THE FRUIT AND VEGETABLE CANNING INDUSTRY IN EUGENE, OREGON

by

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A THESIS

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VITA

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Soad Gamal Eldin Selim

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INTRODUCTION

The fruit and vegetable canning industry in Eugene, Oregon, is represented in this thesis as a study in economic geography based upon field methods. The Eugene Fruit Growers' Association, one of the sizeable establishments in Eugene and the biggest of this type of cannery in Lane County, is taken as a representative. This cannery has a plant on 8th and Ferry Streets in Eugene, and a smaller one on 12th and Greenwood Streets in Junction City. Workers of these plants are mainly from the vicinity of both cities.

This cannery processes fruit and vegetable crops grown in the surrounding area which is referred to as the cannery-shed. The physical and cultural setting within the cannery-shed contributing to the existence of this agricultural industry are the major points. The economy and the history of the fruit and vegetable canning industry is discussed with special emphasis on Oregon and Eugene.

The study was carried on by personal field observation. Interviews were held with fruit and vegetable growers; some of the personnel of the cannery; the State Department Office of Employment; the Agriculture Stabilization Service; Lane County Agent in Eugene; the Soil Conservation Service in Eugene, Junction City and Harrisburg, Oregon.

The farms were selected so as to include farms whose owners are members of the Eugene Fruit Growers' Association who sell all their products to this cannery, or those who sell certain other crops to other canneries; farms that were owned by a previous member of this Association; neighboring farms, growing the same crop and in which case at least one of the growers sells to this cannery. The fifteen farms chosen are located in the Willamette valley and adjacent foot hill section, all within an elevation range of 260 feet. They include eight soil types highly regarded for this kind of farming in the Eugene area. All of the major crops used by the cannery are grown in the selected farms.

Many field trips were made to each farm on different times to observe the operations throughout the year. Some of these trips coincided with visits of the County Extension or the cannery Field Service Agents. Air photographs were used along with Oregon 15 Minute Series Topographic Sheets. Soil tests and soil classification by texture and color were made by the author.

CHAPTER I

THE FRUIT AND VEGETABLE CANNING INDUSTRY

Definition

The Standard Industrial Classification Code No. 2033 stands for Canned Fruits, Vegetables, Preserves, Jams, and Jellies. This industry as defined by the Census of Manufactures comprises establishments primarily engaged in canning fruits and vegetables and fruit and vegetable juices; and in manufacturing catsup and similar tomato sauces, preserves, jams, and jellies.

A revised edition of the Standard Industrial Classification Manual was issued in 1957. Extensive modifications were made in the manufacturing section. As for Canned and Frozen Foods, the report of the Census of Manufacturing statistics for establishments classified in each was as follows:

2031- Canned and Crude Sea Foods

2032- Canned Specialities

2033- Canned Fruits, Vegetables, Preserves, Jams, and Jellies

2034- Dried and Dehydrated Fruits and Vegetables

2035- Pickled Fruits and Vegetables; Vegetable Sauces and Seasonings; Salad Dressings

2036- Fresh or Frozen Packaged Fish

2037- Frozen Fruits, Fruit Juices and
Vegetable Specialties

2086- Bottled and Canned Soft Drinks
and Carbonated Waters

This group of industries includes establishments primarily engaged in canning, freezing, and preserving foods except meats and poultry which were included in Industry Group 201, Meat Products; and those engaged in canning milk were included in Industry Group 202, Dairy Products.

Although the number of the fruit and vegetable canning industry was unchanged, yet the definition for Industry 2033 in the 1958 Census of Manufactures has been changed from that in use during 1954. It excluded establishments primarily producing fruit drinks and ades which were shifted to Industry 2086, Soft Drinks.

It was interesting to find out the origin of the word "can" and how it came to be. It dates back to the year 1810 when Peter Durand took out an English patent for preserving food and sealing it up in a "canister" of tin. His patent also covered other metal as well as glass and pottery. The word "canister" comes from a Greek name for "reed". Baskets woven of reed were called "canisters" and people in England used them for tea, coffee, beans and peas. Durand called his invention a "tin canister" as it looked like a tea or coffee canister. In making out bills for canned foods, the early American canners abbreviated the word to "cans" while the Englishmen always speaks of "tins" or "tinned foods". "Canned foods" or "tinned foods" replaced the early term "hermetically sealed foods" and "canners" replaced the term "food preservers". James Hiram Collins, The Story of Canned Food (New York: E. P. Dutton and Company, 1924), p. 16.

