markets, and sensing a clash of population growth with food needs, may anticipate that the United States will assume a role of increasing responsibility in feeding much of the world. Firms desiring to capitalize on the world's food needs may be selecting agriculture as a vital growth area.
6. Nonland-based Production. Except for range livestock operations, livestock production no longer requires an extensive land base. Beef feedlots; egg and broiler production; turkey production; lamb feeding; pig farrowing, weaning, and feeding units; and dairy farms are increasingly established as confinement systems independent of productive farm land. The separation of intermediate

production steps such as a specialized feeder pig production, cattle feedlots, or custom-hire field work has been facilitated by technological change. The separation of farming from agribusiness and non-farm activities has become less distinguishable. Many of the economic reasons for small-scale farms disappear with the separation of land intensive farming from nonland-based production.

7. Industrial Management Approach. The potential of substituting machinery for labor in crop production on an extensive scale has long been recognized as has the risk of price and weather variability. Yet, an industrial approach has appeal. Large dollar sales can be achieved per unit of labor with only a modest sales force. High volume output per unit of labor impresses wage-sensitive managements. Continuing technological advances in irrigation and agricultural chemical use suggest a new dimension to farming--the substitution of one type capital (agricultural chemicals) for another (farm machinery).

The Southern California Situation

California agriculture has increased steadily in technological complexity as small, family run farms have given way to large specialized and commercialized enterprises. The small farm has shown itself increasingly incapable of grossing an income sufficient to allow it to expand operations and compete successfully, and consequently it is tending to be replaced by large mechanized

"agribusiness." The large corporate farms which diversify their economic activities among several industries are far better equipped financially to withstand reverses in their agricultural activities than are the relatively small farms who depend on their earnings to grant them a living every year. These corporations include the Kern County Land Company, whose holdings in the Central Valley are gargantuan. The Irvine Ranch Company operates a vast acreage in Orange County and has become the major landowner in Imperial County as well. In the San Joaquin Valley the DiGiorgio and Sawyer fruit and vegetable farms produce millions of dollars of income annually. The Maggio Company in the Imperial Valley is the largest single producer of commercially grown carrots in the United States. The Brock Ranches near El Centro, and the Antle Ranches, growers of Salinas lettuce and carrots in the Imperial Valley and Arizona are among the nation's leading producers of vegetables.⁶

By adopting advanced techniques of industry, these large corporations not only increased the size of the average farm but markedly consolidated agricultural operations within the state. This new farming-business competence took advantage of crop and area diversity, technology, and corporate managerial skills. Large growers extended their operations into shipping, processing, and marketing, creating a vertical integration that controlled agriculture

from planting through sale of the final product. Today's California cattlemen sometimes breed, feed, finish, ship and sell their own livestock; a few even grow the alfalfa and sorghum used in cattle fattening. Some large rancher-farmers rely upon the two-way radios to keep contact with employees; they operate motor pools and they buy costly harvesters, tractors, and automatic potato pickers. This mechanization is a far cry from the nineteenth century's horse-drawn plows, haystacks, and milk wagons. Large capital investments are necessary to carry on the new agriculture.

Report of the Governor's Task Force

In 1968 Governor Ronald Reagan of California commissioned a task force to report to him on the 160 land limitation problem. This group was made up of leading agricultural experts throughout the state. Their conclusions are as follows:⁷

1. The 160-acre limitation of the Reclamation Act of 1902 carried forward a 160-acre standard adopted in 1862 for the Homestead Act. Due to economic changes, even as early as 1902 a size standard designed for the arid West should have been more than 160 acres, to adjust to the time span of 40 years.
2. In the light of farm management principles and economic studies of modern cultural practices, the fixed 160-acre limitation is grossly outdated. The standard needs to be updated and made

sufficiently flexible to meet economic changes that occur from time to time.

3. To continue and maintain an arbitrary and restrictive standard continues to generate and carry forward inefficiencies in production and income. These come from the improper combination and use of the economic resources of land, labor, management, and capital investment. The fixed standard of a 160-acre limitation, therefore, results in a waste of economic resources by a distortion of competitive forces.
4. The public interest of the United States would be better served if the Congress would eliminate the 160-acre standard. Should Congressional lifting of the limitation in its entirety not be feasible, then the Congress should initiate and adopt an updated standard adjusted to the economics of present day agriculture and its markets. Provision should also be made for a practical degree of flexibility to fit economic changes through time.

Theoretical Concepts Concerning Risk

Individual farmer's adjustments to risk situations depend upon both his psychological makeup and the resources at hand. Selection of a cropping pattern for a farm under conditions of risk and uncertainty is similar in many respects to the problem of selecting an investment portfolio. Each crop enterprise can be considered as a marketable security such as a share of common stock, a bond, or a

deposit certificate in a savings institution. The proportion of a particular crop enterprise to the total crop acres is equivalent to the value of any one security to the total value of the portfolio.

Two bases may be used in the analysis of either investment portfolios or cropping programs. The first is the expected income or yield of the security or crop based on historical data. The second is the judgment of security analysts or well-informed farmers as to the future prospects for income from the security or crop.⁸

Like most economic phenomena, prices and incomes of securities or crops tend to move up and down together, i.e., they are highly correlated. However, they do not move together perfectly. Some prices and yields of crops, as well as of securities, have exhibited negative correlations. That is, when one crop is having a good income year, certain other crops in general have a bad year.

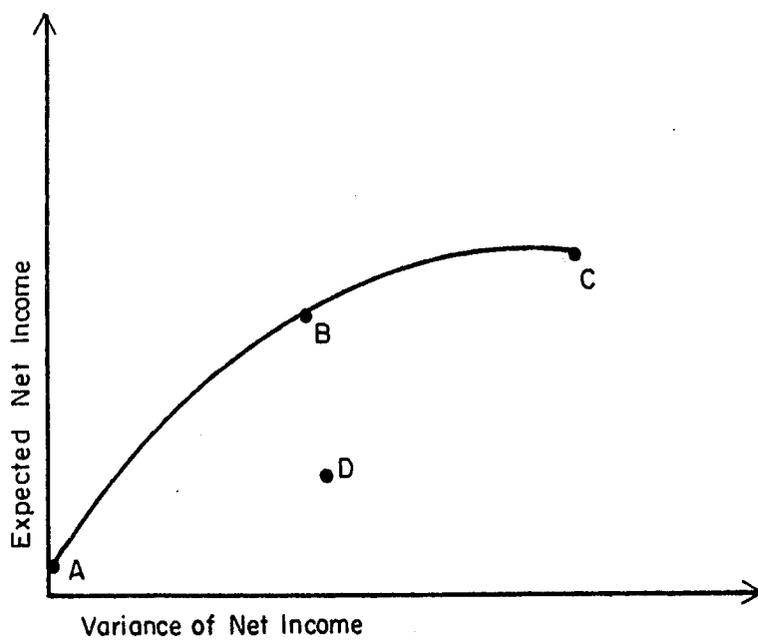
Investors in securities and farmers in general desire a portfolio or crop program with the highest expected income return. However, this is usually not the portfolio or cropping program with the lowest risk of return. The portfolio or cropping program with the highest likely return may be unacceptable because of an extremely high degree of risk of income variability. Likewise, the portfolio or cropping program with a very low variability of outcome may have an unacceptably low expected income return.

However, this is usually not the portfolio or cropping program with the lowest risk of return. The portfolio or cropping program with the highest likely return may be unacceptable because of an extremely high degree of risk of income invariability. Likewise, the portfolio or cropping program with a very low variability of outcome may have an unacceptably low expected income return.

Portfolios and cropping programs can be diversified to take advantage of the correlation between returns. Heady⁹ has explained the procedure in detail which can be summarized as follows: Two enterprises, A and B, with income variance σ_A^2 and σ_B^2 can be combined so that the total variance about the mean income is $\sigma_T^2 = \sigma_A^2 + \sigma_B^2 + 2 r_{AB} \sigma_A \sigma_B$.¹⁰ This states that the total variance for the portfolio or cropping program is the variance of A plus the variance of B plus twice the correlation coefficient for the two enterprises.

Calculation of an efficiency surface showing all of the "efficient" portfolios or cropping programs can be easily done with available digital computers, although the problem assumes quite large dimensions if small changes in the proportions of each security or crop enterprise to the total are considered. Figure 2 shows a hypothetical efficiency surface relating expected returns and the variability of the returns.

FIGURE 2
Variance of Net Income



Point A on the efficiency surface identifies a low risk combination with a small positive income and a near-zero standard deviation.¹¹ This point could represent cash deposited in an insured savings account or in government bonds where the possibility of a loss would be extremely small.

Most security advisors and farm management consultants strive for a balanced portfolio or cropping program, selecting a combination of likely returns and uncertainty which best suits the needs of the client. This is generally a diversified portfolio or cropping pattern that contains portions of cash, bonds, "blue chip" and "growth stocks" for the security counselor and low- (Government price supported) and high-risk perishable crops for the farm manager. This allows the analyst to take advantage of the correlation between returns mentioned above in the discussion of diversification principles.

Point C represents a high-risk high-return portfolio or cropping program. The surface is curvilinear and indicates that the small increase in net income obtained from shifting from point B to point C can be achieved only with a large increase in the variability (and therefore chance of a loss) in net income. In the analogy of the security counselor, point C would represent a portfolio made up entirely of a single speculative stock. For the farm manager, this would represent a cropping program

consisting of planting the entire farm to a high-risk crop such as lettuce.

A portfolio or cropping program represented by point D is an example of an inefficient investment in that moving to the left to a point on the efficiency surface would enable the investor or grower to obtain the same level of net income at a much lower variability. Similarly, moving vertically to the surface would allow a much higher income with the same degree of variability. There are several possible explanations for a grower or investor operating at point D. First, he may have only a subjective and limited estimate of the variability associated with the past performance of the security or crop. Incomplete knowledge of the mean, variance, and correlation coefficients may cause a perfectly rational person to make a mistake in choosing his investments. Second, since the hypothetical efficiency surface is based on the past record of the security or crop, he may have a judgment that the security or crop will not follow its previous pattern, but rather the future prospects are significantly different due to a change in market demand or a new technology becoming available. Third, the security or crop may be new and there would be insufficient information available from which to judge performance allowing for a wide error even to the rational investor. Fourth, the investor himself may be (economically) irrational in his decisions in that he is

willing to gamble--and, in fact, derives a great deal of satisfaction from gambling. This individual may be found rolling for high stakes at the craps table even though he is fully aware that the gambling casino operates at a sizeable profit.¹²

Transfer of Risk Through Contractual Arrangements

Forward contracting--locally known as "deals"--provides a common method of providing growers an assured market for their production in the Imperial Valley. Contracts also benefit the shipper with a steady and predictable supply of produce during the shipping season.

Fresh vegetable "deals" can be broadly classified into three categories. First, the flat-rate deal specifies the crop, approximate planting (and, therefore, the approximate harvest date), and the amount of money to be paid per acre for the crop. This is a closed-price contract and in essence the grower is paid a flat fee for growing a crop and at harvest time the crop belongs to the shipper. All of the risk of price variability is taken by the packer. Under a flat-sum guarantee contract the grower can maximize profits only by minimizing pre-harvest production costs. The grower's major risk is due to production cost variability stemming from such unexpected events as insect or disease infestations. This type of contract is not too common. However, since the payments are made at predetermined times during the growing season, it does provide a source of operating capital, which may be more important to smaller growers just starting in business.

Shippers must provide a large amount of supervision on this type of contract in terms of seeing to it that pests are adequately controlled and sufficient irrigation water and fertilizer is applied since there is no incentive provided for the grower to do this on his own volition.