Establishments primarily engaged in canning poultry were reclassified into Industry 2035, Pickles and Sauces.[1]

Economics of Fruit and Vegetable Canning

The location of the bulk of the canning industry in or close to farming areas, highlights the fact that canning is essentially an agricultural industry. This is important because fruits and vegetables are perishable and this proximity of the plants minimizes the time lapse from the fields to the processing plants. It permits the processing of the crops at the proper degree of maturity, it also makes them less bulky and more easy to transport. The canning industry is, therefore, a rural or smalltown industry in which the individual plant is generally small and often specialized.

This holds true for the fruit and vegetable canning industry in Eugene which is well represented by the EUGENE FRUIT GROWERS' ASSOCIATION. Their plant in Eugene is mainly for the canning of table beets, beans, carrots, and sweet corn. Vegetables constitute the large portion of their canning, leaving a small portion for the canning of fruits which are mostly pears, and sweet and sour cherries.

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[1]United States Department of Commerce, Bureau of Census, 1958 Census of Manufactures, Canned and Frozen Foods.

Their other plant in Junction City is solely specialized in the canning of beans. These two plants play a considerable role in the economy of both cities.

The foods for canning are either produced solely for canning under exclusive contracts with growers, or are specially selected at the point of production for their particular fitness from the standpoint of variety, ripeness and quality. Much of the canning industry's annual production is packed from crops under contract, insuring the farmer a market for his entire production at a price agreed upon before the crop is planted. The canner takes over the price risks of the farmer because he fixes the price of the crop ten months in advance of the harvest and even before being grown.[1]

Canned fruits and vegetable prices, as shown by Figure No. 1, are much more stabilized than the prices of the fresh fruits and vegetables and even more than the prices of all foods, especially during the period of the Second World War, 1941-1945, when fresh fruit and vegetable prices fluctuated greatly.[2]

Thus the canning industry provides farmers with a stable price for large quantities of vegetables and a guarantee of cash income that helps farmers to absorb risks involved in

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[1]National Canners Association, The Canning Industry (Washington D.C., 1959), pp. 8-11.

[2]The United States Department of Commerce, Office of Domestic Commerce, Canned Fruits & Vegetables Industry Report 1950. Vol. X, No. 3, p. 2.

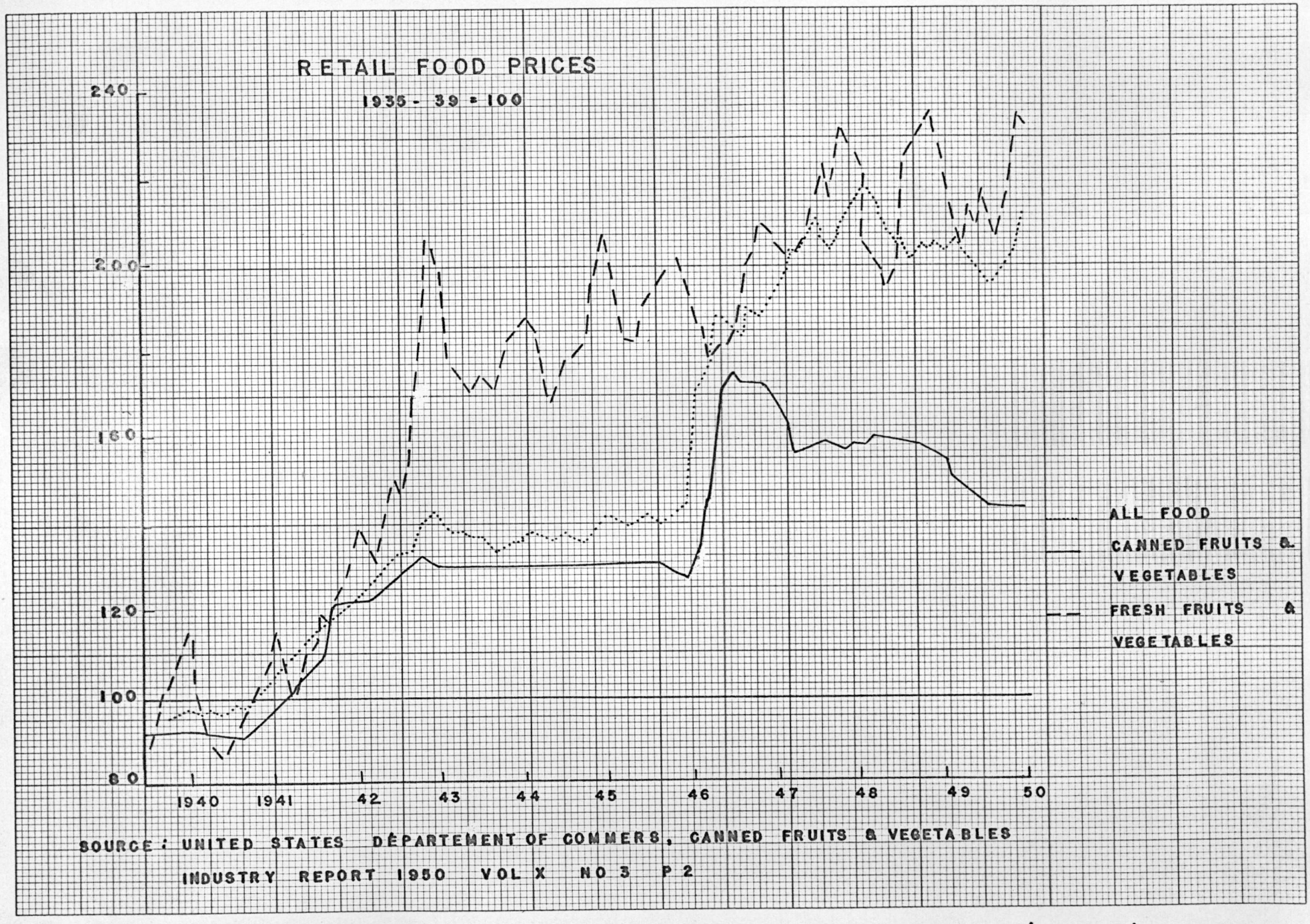
RETAIL FOOD PRICES
1935 - 39 = 100
240
200
160
120
100
80
1940
1941
42
43
44
45
46
47
48
49
50
ALL FOOD
CANNED FRUITS & VEGETABLES
FRESH FRUITS & VEGETABLES
SOURCE : UNITED STATES DEPARTEMENT OF COMMERS, CANNED FRUITS & VEGETABLES
INDUSTRY REPORT 1950 VOL X NO 3 P 2

Figure 1

the sale of crops on the fresh market. It also provides an important market for perishable fruits. The Canning Industry sponsors and encourages agricultural research in plant science and economics. Canners have contributed to the development of new and important strains of fresh foods and to the development of modern agricultural machinery. Many canners, through their own agricultural research program, and their field men furnish their growers the best obtainable advice on horticultural practices, improved varieties, fertilizers, machinery, and production economics. The contributions of the canning industry in this field benefited both the consumer and the whole of agriculture, by achieving low-cost and efficient production of the high quality foods which meet the consumer demands.

By converting the farmers perishable crops into non-perishable form, the canning industry has eliminated the waste that would result from seasonal gluts, and has made available to the consumer the year around these perishable crops. The stabilization of price which producers receive for their perishable crops has stimulated the demand and broadened the market for seasonal fruits and vegetables, and has helped producers of canning crops to achieve a good profit[1], so that the farmer growing crops for canning is

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[1]National Canners Association, op. cit., p. 10.

in a much better position than the farmer growing other field crops.[1]

The canning industry started in France, and in the British Isles almost simultaneously and was brought to the United States soon after, where it has attained its highest development.[2] This form of food preservation was conceived primarily as a military measure to secure better stores for the Army and Navy, in order to avoid the enormous losses attendant upon the methods then in use.[3] The improved quality attained and the convenience resulting attracted attention immediately to the advantages to be derived from the use of similarly prepared foods for household consumption. But the crude methods of making cans and the hand labor involved in every step of food preparation made the cost excessive. Canned foods were regarded as being delicacies, and available only to those of considerable wealth. In 1850, a small can of corn or peas cost about fifty cents.[4]

Canned foods enjoy popular acceptance in virtually every United States home and in the institutional field which includes restaurants, hotels, hospitals, schools, dormitories and other mass establishments. The trend in annual production

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[1]E. B. Alderfer, and H. E. Michl, Economics of American Industry (New York and London, 1942), p. 473.

[2]United States Department of Commerce, Canned Foods (Bureau of Foreign and Domestic Commerce, Miscellaneous Series XXXXXIV, 1917), p. 8.

[3]Ibid., p. 7.