The second type of "deal" is an open-price contract. The most important characteristic of this type of contract is that the price received by the grower is not specified--the price actually received by the shipper for the crop determines the proceeds which are divided between the grower and the shipper by formula. These contracts usually specify the planting date and the amount of production inputs each party will provide in the way of pesticides, fertilizer, hoeing, and thinning labor, etc. The shipper generally harvests and sells the crop, charging a flat rate per carton or other unit of harvest.

A portion of the grower's risk may be transferred to the shipper by a minimum guarantee provision in the open-price contract. For example, a lettuce growing contract will specify an amount, say \$150 per acre, that is guaranteed to the grower. This amount is to be paid even if the crop goes unharvested. The payment is made in three equal installments during the growing period and thus usually serves as the grower's primary source of operating capital. Depending upon the individual contract, the guarantee advanced may or may not have to be returned to the shipper when the proceeds of the crop are divided. The guaranteed-return provision minimizes the grower's losses in an extremely bad year but also reduces his opportunity to reap large gains during a season of strong prices.

A second variation of the open-price contract does not contain a minimum guarantee provision. Under this variation the shipper purchases a specified share in the crop either by advances in the form of cash or by providing certain inputs such as labor for hoeing and thinning plus paying the cost of a portion of other cash inputs. This type of contract reduces the magnitude of absolute income fluctuations to the grower. However, the relative variability remains unchanged as compared to selling on the open market, since the mean income over time and its standard deviation have been reduced in the same proportion. By sharing both the costs of production and also the proceeds from the sale of the crop, both the fluctuations in net returns and the average level of net returns to the grower are reduced.

By forward contracting, even under an open-price agreement, it is possible for a grower to buy a quasi-insurance policy against loss of assets and operating capital due to price fluctuations. However, as under any method of insurance (formal or informal), there is a cost associated or a premium that must be paid. The amount of this premium in a situation such as this is not explicitly stated; however, it is possible to impute some values by a careful examination of the expected returns over time to the grower under different contractual arrangements.

The contractual agreement between the grower and the shipper, as has already been observed, also provides a source of operating capital to the grower. Due to the large risks involved in vegetable production, regular production credit sources are reluctant to extend sizable lines of production credit, especially if the grower is farming rented land. Commercial

lending agencies prefer to channel credit through a well-established shipper, who in turn extends operating capital to growers in the form of advances on contracts. This tends to spread the risk of loan failure over a large number of growers and crops, with the assets of the shipper being used as security for the basic commercial loan. The small individual grower who finds it difficult to gain access to normal sources of operating capital may find his only source to be through a contract with a shipper. The interest rate paid for these funds is not stated in the contract and cannot be separated from the "price-risk insurance premium" mentioned earlier.

The third type of contract, open to some growers, can be made only by membership with one of the vegetable marketing cooperatives operating in the Valley. Marketing cooperatives do not provide minimum guarantees of returns to growers nor do they advance operating capital to their members. As the name implies, they perform only two functions: they maintain labor crews and equipment to hoe, thin, harvest, and pack the produce of their members and by maintaining a sizable sales force, they attempt to obtain the highest price possible for their members on any particular day. Members are charged only the actual cost of these functions since the cooperative is owned by the membership.

These marketing cooperatives are limited membership organizations in that only those growers who can provide all of their own operating capital are accepted. Since normal commercial lending agencies are reluctant to provide a large proportion of the funds required to grow a crop under such high-risk conditions, only a

relatively small number of growers have sufficient personal assets to allow them access to this alternative.

There is no transfer of risk with marketing cooperative membership. Members face the same variability of income situation as the shipper organizations with which they compete. Therefore, a grower marketing through a cooperative must have sufficient capital not only to finance his production during a growing season but also to be able to withstand several bad price years in succession with little short-term support from sources outside the firm.¹³

A Summary of the Carter Dean Study¹⁴

Agriculture and Farm Size Trends

The growth of agriculture in the Imperial Valley has been remarkable, dating back only 60 years. Prior to June, 1901, when a small stream of water was delivered to a temporary head ditch near the international boundary, the valley was a barren desert. Within six months about 8,000 acres were being leveled for irrigation, and by 1903, 25,000 acres of land were under cultivation; primary crops were barley and wheat, with lesser acreages of oats, alfalfa, fruit, and truck crops. By 1905, this cultivated area had increased to 100,000 acres; by 1920 to over 410,000 acres; presently the net cropped land is almost 500,000 acres.

Value of agricultural output is another indicator of the growth of the valley. The total value of agricultural products for 1909, as reported by the agricultural census, was slightly over 4 million dollars. The comparable value for 1959 was about 131 million dollars, indicating a 32-fold increase. In terms of

value of products, Imperial County ranks fifth in the state.

Expansion of farm size in Imperial County parallels that evidenced in the state and the nation. In the last two decades (1942-1962) the average size of farm in Imperial County increased nearly two and one-half times, from 155 to 381 acres. For the state as a whole, farm size increased by 61 percent, from 230 to 350 acres. The change in farm size appears to be due primarily to consolidation of existing farms into larger units. For example, the percentage of farms in every size category larger than 180 acres has increased steadily since 1940. The percentage of farms over 180 acres has increased more than twofold since 1940, whereas the percentage of farms in every category smaller than 180 acres has declined over the same period.

Another indication of the scale of Imperial Valley agriculture is the percentage of the total land in the different farm size classes. For example, in 1940, 30.4 percent of the total acreage was being farmed by operations of less than 180 acres each; in 1959, only 8.8 percent of the land was being farmed by units of less than 180 acres. Further, in 1959, about 75 percent of the farm acreage in Imperial County was farmed by units that exceeded 500 acres.

Despite the importance of the Imperial Valley as a major agricultural producing area in California, no published empirical studies on the economics of farm size are available. In fact, only limited information is available on the economic aspects of agriculture in the valley.

Objectives

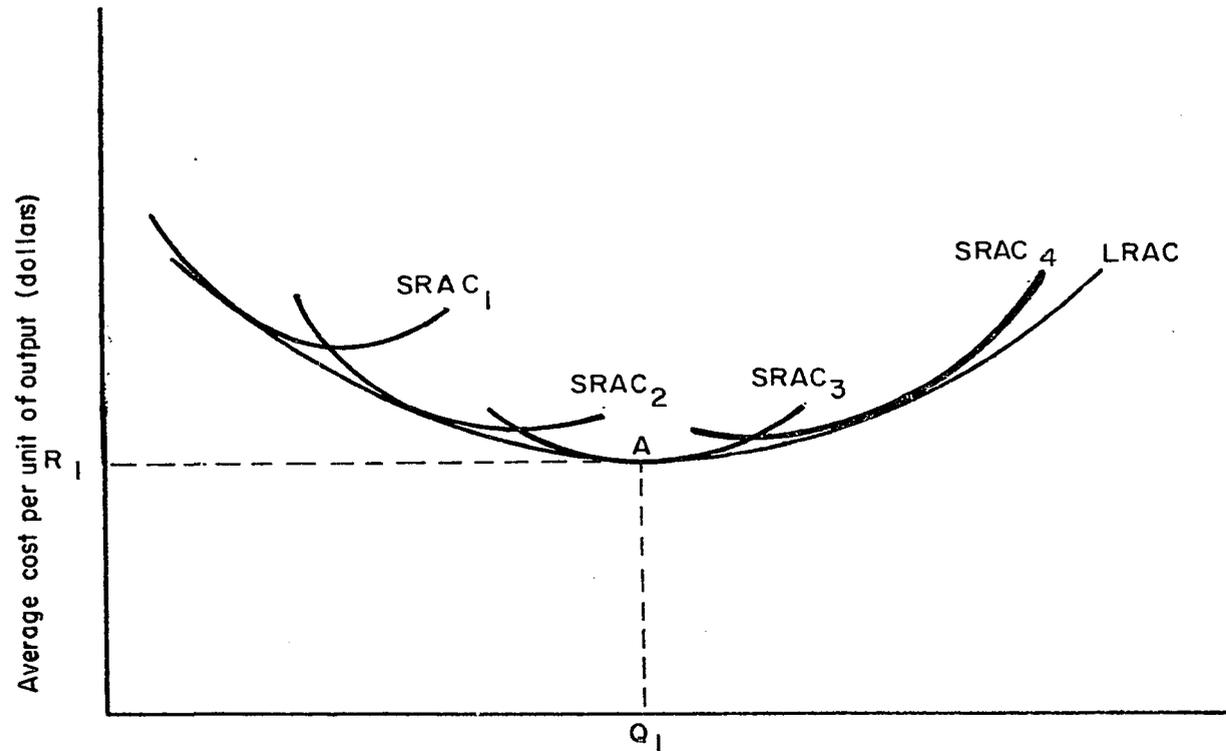
The primary objective of this report is to examine costs as related to farm size for two general types of farms in the Imperial Valley: (1) field crop farms (i.e., those engaged exclusively in production of field crops such as sugar beets, cotton, barley, alfalfa, and flax) and (2) combination field crop and vegetable farms (i.e., those engaged in production of both field crops and vegetables such as lettuce and cabbage).

Cost-size relationships are studied first in terms of the cultural practices, crop combinations, and factor costs typically encountered in the valley; however, about average management and high efficiency in resource use are assumed throughout. Second, the effects of higher wage rates on the cost-size relationships are determined, based on presently used technology. Last, changes in cost economies are ascertained assuming labor-saving technology available for selected crops but presently not in widespread use.

Basis for Analysis of Cost Economies

The economic theory underlying an analysis of cost economies is illustrated in Figure 3, using the average-unit-cost curves of the firm. The short-run average cost curves (SRAC) assume one or more resources to be fixed (a fixed "plant"), while other resources are variable; the long-run average cost curve (LRAC) assumes all resources are variable (including those designated as "fixed" in the short-run). In this report, machinery is designated as the resource category fixed in the short-run. Thus, SRAC illustrates the average cost per unit of output for different levels of output, assuming a fixed set of machinery, while land and other

FIGURE 3. Hypothetical short-run and long-run average unit cost curves for farms of different sizes in the Imperial Valley of California.



SOURCE: HAROLD O. CARTER and GERALD W. DEAN, COST-SIZE RELATIONSHIPS FOR CASH CROPS IN IMPERIAL VALLEY, CALIFORNIA, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics, May 1962.

resources are variable. Curve $SRAC_2$ is a similar average cost curve based on a different fixed machinery combination composed of more and larger pieces of equipment. Curves $SRAC_3$ and $SRAC_4$ have similar interpretations for still larger fixed machinery combinations. The short-run average cost curves have the typical theoretical "u" shape: Average costs decline with an initial expansion of output as fixed costs are spread over more units; eventually, however, average costs per unit of output level off and then rise as other inputs must be added in increasing proportions to the fixed machinery combination in order to reach greater output levels. It is emphasized that the empirical short-run curves derived later are based on high level management ability and highly efficient production practices. For the specified machinery complement, each short-run cost curve represents an approximation to the minimum cost for producing each level of output.

From the standpoint of trends in farm size and survival of the farm, the long-run average cost curve (LRAC) is probably most relevant. The LRAC curve is an "envelope" formed as a tangency to the short-run cost curves. Thus, following the argument above, the LRAC curve indicates the minimum cost for producing each quantity of output. The LRAC curve can be considered as a planning curve in the sense that a farmer planning for the long-run with all resources variable could decide to operate at any point on this curve.¹⁵ If the "u" shape is appropriate for the LRAC curve, firms would tend to

limit expansion much beyond point Q_1 (unless returns were considerably above R_1 , making larger output profitable). However, if the LRAC declines throughout or becomes constant beyond some point, there would be no cost disadvantage in expanding size indefinitely. Perhaps the most important factor limiting farm size would be the risk and uncertainty inherent in farming. Expansion in size ordinarily requires borrowed capital; as more borrowed capital is employed the risk of losing equity accumulated over time increases. Thus, farmers who have achieved an efficient sized unit and satisfactory income may tend to "play it safe" in order to protect their current position. Also, a progressive income tax rate may reduce the incentive to expand farm size.

Sources of Data

Personal interviews with a sample of farm operators during the summer of 1960 provided the basic data for empirical analyses in this report. These data, based on the 1959 crop year, were supplemented with engineering and cost data from secondary sources, primarily publications of the California Agricultural Extension Service. California Experiment Station personnel, Imperial County farm advisors, and the Agriculture Commissioner also provided additional information helpful in the analysis.

A stratified random sampling procedure was used in selecting the farmers to be interviewed. Initially, a list of 550 commercial farming operations was compiled which classified growers by size (total cropped acres) and by types of crops grown. This list was then stratified into two main types of farms: (1) farms growing only field crops (e.g., cotton, barley,

alfalfa, etc.), and (2) combination field and vegetable crop farms. The list for each type of farm was further stratified into four size classes--0-320 acres; 320-640 acres; 640-1,200 acres; and 1,200 and above. A random sample of ten growers was originally selected from each size group and type of farm. After contacting or attempting to contact this group of 80 growers it became necessary to enlarge the sample to complete the survey.

Eligible farms for the two farm types were those meeting the following requirements:

1. Location. The ranch must be located within the boundaries of the Imperial County Irrigation District.
2. Commercial farming. The farm must be a "commercial" operation. That is, the ranch must be operated primarily for profit, which excludes "hobby" or "show" farms, experimental farms, and other similar operations. In addition, an average gross income in excess of \$5,000 was required to eliminate part-time operations. Specialty operations engaging only in a single crop (e.g., lettuce or cantaloupes) were also excluded.
3. Type of farming. To qualify as a field crop farm, all of the farm gross revenue must come from field crops. The vegetable crop farms actually contained both field and vegetable crops; in most cases, vegetable crops ranged between 25 and 75 percent of total farm acreage.

Information was obtained from each farm on crop acreages, yield, machinery, investment, labor use, farm

FIGURE 4: Average total cost curves for each machinery combination and envelope or planning curve (owner-operator, vegetable crop farm)

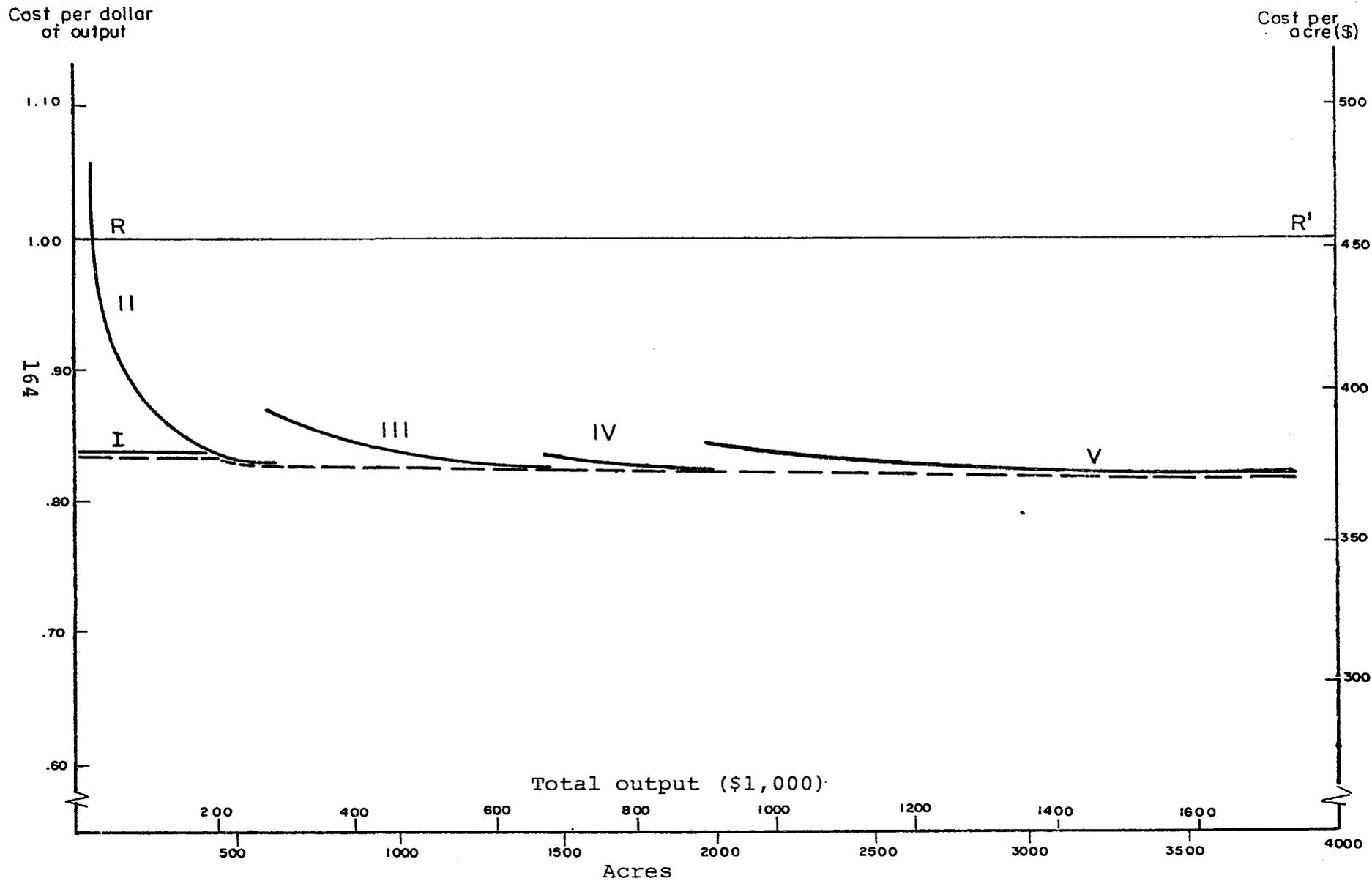
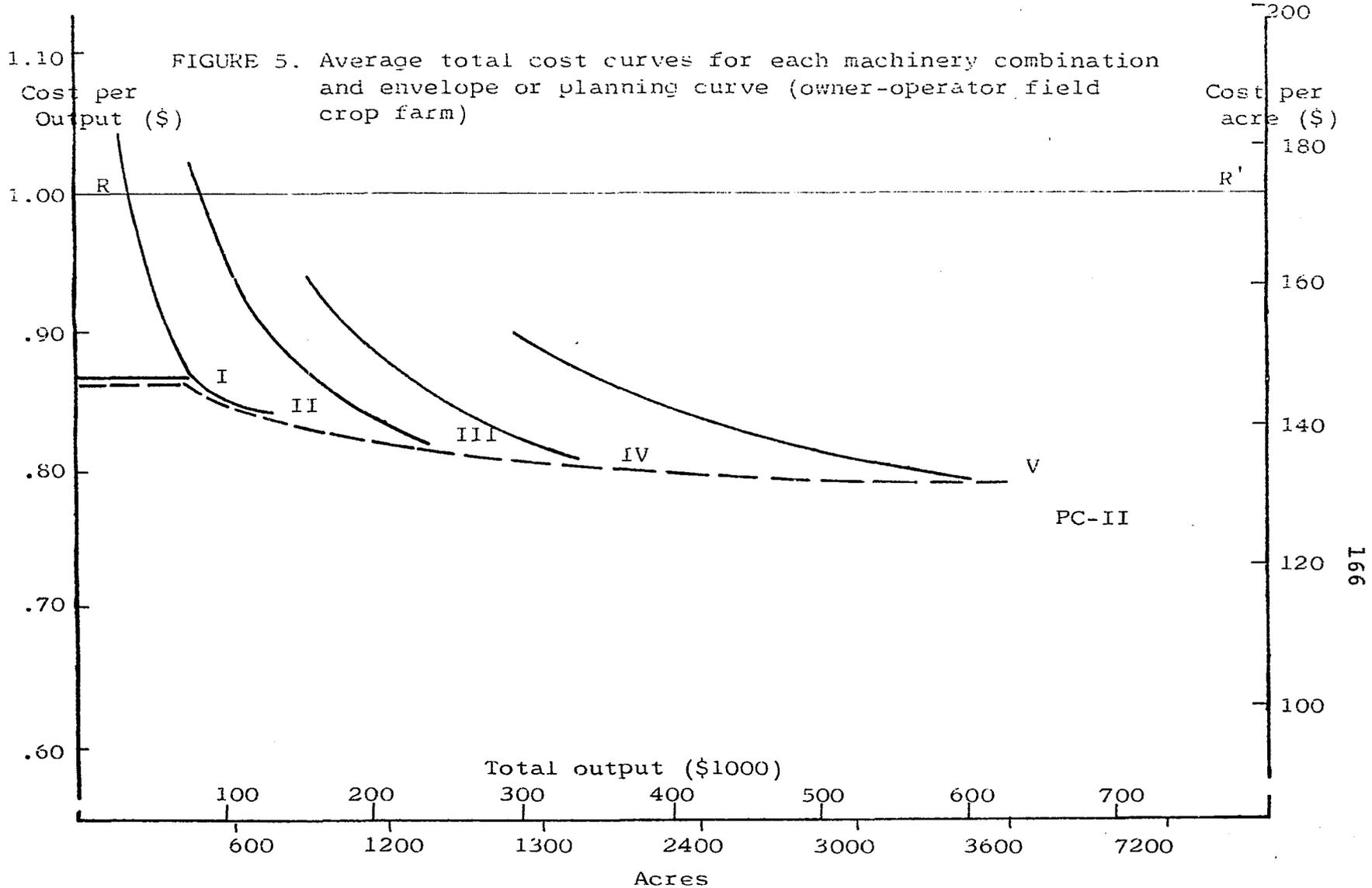


FIGURE 4: (continued)

SOURCE: Harold O. Carter and Gerald W. Dean, Cost-Size Relationships for Cash Crops In Imperial Valley, California, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics, May, 1962.

The optimal size of a farming unit appears to be in the area of 3,000 acres.



SOURCE: Harold O. Carter and Gerald W. Dean, Cost-Size Relationships for Farm Crops in Imperial Valley, California, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics, May, 1962. Substantial cost advantages are realized by field crop operations up to about 1,500-2,000 acres but thereafter economies are very slight.

expenses, and related data. Farm records and income tax summaries proved to be the main source of data for the persons interviewed.

In only a few cases were figures from memory alone. The final number of completed schedules by size and type of farm is summarized in Table 16. In addition, 20 combination livestock-crop farmers were interviewed, using a purposive sampling scheme.

A Summary of the Johnston Study¹⁶

The average per acre value of farmland in California appreciated (increased in value) at rates which resulted in the doubling of values in each decade from 1940 through 1960. The index of average value (1957-1959 = 100) was 26 in 1940, 58 in 1950, and 116 in 1960. Although the rate of appreciation diminished over the decade of the 1960's--the March 1, 1970 index was 186, or only 60 percent higher than the 1960 estimate--a significant increase in the value of agricultural land is nonetheless evident.