[4]Collins, op. cit., p. 13.

of packs of canned foods between 1870 and 1959 is shown by Figure No. 2. There has been a rapid growth since the beginning of the twentieth century and the production of canned goods has increased twenty-fold. Also canned foods have become well known in most countries around the world. The modern cannery has done much to lighten the burden of the kitchen.

The annual civilian per capita consumption in the United States, of various canned foods, as shown by the Figure No. 3,[1] shows the growing popularity and use of canned foods. Canned vegetables had the highest consumption between 1920 and 1959, followed in order by canned fruits, canned juices, canned milk, canned soups, canned meat, and canned fish.

It is noteworthy that although the canning of fish was one of the oldest canning industries, yet the per capita consumption is declining, especially between 1936 and 1959. This was due to the popularity of frozen fish. There was also a decline in the consumption of canned juices between 1946 and 1959, coincident with the increasing availability and popularity of frozen fruit juices.

In regards to the consumption of all kinds of canned foods, there was a decline in the thirties as the canning industry was affected by the depression. In 1944 there was a noticeable decline in all kinds of canned foods, except canned fish and canned soups. This was caused by the

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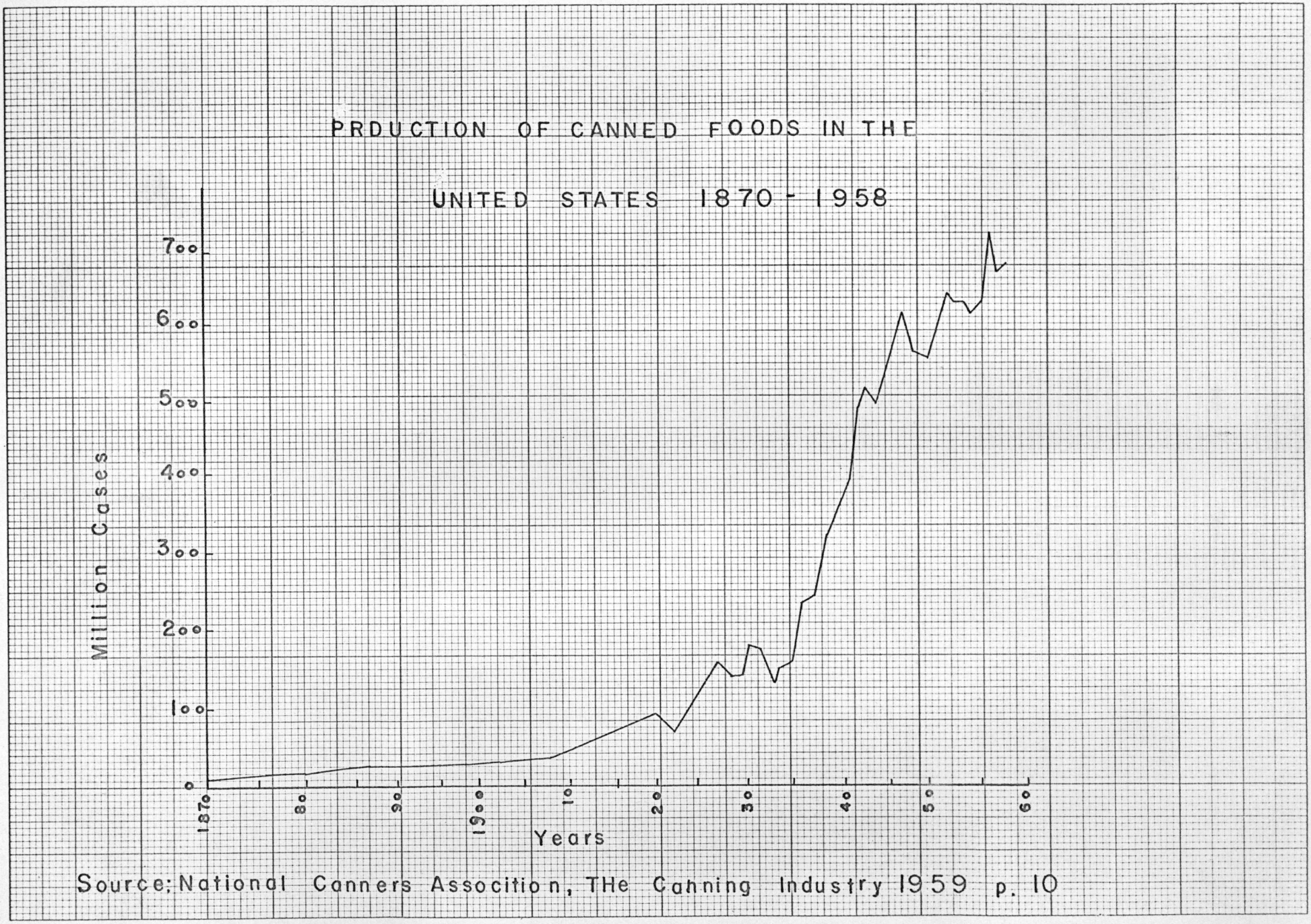
[1]United States Department of Agriculture. Consumption and Usage, Apparent Annual Civilian Per Capita Consumption of Various Canned Foods. 1920-1959.