Prior to 1940, indices of average value and net farm income per acre were highly correlated in their movement but wartime demands for farm products in the 1940's and early 1950's led to rapid increases in farm incomes with a lagging response in farmland values. The index of total net farm income in California has remained relatively stable in recent years while farmland has continually risen in value. Thus, it is apparent that yearly variation in average net farm income per acre will not suffice to explain the variation in average land prices. Recent studies have shown that advancing land prices have been, in part, due to rapid technological advances which have stimulated farmer demands for additional increase to

TABLE 16

SUMMARY OF USABLE FARM SCHEDULES, BY
 SIZE GROUP AND TYPE OF FARM,
 OBTAINED IN IMPERIAL VALLEY,
 1960

Size group	Field crop farms	Vegetable crop farms
I 0-320	7	14
II 320-639	9	10
III 630-1,199	10	12
IV 1,200-2,399	9	9
V 2,400 +	2	3
TOTAL	37	49

SOURCE: Harold O. Carter and Gerald W. Dean, "Cost Size Relationships for Cash Crop Farms in the Imperial Valley, California." California Agricultural Experiment Station. Giannini Foundation of Agricultural Economics, Research Report No. 253. University of California at Davis Press (June 28, 1962), p. 22.

fully utilize larger machinery capacities and other innovations. This report examines values of farmland on highly mechanized cash-crop farms in the Imperial Valley and compares these values with market prices and cash rents.

Objectives

The primary objective of this report is to derive the value of farmland as a factor of production for typical cash-crop farming units in the Imperial Valley. First, farm operation data obtained by a survey of farming units are used to determine characteristics of cash-crop farms typical to the study area. Second, costs, returns, and capacities are determined for a range of farm sizes from primary and secondary data sources and are used to analyze returns to land under assumptions of typical crop rotations and high efficiency in resource use. Third, the value of land as a factor of production is determined from the analysis of returns to land and is compared to typical rental rates and prices of land. Last, the value of land is analyzed under assumptions which do not assume a fixed combination of crop enterprises in order to examine the ultimate expansion capacity of typical farming units in the Imperial Valley.

The primary emphasis of this study on the value of land resources used in agricultural production is the underlying factor for deviating from the usual approach to studies of economies of size. The usual approach focuses on the empirical estimation of cost-size relationships among firms of different sizes and generally assumes that the residual claimant to economic returns from production, in excess of variable and fixed costs, is a payment for management (and, in

some cases, unpaid operator and/or family labor). For reasons outlined below, this study is formulated so that the residual claimant, after all costs of nonland resources used in production is taken into account, is an estimate of the economic returns to land. The difference between these two approaches can be illustrated as follows:

Usual Economies of Size Study	This Study
Gross receipts	Gross receipts
-Variable costs of production	-Variable costs of production
-Estimated fixed costs (including land costs)	-Estimated nonland fixed costs
	-Cost of management
<hr/>	<hr/>
Return to management	Return to land

The basic consideration underlying the approach used in this study is that the estimates of fixed land costs may be subject to more error than estimates of the cost management, or alternatively, there is more variation in appropriate land costs than variation in management costs. First, fixed costs in the usual economies of size study commonly are composed of taxes, interest on investment, and insurance, depreciation and maintenance on improvements, a formulation which implies that complete ownership of the land resources used in production is the norm. This assumption is true to only a limited degree in today's agriculture. Land resources available to the farm firm may be wholly owned, but the typical farm in today's agriculture operates on both owned and rented land. Owned land may have been purchased recently at prices comparable to the current market values, purchased earlier at substantially lower prices, or may result from a series

of purchases over time at increasingly higher prices. Land may have been rented at prices (cash or share rents) which vary according to the terms of the lease. Thus, the cost of land varies among farm firms according to the proportions of owned and rented lands. Second, the usual measure of the cost of land ownership involves a rather arbitrary determination of the interest on investment in land based on current land costs and interest rates. Such a measure does not take into account differences in actual acquisition costs of land among farms. With a nearly three-fold increase in the average value of farm real estate in just the last three decades in California and with the recent sharp upward surge in the cost of financing (interest rates), there is wide variability in actual land costs among owners purchasing at different points in time in the historical past. Third, farm management services are becoming more widely available for owners of agricultural land and the cost of such services may be used to estimate the cost of management. The argument above, therefore, assumes (1) that the opportunity cost of management can be estimated more accurately than the opportunity cost of land resources used in production; (2) that there is less variability in management costs than in land costs which are determined largely in nonperfect markets; and (3) that current management costs can be more appropriately used in analyses of this type than available measures of land costs.

Sources of Data

The basic data for this report were obtained by personal interviews with a sample of 31 farm operators in March, 1967. Detailed information was collected from each farm unit regarding farm size, location of

all parcels farmed, crop acreages and yields, rotational patterns, machinery inventories, land rents, and custom services and rates for the 1966 crop year. This information was supplemented by data from other sources including a previous University of California study of cost-size relationships, publications of the California Agricultural Extension Service, the Imperial Irrigation District, interviews with personnel of the Experiment Station, the Imperial County Farm Advisor's Office, and the Imperial County Assessor's Office.

The survey of farm operators was carried as a part of a questionnaire seeking information about agricultural land transfers in the Imperial Valley. Using transfer document records located in the Assessor's Office of the Imperial Irrigation District and in the Imperial County Assessor's Office, 324 transfers were initially identified as bona fide sales over the period January 1, 1960, through June, 1966. The initial identification of sales was based on the following four criteria:

1. Area of Investigation--The tract of land sold had to be located within the primary service area of the Imperial Irrigation District but no land transfers were selected from the southernmost two townships (T 16 S and T 17 S). Thus, only about 80 percent of the District was selected as the area of investigation. This restriction was due, in part, to the lack of resources (time and manpower) for a more complete survey. However, the area of investigation contains most of the land devoted to cotton production in the District.

2. Size--The tract of land must be 40 acres or larger. This restriction was primarily designed to exclude residential and non-agricultural transfers.
3. Production Agriculture Use Intention--The tract of land must be suitable for field crop production and likely to be used in primary production agriculture. Sales with nonprimary production agriculture land use, such as, sites for feedlots, cotton gins, packing sheds, or hunting or recreational uses, were excluded. (Often this criterion could be evaluated only after further survey investigation).
4. Bona Fide Transaction--To the extent that it could be determined by information on deeds and other transfer documents, sales were excluded which appeared to be intrafamily transfers, forced sales, settlements of estates, sales of partial interests, or merely changes in the form of ownership, i.e., joint tenancy, incorporation, etc., where grantees were in fact grantors also. (Again, the use of this criterion was often assisted by subsequent survey information).

The sampling procedure utilized in the survey was as follows: First, all tracts of land initially identified as bona fide transfers with the grantee(s) residing in Imperial Valley were arrayed according to their location, beginning with land in the lowest section number in the lowest numbered range (R 13E) in the northernmost and lowest numbered township (T 10S) within the boundaries of the District. The array progressed through the 36 sections of T 10S R 13E and

then continued with the tract in the lowest numbered section of the next range within T 10S (i.e., T 10S R 14E), and so on, until all tracts located in T 10S were included in the array. The array then continued with the tract in the lowest numbered section of the lowest numbered range of T 11S progressing sequentially through all the ranges of T 11S through to the last tract of land found in T 15S R 16E.

Thirty-seven grantees and alternates were randomly selected for the sample. In this way, the sampling procedure assured the inclusion of farm operators (or grantees) with land ownership spatially distributed over the area of investigation with the designed intent that the farm operation data might be more safely typical for the entirety of the study area. The questionnaire was not completed where it was apparent in the early stages of the personal interview that the sale violated criterion 3 and 4 above. Farm operation data were not collected if either the grantee was not a farm operator or if more than 10 percent of farm income in 1966 was from livestock enterprises. In this manner, farm operation data were only collected for farming units with the substantial proportion of income from cash-crop farming.

Thirty-one surveys, adjusted to meet the above criteria and to contain usable farm operation data, were subsequently stratified into five size groups based on acreage farmed in 1966. The size groups selected and the number of farm operations represented in each group are summarized in Table 17.

Total land farmed varied from 115 to 4,114 acres and averaged 1,480 acres over all farming units included in the survey with more rented than owned land comprising the average farming unit (791 versus 689 acres).

TABLE 17

NUMBER OF FARMS, BY SIZE GROUPS,
IMPERIAL VALLEY FARM OPERATIONS, SURVEY
1967

Farm size group	Acreage	Number of farms
I	1- 499	5
II	500- 999	6
III	1,000-1,749	7
IV	1,750-2,499	9
V	2,500 and more	4
Total		31

SOURCE: Warren E. Johnston, "Economies of Size and Imputed Values of Farm land in the Imperial Valley of California." California Agricultural Experiment Station. Giannini Foundations of Agricultural Economics, Research Report No. 314, (July, 1971), p. 14.

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TABLE 18

LAND RENTS PAID BY SAMPLE FARMS, IMPERIAL VALLEY, 1966^a

Item	Alfalfa	Barley	Cotton	Milo	Sugar beets	Barley/ milo
Cash rents						
Range	\$40	\$25-50	\$30-100	\$25-50	\$40-70	\$25-50
Mode (typical)	\$40	\$40	\$50	\$40	\$40	\$40
Share rents						
Range	1/4	1/4-1/3	1/5-1/4	1/4-1/3	1/5	1/4-1/3
Mode (typical)	1/4	1/4	1/5	1/4	1/5	1/4

^aNo rental data were obtained for lettuce.

SOURCE: (See Table 17, p. 175), p. 24.

noncontiguous parcels more removed from headquarters. Table 19 summarizes the average spatial distribution of farmed land by farm size group.

As acreage increases, dispersion becomes more marked. Whereas the typical Size I farm had the entirety of its farming operation within a five-mile radius of its headquarters, Size IV farms had nearly one-third of the typical acreage more than five miles distant from headquarters and Size V farms had nearly one-fifth more than 13 miles away. There is no apparent reason for the wider dispersion of Size II farms vis-a-vis Size III farms, although it may be that the former is in a more transitional stage of growth, seeking to acquire scattered rentals to obtain economies while Size III farms are typically under less pressure to do so. One further point of interest is that the location of individual parcels did not generally appear to lie on or near a ray emanating from the headquarters but rather they were found in all directions about the headquarters.

The use of custom services is common and widespread among farms surveyed and there is nearly universal heavy usage of such services. Of 28 usable responses, only one farming unit indicated that it did not use any custom services in 1966; that unit was a Size I farm whose operator identified custom work as his primary occupation. In addition, nine other farm operators indicated that they supplied some lesser quantities of custom services, generally land preparation and planting services, during the 1966 crop year. Eighteen operators, however, indicated that they did not perform any custom services during the year.

TABLE 19

AVERAGE DISTRIBUTION OF LAND BY FARM SIZE GROUP,
IMPERIAL VALLEY, 1966

Farm size group	Acreage	Percent of land in distance zones ^a								
		Zones: Miles: 0-1	1 1-3	2 3-5	3 5-7	4 7-9	5 9-11	6 11-13	7 13-15	8 15-17
I	1- 499	25	55	20						
II	500- 999	26	13	19		38	14			
III	1,000-1,749	40	32	15	13					
IV	1,750-2,499	24	20	24	7	20	5			
V	2,500 and more	37	15	30					7	11

^aZones are concentric circles about the farm headquarters. Zone 1 includes all acreage within one mile of headquarters; Zone 2, all acreage within one to three miles; etc.

SOURCE: (See Table 17, p. 175), p. 27.