Source: National Canners Association, THe Canning Industry 1959 p. 10

Figure 2

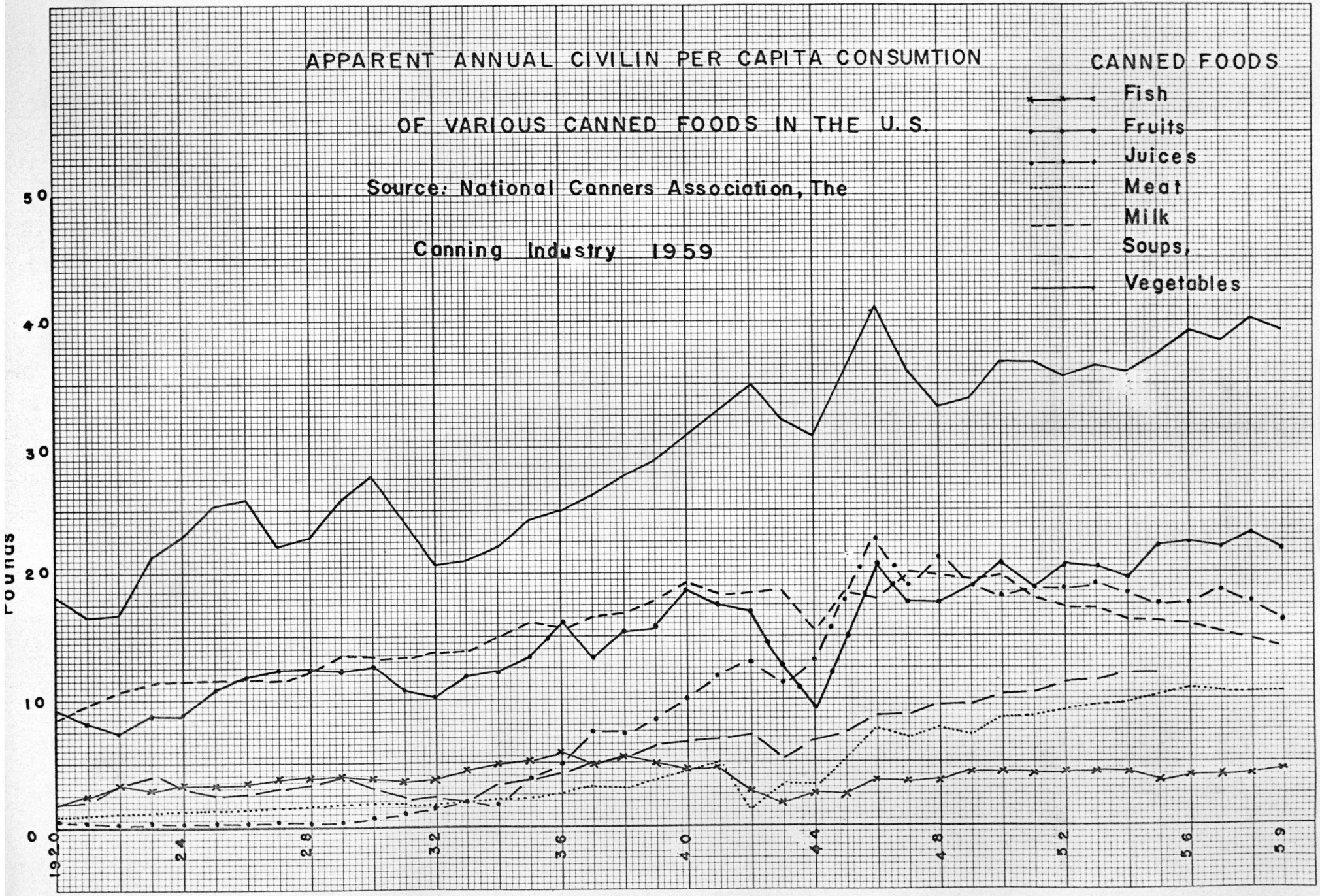

APPARENT ANNUAL CIVILIN PER CAPITA CONSUMTION
OF VARIOUS CANNED FOODS IN THE U.S.
Source: National Canners Association, The
Canning Industry 1959
CANNED FOODS
Fish
Fruits
Juices
Meat
Milk
Soups,
Vegetables
Pounds
0
10
20
30
40
50
1920
24
28
32
36
40
44
48
52
56
59