The spatial distribution of land may result in the lack of substantial difference in rates for custom services to farms of different sizes. That is, custom rates appear to be fairly standardized throughout the area and there was little variation in custom rates paid by the small and large farmers. Farm location and layout requires numerous moves on the part of custom operators and may effectively limit the opportunity for lower rates even to larger farming units. This distribution also affects farm operations with owned equipment and is discussed in more detail later in this report.

Most of the farm operators surveyed indicated that they could farm additional acreage with present equipment inventories with expanded use of custom services. Only six farm operators were of the opinion that they could operate no additional acreage. Table 20 summarizes means and ranges reported by farm operators on acreage expansion possibilities given their current farm machinery inventories and usage of custom services. Thus, it was generally true for farms included in the survey that capacity to expand the size of farming operations exists. However, it is of further interest to note that three of the four largest units indicated that no such capacity existed for their operations. This suggests that the larger farming units might be operating near to full machinery, management, or other effective capacity restraints.

Empirical Analysis of Economies of Size With Fixed Rotations

This section contains an analysis of representative firm budgets under the assumption of fixed combinations

TABLE 20

CAPACITY TO EXPAND ACREAGE WITH PRESENT
MACHINERY AND USE OF CUSTOM SERVICES
IMPERIAL VALLEY, 1966

Farm size group	Acreage	Mean	Range	
			Low	High
			acres	
I	1- 499	275	0	600
II	500- 999	467	0	1,000
III	1,000-1,749	627	450	1,000
IV	1,750-2,499	346	0	600
V	2,500 and more	333	0	1,000

SOURCE: (See Table 17, p. 175), p. 29.

of crop enterprises for the various sized farming units. The procedure used is based on crop enterprise budgets which reflect costs and returns representative of each of the five farm sizes. Typical machinery combinations are developed for each farm size group from actual machinery combination identified in the sample. Imputed values of farmland are derived as a residual return by estimating gross receipts less fixed and variable costs for all nonland resources. Fixed costs are those costs associated with the derived machinery combinations and include interest on investment, depreciation, insurance, and taxes. Investments in buildings are not considered in this analysis since building combinations were observed to be highly variable among farms in the sample, and often times, were very minimal in the area of investigation. For portions of the subsequent analysis based on owner-operator farming units, certain fixed land costs are considered including county and special district taxes as well as depreciation and maintenance on drainage improvements. Variable costs of farm operation include charges for labor, fuel, repairs, water, fertilizer, seed, and custom services. In addition, overhead and management costs are treated as if they are variable costs.

Variable Costs of Production

Variable costs obtained from crop budgets vary between farm sizes because of the differences in the size and efficiency of equipment as well as the amount of custom services used in the typical farm operation. Budgets, based on secondary sources of data, identify individual operations and rates of material application. Material costs were charged at prevailing rates.

Labor costs were charged at an effective rate of \$1.90 per hour. Variable costs also include costs for tractor and implement use per acre based on the machinery combinations of Table 21 and rates of performance for the average power sources available for each farm size.

As shown in Table 21 variable costs per acre decline as farm size increases. The largest reduction in variable costs is between Size I and Size II farms. Size I farms, which depend wholly upon custom services are, in essence, paying part of the fixed machinery costs of the custom operators as well as variable machinery costs in the charges for custom services but they, on the other hand, do not have to cover significant fixed machinery costs from investments on their own. The less sharp decline in variable costs on Size II through Size V farms result, primarily, from difference in the size and efficiency of machinery utilized in their operations.

Capacity of Farm Operations

The capacity of an individual farm operation is governed by its machinery combination. Capacities for each representative farm size analyzed in this study are then limited by the machinery combinations. With given machinery combinations, limits are maximum acres which can be farmed without necessitating additional machinery. With the assumption of fixed rotations, this limit defines the capacity of the farm operation.

Capacity levels for (1) perfect machinery availabilities and (2) adjusted machinery availabilities are identified for each farm size group. Capacity under the assumption of perfect availability is determined by power requirements and performance rates for

TABLE 21

VARIABLE COSTS OF CROP PRODUCTION PER ACRE
IMPERIAL VALLEY, 1966

Crop	Farm size (acres)				
	I 1-499	II 500-999	III 1,000-1,749 dollars	IV 1,750-2,499	V 2,500 and more
Alfalfa	128.88	123.49	122.38	122.25	121.87
Barley	53.28	50.08	48.95	48.21	48.21
Cotton	289.13	262.05	211.74	211.38	211.23
Milo	68.45	62.28	61.88	61.52	61.31
Sugar beets	192.26	172.25	144.54	143.82	143.51
Barley/milo	125.78	116.41	114.88	113.78	113.47
Lettuce	--	489.49	488.88	488.34	487.91
Lettuce/milo	--	551.77	550.76	549.86	549.22

SOURCE: Warren E. Johnston, "Economies of Size and Imputed Values of Farm land in the Imperial Valley of California." California Agricultural Experiment Station. Giannini Foundations of Agricultural Economics, Research Report No. 314, (July, 1971), p. 16.

each crop included in the fixed rotations. Machinery availability is based upon the number of tractors and hours available per time period. This particular availability concept does not reflect loss of availability due to set-up time, repair and maintenance time, and transport time. It implicitly assumes that the machinery is always available for use (or that the headquarters is always immediately adjacent to the field where operations are to be performed regardless of the size of the farm).

Capacity levels under the second assumption, i.e., that of adjusted availability, are smaller because this assumption seeks to take into account the complexity of farm operation on dispersed acreages. The distribution of land by farm size underlies the reduction in machinery availability and, hence, the reduction in capacity levels. A delay factor of one day per change of operation per farmed block of land was assumed adequate to reflect losses in availability because of setup, repair, maintenance, and transport times for power equipment (tractors) and their implements. Thus, adjusted availabilities, in terms of hours available per time period, is always less than that for perfect availabilities.

The reduction in capacity levels becomes progressively larger as one considers the effect on Size II through Size V farms. While capacity levels always exceed the upper limit of actual farm sizes under perfect availabilities, capacities under adjusted availabilities generally lie nearer the upper limit of the farm size categories. Previous studies revealing extensive overcapacities in machinery investment and which are not adjusted for the various delay factors may have been biased significantly upward if the

units under study operated on widely dispersed acreages.

Cost-Size Relationships

Table 22 summarizes nonland production costs and returns to land for the five farm sizes, assuming fixed rotations. Considering all costs but those for land resources, economies of size are evident. For each farm size, nonland costs of production decline until capacity is limited by machinery availabilities. Since this analysis assumes fixed rotations, there is a direct relationship between gross receipts and acreage farmed. For each farm size group the machinery inventory is held constant. Hence, the cost curve associated with each farm size represents a short run average cost curve for that size category.

Examination of the individual cost curves shows that Size I farms have the lowest cost of production among all sizes considered for farms less than 700 acres. Nonland costs of production for these custom service oriented curve through this range in acreage are less than those for either Size II or Size III farms. They decrease from nearly 78 cents per dollar of output to just under 75 cents through this range. Subsequently, Size II farms have lowest costs from 700 to about 850 acres and Size III farms show declining costs until its adjusted availability capacity of 1,518 acres is attained at which point production costs are about 71 cents per dollar of output.

TABLE 22

NONLAND COSTS OF PRODUCTION AND RETURNS TO LAND
IMPERIAL VALLEY CASH-CROP FARMS, FIXED ROTATIONS

Farm size (1)	Gross receipts (2)	Net return above variable cost (3)	Over-head costs (4)	Acres (5)	Total gross receipts (6)	Nonland costs per dollar of output (7)	Returns to land (8)
	dollars per acre				dollars	percent	dollars
I	194.26	61.53	4.45	125	24,282.50	.777	43.26
				250	48,565.00	.758	47.04
				375	72,845.50	.752	48.20
				500	97,130.00	.749	48.71
				750	145,691.00	.747	49.07
II	194.26	71.09	3.87	285	55,364.10	.832	32.56
				569	110,533.94	.761	46.45
				854	165,898.04	.738	50.88
				983	190,957.58	.732	51.98
				1,138	221,067.88	.727	52.92
III	255.56	98.34	4.49	454	116,024.24	.797	51.82
				909	232,304.04	.734	67.98
				1,363	348,328.28	.715	72.88
				1,518	378,940.08	.711	73.79
				1,817	464,352.52	.707	74.99
IV	255.56	98.84	4.47	788	201,381.28	.773	57.99
				1,577	403,018.12	.724	70.54
				2,365	604,399.40	.711	73.91
				2,551	651,933.56	.709	74.36
				3,153	805,780.68	.707	74.99

TABLE 22 (continued)

Farm size (1)	Gross receipts (2)	Net return above variable cost (3)	Over-head costs (4)	Acres (5)	Total gross receipts (6)	Nonland costs per dollar of output (7)	Returns to land (8)
	dollars per acre				dollars	percent	dollars
V	255.56	99.13	4.45	1,017	259,904.52	.791	53.51
				2,034	519,809.04	.734	67.92
				3,051	779,713.56	.720	71.69
				3,178	812,169.68	.719	71.92
				4,068	1,039,618.08	.716	72.79

SOURCE: (See Table 17, p. 175), p. 35.

The Author's Investigation in 1971¹⁶

In the Imperial Valley, the crops are divided into two categories--Field Crops, which include mainly alfalfa, alfalfa seed, cereal crops (barley, wheat and oats), cotton, flax ryegrass, safflower, sorghums (forage), sorghums (grain) and sugar beets. The second category is called Vegetable Crops and includes asparagus, cabbage, cantaloupes, carrots, lettuce, onions, tomatoes, and watermelons.

In 1965, which is considered an average year in the Imperial Valley as far as agricultural production is concerned, 14 crops were harvested and sold for more than one million dollars (Table 23).

In an effort to arrive at costs of production for agriculture in the Valley, the two largest value crops in each category--lettuce (Vegetable) and cotton (Field), the average costs of production are presented from 1955 to 1963 to 1970. These data represent average years for the Valley. The two crops analyzed are very typical of the cost patterns for each of their respective classes and are based on the average farm when considering the salinity of the soil (Table 24 and Table 25). An analysis of some or all of the aforementioned crops as to their cost patterns reveals very little additional cost trends. Therefore, cotton and lettuce are considered typical as far as total

TABLE 23
MILLION DOLLAR CROPS IN THE
IMPERIAL VALLEY IN 1965

Crop	Amount
Lettuce	\$39,330,000
Cotton Lint	26,107,000
Hay, Alfalfa	23,098,000
Sugar Beets	15,974,000
Barley	7,570,000
Sorghum	7,557,000
Pasture	3,220,000
Cotton Seed	3,134,000
Tomatoes	2,706,000
Cantaloupes	2,219,000
Carrots	1,759,000
Watermelons	1,443,000
Alfalfa Seed	1,436,000
Onions	1,370,000

SOURCE: Information supplied by Imperial Irrigation District, July, 1971.

TABLE 24

AVERAGE TOTAL PRODUCTION COSTS PER ACRE FOR COTTON
IN THE IMPERIAL VALLEY OF CALIFORNIA
SELECTED YEARS

Item	1955	1963	1970
Land Preparation	\$ 16.25	\$ 20.50	\$ 28.15
Cultural Labor and Field Power	43.50	61.00	24.00
Materials	53.25	63.85	154.55
Harvesting	100.75	101.21	122.25
Cash Overhead	13.18	24.40	60.60
Land Rent	50.00	80.00	100.00
Total All Costs	\$277.93	\$350.96	\$489.55

SOURCE: "Guidelines to Production Costs and Practices",
(Selected Years), Information furnished by Imperial
Irrigation District.

TABLE 25

AVERAGE TOTAL PRODUCTION COSTS PER ACRE FOR LETTUCE
IN THE IMPERIAL VALLEY OF CALIFORNIA
SLECTED YEARS

Item	1955	1963	1970
Land Preparation	\$ 18.25	\$ 26.00	\$ 49.23
Cultured Labor and Field Power	69.25	82.50	75.00
Materials	55.50	78.50	164.43
Harvesting	N.A.	N.A.	550.00
Cash Overhead	12.20	16.00	56.66
Land Rent	30.00*	65.00	65.00
Total All Costs	\$185.20	\$268.00	\$960.42

* Represents rent for only one-half year.

SOURCE: "Guidelines to Production Costs and Practices",
(Selected Years), Information furnished by Imperial
Irrigation District.

costs are considered. The risk involved in growing these crops was presented in the first section of this Chapter. Total costs of both operations include fertilizing, plowing, discing, irrigating, pest control, weed control, seeding, hauling and machine picking.

It should be noted that an individual agricultural unit can rotate crops due to the exceptionally long growing season. Thus, a farm producing either lettuce or cotton or both could easily be involved in the production of livestock and other crops depending on the growing season for each individual commodity.

The trend in production costs has been very harsh for all crops grown in the area. Cotton costs have increased from an average of \$277.93 per acre in 1955 to \$489.55 in 1970 (Table 24). Lettuce costs have grown from \$185.20 per acre in 1955 to \$960.42 in 1970 (Table 25). Realized net income on farms, however, decreased on all farms having gross sales of \$20,000 or less. On farms having a value of sales greater than \$20,000, net income increased sharply. On farms with sales greater than \$40,000, realized net income doubled between 1960 and 1970 (Table 26). This is the major reason why agricultural units of 160 acres or less have been rapidly declining. During the period between 1950 and 1964, for example, there was a reduction of 869 commercial farms in the Imperial Valley (Table 27). Between 1950 and 1970 there was a 256 percent increase in the

TABLE 26

PERCENTAGE DISTRIBUTION OF NUMBER OF FARMS, CASH RECEIPTS, PRODUCTION
EXPENSES AND REALIZED NET INCOME BY VALUE OF SALES CLASSES
Selected Years

Year	Value of Sales						All Farms
	Class I \$40,000 and Over	Class II \$20,000 to \$39,999	Class III \$10,000 to \$19,999	Class IV \$5,000 to \$9,999	Class V \$2,500 to \$4,999	Class VI Less than \$2,500	
	Number of Farms						
1960	2.9	5.7	12.5	16.7	15.6	46.6	100.0
1965	4.8	8.6	14.6	15.0	12.9	44.1	100.0
1970	7.6	12.8	17.5	12.7	8.9	40.5	100.0
	Cash Receipts						
1960	32.8	18.6	21.2	14.7	7.0	5.7	100.0
1965	43.2	20.3	18.3	9.8	4.3	4.1	100.0
1970	52.5	21.4	15.6	5.8	2.1	2.6	100.0
	Production Expenses						
1960	35.9	18.2	19.7	13.2	6.4	6.6	100.0
1965	46.2	19.5	16.7	8.9	4.0	4.7	100.0
1970	55.2	20.2	14.1	5.3	2.0	3.2	100.0
	Realized Net Income						
1960	18.3	16.7	22.7	18.6	10.3	13.4	100.0
1965	29.1	20.4	21.6	12.6	6.1	10.2	100.0
1970	36.4	23.7	20.3	8.2	3.4	8.0	100.0

SOURCE: U. S. Department of Agriculture, 1972.

TABLE 27

AGRICULTURAL STATISTICS OF THE IMPERIAL VALLEY

Total number of commercial farms, 1964	824
Reduction, number of commercial farms 1950-1964	869
Percent reduction number of farms 1950-1964	94.8
Number of all farms	943
Percent farms by economic class:	
Commercial	
Class I (sales \$40,000 or more)	59
Class II (sales \$20,000-39,999)	13
Class III (sales \$10,000-19,999)	10
Class IV (sales \$5,000-9,999)	7
Class V (sales \$2,500-4,999)	6
Class VI (sales \$50-2,499)	4
Percent of farm operators:	
Full owners	36
Part owners	35
Managers	6
All tenants	23
Land in farms (acres)	589,708
Irrigated land in farms:	
Number of farms	869
Acres	429,594
Percent land area in farms	21.6
Average size of farms (acres)	715.7
Value land and buildings:	
Average per farm	\$508,482
Average per acre	\$704.36

TABLE 27 (continued)

Number farms by type:	
Field crop	230 (24%)
Cash-grain	38
Cotton	133
Other field crop	59
Vegetable farms	116 (12%)
Fruit - nut	22
Poultry	1
Dairy	20
Livestock	140 (15%)
General	282 (30%)
Miscellaneous	132
Livestock ranches	8
<u>1950-1970:</u>	
Percent increase average size of farms	256
Percent increase average value per farm - land and buildings	770
Percent increase average value per acre - land and buildings	292
Percent decrease number field crop farms	290
Percent decrease number vegetable crop farms	314

SOURCE: U. S. Census, 1970.

average size of farms, and a 770 percent increase in the average value of farms when considering land and buildings (Table 27).

U. S. Government price support payments to individual farms give further evidence of the trend toward largeness. Sixty-three farms in the Imperial Valley received payments of \$30,000 or more in 1970 with the largest payment (\$323,754) being made to the H. B. Murphy Company. Thirteen farms received more than \$100,000, and 168 farms received payments between \$5,000 and \$30,000 (Table 28). These data take on added significance when considering that Humboldt County, California received no price support payments in 1970.

The phenomenal growth of agricultural output in recent years in the Imperial Valley has been made possible through a vastly improved technology, which has more than offset the impact of declines in farms, acreages and farm workers. The abundance of large, specialized farm machinery is readily apparent to anyone who travels through the Valley. The relatively small farmer can not afford this machinery and must rely on custom operations when or if they are available.

Most of the small farmers rely heavily on debt to finance their production costs. Thus, when he is confronted with a failure of his major crop for one or two years in a row, he may be forced into bankruptcy and his acres are usually acquired by his large neighbors if the quality of

TABLE 28

1968 ASCS AND GREAT PLAINS PROGRAM PAYMENTS
OF \$5,000 OR MORE EXCLUDING PRICE SUPPORT
LOANS AND WOOL AND SUGAR PAYMENTS

State California	Total Payments
H. B. Murphy Co.	\$323,754.
Elmore Co.	267,454.
George B. Willoubhey	208,101.
W. E. Young and W. E. Young, Jr.	184,181.
Jack Elmore	180,926.
Sinclair Rches.	153,635.
Irvine Co.	153,180.
J. H. Benson Rchs., Inc.	132,058.
Russell Bros. Rches. Inc.	129,167.
Gerald R. Elmore	123,773.
C. T. Dearborn	113,758.
Antone Borchard Co.	107,196.
Donald H. Cox	106,243.
Hugh Hudson Ranches	99,966.
Donald K. Donley	97,253.
Stephen H. Elmore	96,413.
Raymond Doonnel & Sons	89,873.
Williams & Quick	87,667.
Neil Fifield	87,594.
Kenneth Reynolds	86,593.
Stafford Ranch	85,261.
Salton Sea Farms	77,400
Davis Beauchamp	75,855.
Abatti Bros.	75,363.
Fifield Farms	74,345.
Griset Bros.	73,041.

TABLE 28 (continued)

State California	Total Payments
Charles Vonderahe	\$66,571.
California Sturgis Ginning Co.	65,056.
Fifield Land Co.	60,096.
Jack Bros. & McBurney, Inc.	56,907.
Dearborn & Maraccini	56,770.
Adamek & Dessert	56,299.
Harry Schmidt Farms	52,999.
Bonanza Farms	51,005.
C. W. Sanders	50,606.
John Baretta	47,702.
R. S. Reese	45,590.
Hawk & Sperber	45,510.
J. Emanuelli & Sons	45,180.
Valjon Trst.	44,411.
J. W. Osterkamp Rches.	43,794.
Moiola Bros.	42,600.
Connie B. Cloud	42,399.
Leroy Edwards	40,959.
San Pasqual L. & C. Co.	39,427.
Edward M. Wavers	38,442.
J. M. Bryant	37,801.
House & Haskell	36,342.
Ed Wiest	34,534.
James A. Taylor	34,287.
John H. Borchard	34,222.
M. J. Labrucherie Rch.	33,914.
Broch Ranches	33,431.
Johnny P. Singh	33,089.
Dixie Ranches	31,675.
Robinson & Lavave	31,524.

TABLE 28 (continued)

State California	Total Payments
Baretta & Little Farms	\$31,062.
Sundial Farming Co.	31,022.
Deen & Sandhu	30,904.
Correhl Farms, Inc.	30,446.
Dahm Bros.	30,129.
L. L. Lyerly	30,105.

SOURCE: Senate Hearings Before the Committee on Appropriations, Department of Agriculture and Related Agencies Appropriations, HR 11612, 91st Congress, First Session, Fiscal Year 1970.

the land has not deteriorated to the extent that it can not be made operable.

It seems very doubtful if there will be a resurgence in the growth of small farms. Not including buildings, machinery and the costs of operation, top land for such crops as alfalfa, sugar beets and lettuce may easily sell for \$900 an acre. While it is true that area lettuce growers operating the best ground netted \$1,000 an acre in 1968, a small farmer can not sustain himself through years when the lettuce market is not healthy. In the years 1969, 1970 and 1971, the lettuce crop in the Valley, for a variety of reasons, barely paid for operating costs.

It appears that the earlier studies were correct. Depending on the quality of land and the quality of management, 160 acres, while probably being adequate in 1902, is far from being economically optimal in 1971.

FOOTNOTES

¹Nebraska, University of Nebraska Bureau of Business Research, "The Growth of Corporate Farming", University of Nebraska News, vol. 47 (June, 1968), p. 1.

²Ibid., p. 1.

³Ibid., p. 4.

⁴Ibid., p. 4.

⁵Ibid., p. 5.

⁶Earl Coke and William R. Bianelli, Report of the Governor's Task Force on the Acreage Limitation Problem in California. Sacramento, California: California State Department of Agriculture, 1968, pp. 13-23.

⁷Ibid.

⁸C. V. Moore and J. Herbert Snyder, "Risk and Uncertainty in Lettuce Production in Salinas Valley, California", Giannino Foundation of Agricultural Economics, Research Report No. 300, (January, 1969), p. 8.

⁹Ibid., p. 9.

¹⁰Ibid., p. 10.

¹¹Ibid., p. 11.

¹²Ibid., p. 12.

¹³Ibid., p. 17.

¹⁴Harold O. Carter and Gerald W. Dean, "Cost-Size Relationships for Cash Crop Farms in Imperial Valley, California." California Agricultural Experiment Station. Giannini Foundation of Agricultural Economics, Research Report No. 253. University of California at Davis Press, (June 28, 1962), p. 3.

¹⁵Warren E. Johnston, "Economies of Size and Imputed Values of Farm Land in the Imperial Valley of California." California Agricultural Experiment Station. Giannini Foundation of Agricultural Economics, Research Report No. 314, (July, 1971), p. 1.

¹⁶The observations and conclusions in this section have been taken, for the most part, from a field investigation in the Imperial Valley in July of 1971 and a subsequent series of personal interviews with various agricultural experts in the area (See part 4 of the Bibliography).

CHAPTER VI

SUMMARY AND CONCLUSIONS

The earliest inhabitants of the Imperial Valley were mainly Spanish adventurers and the Kamia Indians. Many of these people perished due to the extreme weather conditions of the Southern California desert. In 1774 the Spanish Conquistador De Anza visited the region and was appalled at the utter desolation.