Figure 3

increase of the military per capita consumption during the Second World War as it is shown by Figure No. 4.[1]

The food canning industry is one of the most highly mechanized. It was one of the first industries to utilize automation on a large scale. Between 1947 and 1958 the production per man-hour of labor in the canning industry increased about 60%; while there was an average increase of about 35% during the same period for all manufacturing industries. This constantly improving efficiency of production has been an important factor in stabilizing the price of canned foods.[2] Due to the competition from the freezing industry during the last thirteen years, increasing capital requirements and increasing complexity of technology became the characteristics of the canning industry.[3]

In 1958 the fruit and vegetable canning industry in the United States compared with the total of all industries comprised 1.5% of the value of all inventories; 4.6% of the value of finished products; 17% of the working process; and 0.4% of the materials, supplies and fuels.[4] The value of

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[1]United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Industrial Series No. XV, 1945. p. 2.

[2]National Canners Association, op. cit., p. 11.

[3]Oregon State College, Agricultural Experiment Station, Gerald E. Korzan and Richard W. Schermerhorn, The Changing Pacific Northwest Fruit and Vegetable Canning Industry, Circular of Information 613 (Corvallis, September, 1962), p. 4.

[4]Derived from the figures of Manufacturers' Inventories, 1958 Census of Manufactures, Manufacturers-Summary Statistics 1958 and 1957. (United States Department of Commerce, Bureau of Census).

CANNED FRUIT & VEGETABLE PRODUCTION
TOTAL ANNUAL SUPPLIES & SHIPMENTS OF PACKERS, WHOLESALE DISTRIBUTOR & CHAIN STORE WAREHOUSES IN THE UNITED STATES
1934-35 TO 1944-45

SOURCE: U.S. DEPATMENT OF COMMERCE, INDUSTRIAL SERIES NO. 15 1945

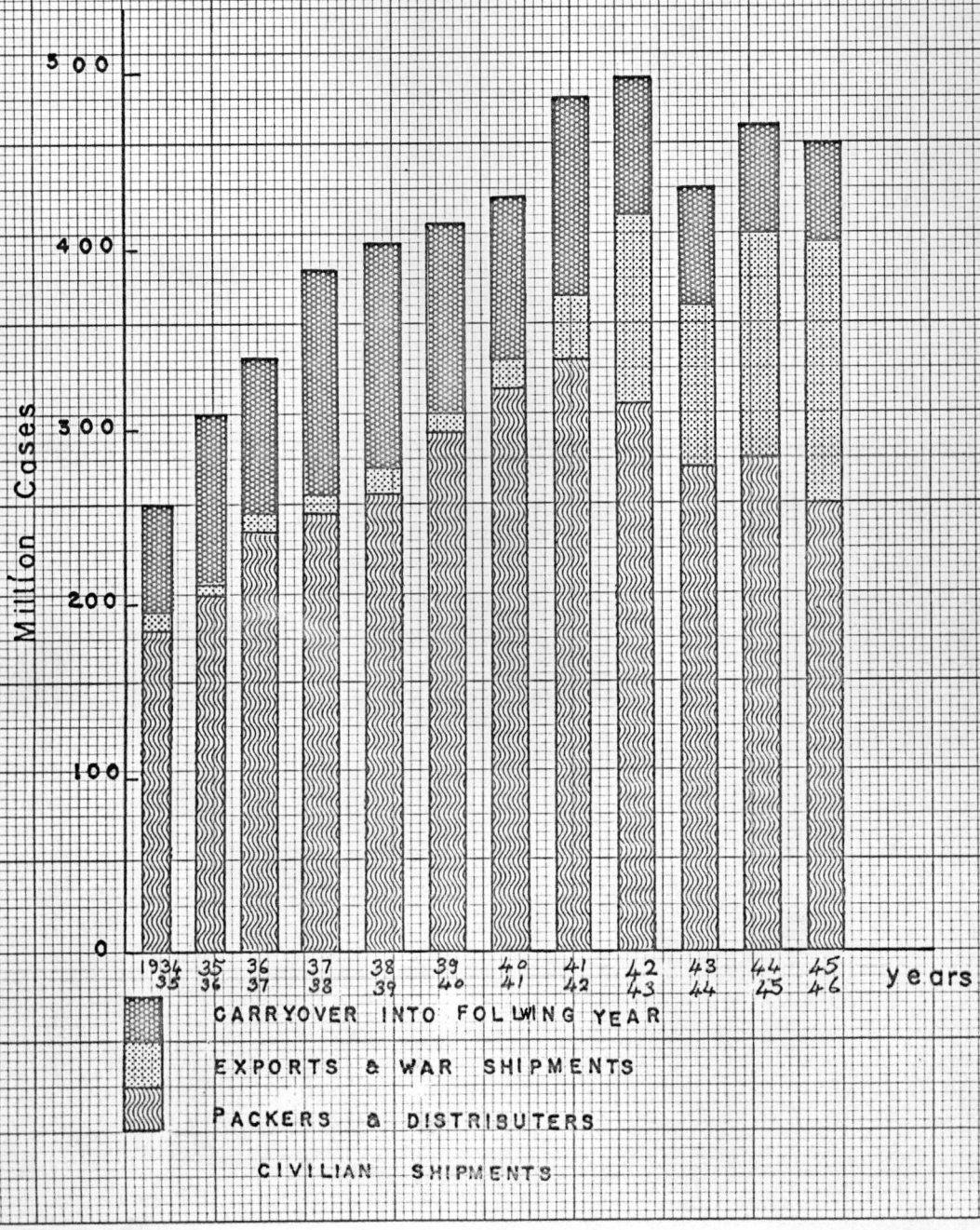

Figure 4

shipments of the fruit and vegetable canning industry was $2,277,041 and the capital expenditures were $40,131,000. There were 1,315 companies for canning fruits and vegetables with 1,607 establishments of which 913 had 20 or more employees.

The number of employees of this industry in the United States was 100,084 with a payroll of $319,694,000 in 1958. The number of the production workers was 88,091; with 168,480,000 man-hours, and $252,711,000 for wages; cost of material was $1,420,275,000.[1] The distribution of the plants canning fruits and vegetables in the United States is shown by Figure 5A.[2]

Although widely scattered, the canning industry has three distinct belts showing greater development than other regions, each of which is also important in the commercial production of fruits and vegetables. The three regions are: the Middle Atlantic Coastal Region; the Lake Region; and the Pacific Coast. Outside of the three major areas are other canning districts of national importance for particular products. Most important are the citrus fruit and vegetable canneries of Southern Texas and Florida.

The value of shipments from plants canning fruits and vegetables is shown by Figure 5B.[3] The highest state is

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[1] Ibid.

[2] Richard S. Thoman, The Geography of Economic Activity, An Introductory World Survey (New York, Toronto, and London: McGraw-Hill Book Company, Inc., 1962), p. 558.

[3] Ibid., p. 558.