The area was virtually uninhabited until the U. S. Congress passed the Homestead Act of 1860 and 1862. The Imperial Valley was being considered as a place for settlers after American engineers Wozencraft and Blake recorded the possibilities of reclaiming the desert through diversion of water from the Colorado River. Their ideas attracted little attention until 1900 when George Chaffey actually planned the transformation of the desert with Colorado River water. In the next year water was diverted into the area via the old Alamo Canal.

Imperial Valley, most of which is encompassed by Imperial Irrigation District, is an area of approximately 660,000 gross acres in the extreme southern portion of California. It extends, generally, from the Salton Sea

on the north to the Mexican border on the south; and from the Laguna Mountains on the west towards the Colorado River on the east. At present, more than 500,000 irrigable acres can be served by a system of canals bringing water from the Colorado River through the All-American Canal and the Boulder Canyon reclamation project.

Plans to turn the desert into a winter farming area were conceived by pioneers as early as 1849, but it was not until the period of 1892-95 that developments were physically initiated to divert Colorado River water for use in the Imperial Valley. This was done through the Alamo Canal which ran part of its course through Mexico, which was completed in 1901. But there was no security to the farmers in their water supply until after the construction of Boulder Dam and the All-American Canal which were completed in 1940.

Prior to 1902, there was no reclamation law in the United States. The Homestead Act of 1862 had, until then, been found adequate to encourage the settlement of lands that were supplied with water by nature. No great investment was required to bring such lands into production as was the case in the arid areas of the far west. Under the Homestead Act, citizens over 21 years of age, heading families, could enter upon 160-acre tracts, and, upon completing certain requirements of residence and cultivation, file for ownership in five years.

As lands became taken up, Congress attempted to encourage irrigation, and passed the Desert Land Act of 1877, by which one owner could obtain 640-acre homesteads on proof of reclamation and payment of a nominal price to the Government. Later this was reduced to 320 acres, which matched the combined holdings of husband and wife of 320 acres under the Reclamation Act of 1902, with its 160-acre limitation provision.

In 1894, Congress passed the Carey Act, which provided a grant of one million acres to each of the Western States, for development by irrigation "provided that the States could not sell or dispose of more than 160 acres to any one person." The intent of the law was to provide homesites for the crowded populations of the East, in a size that could comfortably support a family without need for great numbers of supplemental laborers.

As public lands rapidly disappeared through homesteading, it became apparent to Congress that it must provide irrigation waters for the remaining arid lands that could be brought into cultivation if irrigated; and that it must immediately retain what remaining sites there were in the public domain suitable for damsites and reclamation projects. And so the Congress passed the Reclamation Act of 1902.

Main provisions of the Reclamation Act were that the receipts from the sale of public lands in the Far West arid

areas were to be used for the construction and maintenance of dams and irrigation works for the storage and distribution of water; and that those who benefited by the works were to pay the capital costs, and the operation and maintenance costs of such work as benefited them. And, to ward off impending threats of having the reclaimed lands snatched by large land speculators, the Reclamation Act clearly embodied the 160-acre excess land provisions that no water should be delivered to any lands of one owner in excess of 160 acres, and that the Secretary of the Interior should arrange for the sale of such lands should a landowner accept water through a reclamation project for 160 acres.

By 1902, only a few hardy pioneers had braved the desert sands of Imperial Valley, and it had only been one year earlier that the first irrigation waters had been brought to valley farms by weaving canals, hand dug by the use of mules from the Colorado River some 60 miles across the desert.

But the Colorado was an uncontrolled and unruly waterway, with alternate floods and dry spells, which nearly inundated the entire valley in 1906-07, raising the nearly dry Salton Sea of this sub-sea-level valley to encompass 330,000 acres. The gigantic fight of the pioneers backed by resources and equipment of the Southern Pacific Railroad, to return the river to its course is a chapter of the history of the area.

A development company was superseded by the forming of Imperial Irrigation District, and by 1910 about 180,000 of the valley's 600,000 acres were under cultivation. As this growth of farm progressed, Congress became interested in studying the problems of the Imperial Valley, as in respect to intermittent floods and droughts; and by 1928, after a 6-year battle led by Congressman Phil Swing and Senator Hiram Johnson, the Boulder Canyon Act was passed. It authorized the building of Boulder Dam (now known as Hoover Dam) on the Colorado River, for the purpose of storing up the waters of the melting snows and releasing them slowly for irrigation of farms in the river basin States and the building of the All-American Canal to serve Imperial and Coachella Valleys.

If the Swing-Johnson bills which fathered the Boulder Canyon project had been simple, and were passed by Congress without argument, the intent of the Congress would not have become a matter of controversy for the ensuing 35 years. But this was not the case. There was much discussion in Congress and substitutions of phrases, and finally an entire bill, so that it became confused as to whether the original meaning of the authors had been retained or not.

Records of the 70th Congress of December 13, 1928, show that Senator William King, of Utah, raised the point that the All-American Canal project was not truly a reclamation project, because reclamation projects are built from

reclamation funds, while the bill passed authorized the Treasurer of the United States to place the entire construction fund of \$38,500,000 in a special fund, for repayment over 40 years without interest; and that in the case of reclamation projects, the funds are placed in the reclamation fund.

Arizona argued before the special master of the Supreme Court in the Arizona vs. California water suit in 1958: "If illegal use cannot be beneficial, such alleged illegal use of water, in time, terminates the appropriative right, and a new and consequently junior appropriation must be made."

While the special master ruled out the inclusion of the acreage limitation controversy as irrelevant in water suit before the U. S. Supreme Court, the subject of "prior vested rights" has been the basis upon which Ray Lyman Wilbur, Secretary of Interior, had handed down the opinion in 1933 that the land limitation did not apply in Imperial Valley. The Wilbur opinion preceded a case in Imperial County Superior Court, in which it was ruled that the Imperial Irrigation District must supply water to landowners of acreage in excess of 160 acres. (Malan Case, July, 1933--Hewes et al vs. All Persons). It was argued on behalf of the defendant, owner of 210 acres that limiting water to only 160 of his acres would amount to taking his property without compensation. The Court reviewed

the Boulder Canyon Act, and the All-American Canal contract, and held that the documents contained nothing to limit acreage.

Thus it is seen that administrative interpretation and practice, since as early as 1911, has recognized existing or "vested" rights as removing the excess land laws from application to holders of such rights. Because the Boulder Canyon Act specifically recognized "prior vested rights", some Congressmen expressed the opinion that Congress could not legally enforce acreage limitation in such cases, because they had been preempted by State law, because of prior rights.

California law has required validation of contracts by court proceedings since 1897; and it was submitted that neither Arizona nor the United States could challenge local use after ratification of the Colorado compact.

On December 30, 1964, it was revealed that the U. S. Department of the Interior had reversed its former position held for 31 years, and issued the opinion that the 160-acre limitation statutes should be applied to land receiving irrigation waters by virtue of the Boulder Canyon project; namely, Imperial Irrigation District.

The general manager and chief legal counsel of I.I.D. were summoned back to Washington, and without publicity, were given the edict in a 41-page opinion of

chief solicitor Frank Barry, backed by more than 60 pages of supplementary documents and correspondence.¹

In January of 1971, in the U. S. Federal District Court in San Diego, Judge Howard Turrentine ruled that the Imperial Irrigation District was not bound to the 160-acre land limitation law. The U. S. Government which initiated the suit against the District following the Barry opinion did not appeal.

CONCLUSIONS

Major Problems and Deficiencies

The first four problems or deficiencies listed are definitely inter-related and alleviation of any one will affect the others. The high unemployment rate in the past has been attributed to the development of mechanical and chemical labor-saving devices in the agricultural industry. The proximity of nearly 2,300 U. S. citizens and 7,000 "Green Carders" living in Mexicali, Mexico who are free to move into Imperial County at will also provides a constant supply of potentially unemployed for the area. The 30 percent high school drop-out rate, which is comprised mainly of minority group youths, also adds to constantly high unemployment rate. Although outward migration has averaged one percent per year since 1960 it is usually the more aggressive, job seeking unemployed who leave the area, thereby leaving only the least capable or able hardcore unemployed in the County.

The high drop-out rate is due to the cultural attitudes of the minority-poverty group families and the lack of educational curriculum directed to their particular needs. These people are basically labor oriented and very few families encourage college education for their children. Since the schools are primarily college

preparatory oriented and not occupational oriented, the labor oriented youth have no interest in remaining in a school system which is not goal satisfying.

The lack of a Regional Occupational Center for the labor or occupation oriented youth in the area has aggravated the problem for not only those who drop out of high school but for those who graduate ill-prepared for any occupation. The shop courses are duplicated at all the high schools and are of little true value in preparing for an occupation. The school systems are now recognizing this problem and plans are underway for a Regional Occupational Center to be established at Imperial Valley College.

The lack of diversified, nonseasonal employment opportunities has contributed to the migration of the more skilled, aggressive workers and the high unemployment and welfare level in the County. Although a large supply of unskilled and semi-skilled labor is available and training funds are available for on-the-job training, there are no developed industrial parks in which new or expanding local industry can be placed.

The inter-relationship between the first four problems has resulted in an unemployment rate which has averaged between eight percent and twelve percent and sometimes as high as fifteen percent, from 1960-1970. The Welfare rate has increased significantly primarily due to

liberalization of the welfare laws. In June, 1969, there were 9,287 persons receiving welfare assistance in Imperial County--nearly eleven percent of the population. 1,938 were on Old Age Security; 87 on Aid to the Blind; 817 on Aid to the Totally Disabled; 131 in Boarding Homes and Institutions; 1,651 adults and 4,663 children on Aid to Families with Dependent children.²

Potentials for Economic Development

The area's large labor surplus of nearly 3,000 unemployed trainable workers and another supply of 10,000 to 12,000 workers living in Mexicali, Mexico but eligible to live in this country if work was available can be an asset to attract some industries. The major holdup has been the lack of any industrial parks in which to place potential industry. The attractiveness of twin plant operations with the hand labor being performed in Mexico and the other operations being performed in Imperial County has been hampered by the lack of an industrial park in which to locate part of the operation. On the other hand, Mexicali which is adjacent to Calexico has been highly successful in attracting new industry.³

The warm winter weather is the nucleus of a potentially large tourist and resort industry. The area has the same desert climate that made the Palm Springs area popular; however, the entrepreneurship which built

Palm Springs has not been available within Imperial County nor has it been attracted to the County. Relatively inexpensive land, particularly along Highway 111 near the Salton Sea, with hot mineral water, beautiful scenery, fishing and boating, and a large labor supply are attracting more interest from resort developers. Four hot mineral spas in that area serve about 1,000 trailers during the winter months. Full development of this potential would provide many low skilled jobs and increase the area's tax base.

Geothermal steam deposits underlie a large portion of Imperial County. The deposits are similar to those in Sonoma County, New Zealand and Italy which are being tapped to produce electricity. The wells in the Calipatria-Niland area produce about two pounds of brine for every pound of steam. Because of the high brine content the steam has not been useable for power generating purposes. However, technological breakthroughs are making some mineral recovery feasible and eventually the recovery of the plentiful rare minerals will be profitable and feasible. Clean steam or low brine content steam deposits underlie the Cerro of Geophysics and Planetary Physics which is mapping these deposits feel that the Mexican deposits extend into Imperial County. Several major corporations are also involved in research on the potential of these deposits.

Some land in the Imperial Valley has been completely ruined by excess salt in the soil. This was caused by some farmers who were either unwilling or unable to provide for adequate drainage facilities. Since the soil is unable to produce crops or provide pasture land for livestock, many farmers have turned to catfish farming. With controlled feeding and almost constant supervision, these fish farmers are realizing good profits on land that had previously been considered waste land.

The economic future of the Imperial Valley, despite its problems, looks very bright.

FOOTNOTES

¹The preceding was largely taken from an extension of remarks made by U. S. Representative, John V. Tunney of California, made to the U. S. House of Representative on February 10, 1965, and published by Ms. Nettie Brown in the Imperial Review.

²Imperial County Economic Development Commission, "Overall Economic Development Plan", (Imperial, California: March, 1970), p. 35.

³Ibid., p. 38.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. BOOKS

- Bishop, C. E., ed. Farm Labor in the United States. New York: Columbia University Press, 1967.
- Caughey, John W. California: A Remarkable State's Life History. Englewood Cliffs, New Jersey: Prentice Hall, 1970.
- Cleland, Robert G. From Wilderness to Empire: A History of California. New York: Alfred Knopf, 1962.
- Cooper, Erwin. Aqueduct Empire: Guide to Water in California. Glendale, California: A. H. Clark Co., 1968.
- de Roos, Robert. The Thirsty Land. Palo Alto, California: Stanford University Press, 1948.
- Doll, John P.; Rhodes, V. James; and West, Jerry G.; Economics of Agricultural Production, Markets, and Policy. Homewood, Illinois, Richard D. Irwin, Inc., 1968.
- Higbee, Edward. Farms and Farmers in An Urban Age. New York: The Twentieth Century Fund, 1963.
- Hundley, Norris, Jr. Dividing the Waters: A Century of Controversy Between the U. S. and Mexico. Berkeley: University of California Press, 1966.
- Imperial County Economic Development Commission. Overall Economic Development Plan. El Centro, California, March, 1970.
- Logan, Samuel H. Cattle Slaughtering in Imperial County. Imperial Valley Development Agency, El Centro, California, May, 1970.

- McWilliams, Carey. Factories in the Fields. Boston: Little Brown and Co., 1939.
- Nelkin, Dorothy. On The Season: Aspects of the Migrant Labor System. Ithaca, New York: Cornell University Press, 1970.
- Richman, Irving B. California Under Spain and Mexico. New York: Houghton Mifflin Co., 1911.
- Rolle, Andrew F. California: A History. New York: Thomas Y. Crowell Co., 1963.
- Whitehead, Carlton J., and King, Albert S. Managing Mexican-American Employees. Lubbock, Texas: Texas Tech University Press, 1972.

2. ARTICLES and PERIODICALS

- Baker, C. B., and Hopkins, John A. "Concepts of Finance Capital-Using Agriculture." American Journal of Agricultural Economics, v. 51 (December, 1969).
- Barnes, Peter. "The Case for Redistribution." The New Republic. (June 19, 1971), 13-17.
- _____, "The Great American Land Grab." The New Republic. (June 5, 1971), 19-23.
- _____, "The Vanishing Small Farmer." The New Republic. (June 12, 1971), 21-24.
- Butcher, Walter R., and Whittlesey, Norman K. "Trends and Problems in Growth of Farm Size." Journal of Farm Economics, v. 45 (November-December, 1966).
- Carter, Harold O., "Representative Farms-Guides For Decision Making." Journal of Farm Economics, v. 45 (November-December, 1963).
- Carter, H. O., and Dean, G. W. "Cost-Size Relationships For Cash Crop Farms In A Highly Commercialized Agriculture." Journal of Farm Economics, v. 43, (February-August, 1961).

- Carter, Harold O., and Dean, Gerald W. "Cost-Size Relationships for Cash Crop Farms in Imperial Valley, California." California Agricultural Experiment Station. Giannini Foundation of Agricultural Economics, Research Report No. 253. University of California at Davis, June, 1962.
- Degnan, James P. "Water: Who Pays: Who Profits? The Many Pay, The Few Profit." Frontier, v. 18, No 2 (December, 1966), 8-11.
- Doll, Raymond J. "Capital Funds for Agriculture." Journal of Farm Economics, v. 45, (May, 1963).
- Faris, J. Edwin. "Economies of Scale in Agricultural Production." Journal of Farm Economics, v. 43 (November-December, 1961).
- Goodall, Merrill R. "Land and Power Administration of the Central Valley Project." Journal of Land and Public Utility Economics, v. 18 No. 3 (August, 1942) 299-311.
- Headley, J. C. "The Management Factor in Commercial Agriculture: How Can It Be Recognized?" Journal of Farm Economics, v. 47 (November-December, 1965).
- Hopkin, John A. "Concepts of Finance Capital for a Capital Using Agriculture." American Journal of Agricultural Economics, v. 51 (December 1969) 1055-1064.
- Johnston, Warren E. "Economies of Size and Imputed Values of Farmland in the Imperial Valley of California." Giannini Foundation Research Report No. 314, (July, 1971).
- McElveen, Jackson V. "Farm Numbers, Farm Sizes, and Farm Income." Journal of Farm Economics, v. 45 No. 1 (February, 1963).
- Moore, Charles V. "A General Analytical Framework for Estimating the Production Function for Crops Using Irrigation Water." Journal of Farm Economics, v. 43 (November-December, 1961).
- Poli, Adon. "Land Ownership and Operating Tenure in Imperial Valley, California." United States Department of Agriculture, Bureau of Agricultural Economics, March, 1942.

- Scofield, William H. "Investment in Farm Real Estate." Journal of Farm Economics, v. 45 (May, 1963).
- Swackhamer, Gene L. "The Growth of Corporate Farming." Federal Reserve Bank of Kansas City Monthly Review, May, 1968.
- Taylor, Paul S. "Calculated Circumvention." California Law Review, v. 52 (December, 1964) 978-1014.
- _____, "Excess Land Law: Legislative Erosion of Public Policy." Rocky Mountain Law Review, v. 30 (July, 1958) 1-37.
- _____, "Excess Land Law: Execution of a Public Policy." Yale Law Journal, v. 4 (February, 1955) 477-514.
- _____, "Water and Land." Western Political Quarterly, v. 2 (June, 1949) 229-253.
- Upchurch, M. L. "Implications of Economies of Scale to National Agricultural Adjustments." Journal of Farm Economics, v. 43 (November-December, 1961).
- Varma, J. D., and Sharma, A. D. "Costs in Relation to the Size of Farms." Indian Journal of Economics, v. 47 (January, 1967) 269-296.

3. GOVERNMENT and PUBLIC DOCUMENTS

- Barry, Frank M., Solicitor of the U. S. Department of the Interior. Excess Land Laws, Imperial Irrigation District and Appendix. Memorandum No. M-36675 to the Secretary of the Interior, December 30, 1964.
- California, A Task-Force Study by the University of California. Desert Agriculture in California, August, 1968.
- _____, Agricultural Extension Service of the University of California for Imperial County. Growing and Finishing Beef Cattle in Southern California Desert Valleys, July, 1970.

- _____, Agricultural Extension Service of the University of California for Imperial County. Guide Lines to Production Costs and Practices for Imperial County Crops, September, 1970. El Centro, California, 1970.
- _____, Department of Human Resources Development, Area Manpower Review for Imperial County, California. April, 1971.
- _____, Imperial Irrigation District Office of Public Information. "Imperial Irrigation District." El Centro, California, April, 1965.
- _____, Imperial Irrigation District Office of Public Information. "Information on Imperial Valley Acreage Limitation Problem." El Centro, California, July, 1970.
- _____, Department of Human Resources Development. "Area Manpower Review for Imperial County, California." February, 1972.
- Coke, Earl, and Bianelli, William R. Report of the Governor's Task Force on the Acreage Limitation Problem in the State of California. January, 1968.
- Finnell, Claude M. Imperial County Agriculture in 1970. Report of the Agricultural Commissioner, July, 1971, El Centro, California, 1971.
- Imperial Irrigation District Office of Public Information. "Information on Imperial Valley Acreage Limitation Problem." El Centro, California, April, 1968.
- Imperial Valley Development Agency. Report on Imperial County Geothermal Resources Development Project, November, 1970, El Centro, California, 1970.
- _____, Report on Imperial County Geothermal Resources Development Project, June, 1971, El Centro, California, 1971.
- Johnston, W. E. Some Characteristics of the Farm Real Estate Market in California With Emphasis on Transactions In Imperial and Tulare Counties. January, 1972.
- King, B. P. The Excess Land Provisions of The Federal Reclamation Laws. (Mimeographed copy), Billings, Montana, May 24, 1941.

Malan et al vs. Coachella Valley County Water District,
Superior Court, State of California, Imperial
County, No. 15460, (1933).

Roadhouse, J. E. "Irrigation Conditions in Imperial
Valley, California." Report based on field obser-
vations made in Imperial Valley in 1903. Washington:
U. S. Government Printing Office, 1905.

State of Arizona vs. Imperial Irrigation District et al,
U. S. Supreme Court, Washington, D. C., 1958.

Stratford, H. R. Progress Report of Imperial Thermal
Products, Inc., December, 1965. El Centro,
California, 1965.

U. S. Department of Agriculture: Economic Research Service.
Farm Income Situation, February, 1971.

_____, Economic Research Service, Agricultural Economic
Report No. 175. Our 31,000 Largest Farms.
Washington, D. C., March, 1970.

U. S. Department of Agriculture: Economic Research Ser-
vice. The Balance Sheet of the Farming Sector,
Agriculture Information Bulletin No. 350, 1970.

U. S. Department of the Interior. Acreage Limitation
Policy, June 30, 1964. Washington, D. C.:
Government Printing Office, 1964.

_____, Bureau of Reclamation. Boulder Canyon Project:
All-American Canal. Contract for construction of
diversion dam, main canal and appurtenant struc-
tures and for delivery of water, December 1, 1932,
and contract amendatory and supplemental to All-
American Canal Contract of December 1, 1932,
March 4, 1952.

_____, Bureau of Reclamation, Lower Colorado River
Reclamation, July, 1969.

U. S. Department of Labor. Farm Labor Fact Book. 1959.

United States of America vs. Imperial Irrigation District,
U. S. District Court, Southern District of
California, San Diego, California, No. 67-7-T.
(January 5, 1971).

Wilbur, R. Lyman, U. S. Secretary of the Interior. Letter written to the Imperial Irrigation District, El Centro, California, February 24, 1933.

4. OTHER SOURCES

Carter, R. F., General Manager of Imperial Irrigation District. Private interview held in Imperial, California, July 15, 1971.

Crow, H. P., Farm Labor Office Manager, State of California Department of Human Resources Development. Private interview held in Calexico, California, July 16, 1971.

De Cristofaro, R. T., Manager of United California Bank, El Centro office. Private interview held in El Centro, California, July 16, 1971.

Dickey, W. C., Industrial Development Coordinator, Imperial Valley Development Agency. Private interview held in El Centro, California, July 13, 1971.

Flanagan, F. W., United States Department of Agriculture Soil Conservation Service, District Conservationist, Imperial County California. Private interview held in El Centro, California, July 13, 1971.

Rodens, Peter, Assistant Public Information Officer, Imperial Irrigation District. Private interview held in El Centro, California, July 14, 1971.

Simpson, William, United States Department of Agriculture Soil Conservation Service, Imperial County, California. Private interview held in El Centro, California, July 13, 1971.

Van Maren, Adolph, Imperial Valley Agricultural Extension Service, University of California. Private interview held in El Centro, California, July 13, 1971.