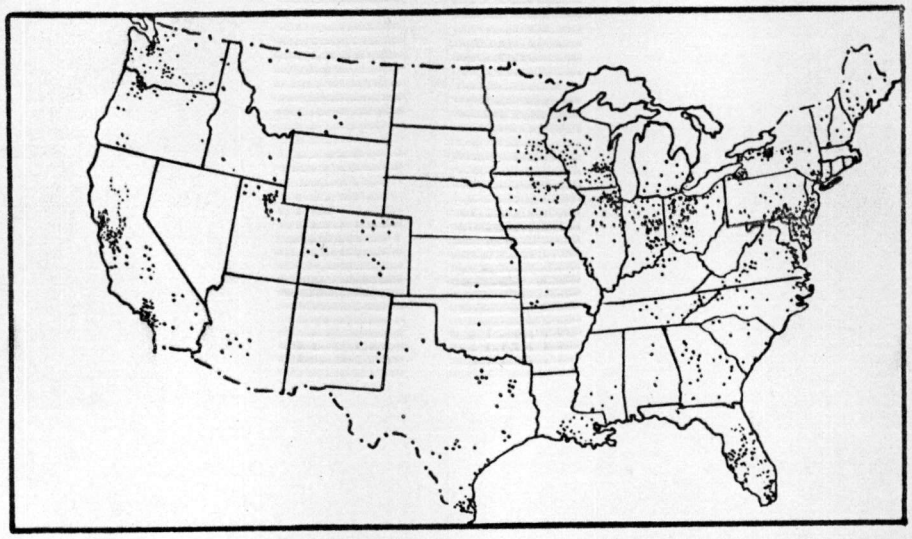
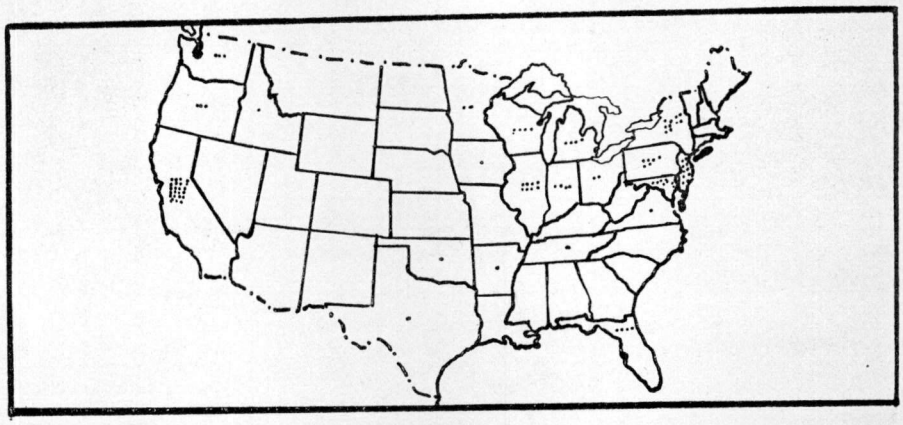


Figure 5A-DISTRIBUTION OF PLANTS CANNING FRUITS & VEGETABLES IN THE UNITED STATS

EACH DOT REPRESENTS A PLANT HIRING 250 OR MORE EMPLOYEES



Figuer 5B- VALUE OF SHIPMENTS FROM PLANTS CANNING FRUITS & VEGETABLES

EACH DOT REPRESENTS 1% OF THE NATIONAL TOTAL

SOURCE: THOMAN R. S., THE GEOGRAPHY OF ECONOMIC ACTIVITY . 1961 P.558

California, followed by New York, New Jersey, Illinois, Pennsylvania, Florida, Wisconsin, and Michigan. Oregon, Washington and Indiana have about the same value of shipments and are followed by Ohio and Minnesota.

The fruit and vegetable canning industry in Oregon had a capital expenditure of $2,500,000, forming 6.2% of that in the United States in the year 1958. There were 45 establishments, forming 2.8% of the nation's total. Twenty six canneries were hiring 20 or more employees, forming 2.8% of the total. There were seven canneries hiring between 50 to 99 employees, nine canneries hiring between 100 to 249 employees which formed 4.4% of their total. Two canneries were hiring between 250 and 499 employees, and two others were hiring between 500 and 900 employees which comprised 10.2% of the big canneries in the United States.[1]

The total number of employees in the fruit and vegetable canning industry in Oregon for 1958 was 3,871 which accounted for 3.8% of the national total. Their payroll was $13,760,000 or 4.3% of those in the nation. The number of the production workers was 3,491 or 3.9% of the nation, with 7,095,000 man hours, which formed 4.1% of their total. Their wages accounted for $11,566,000, forming 4.6% of the wages of all

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[1]United States Department of Commerce, Bureau of Census, 1958 Census of Manufactures, Part I: Food and Kindred Products, Tobacco Products, p. 54.

the employees in the fruit and vegetable canning industry in the United States. The value added by this manufacture was $31,471,000, and formed 3.7% of the total. The value of shipments was $76,602,000, forming 3.4% of the total in the nation.[1]

Oregon's manufacturing industries employed more workers who are covered by unemployment insurance than any other division in 1958, of industries. These are 202,430 workers or 38.5% of all unemployment insured workers. This included lumber and wood products with 97,150 employees, or 48% of manufacturing employment and 18.5% of total covered employment as it is shown by Figure No. 6. Canning and preserving industry had 27,800 workers employed, or 13.7% of manufacturing workers and 5.3% of total covered employment. Manufacturing other than food processing and lumber accounted for 61,520 workers. While the non-manufacturing industry or retail trade led in total covered employment, it hired 166,160 workers. They were more than those engaged in lumber and wood products by 19,010.[2] Service had 10.6% of total covered employment, followed by transportation, communication and public utilities which had 8%, and wholesale trade which

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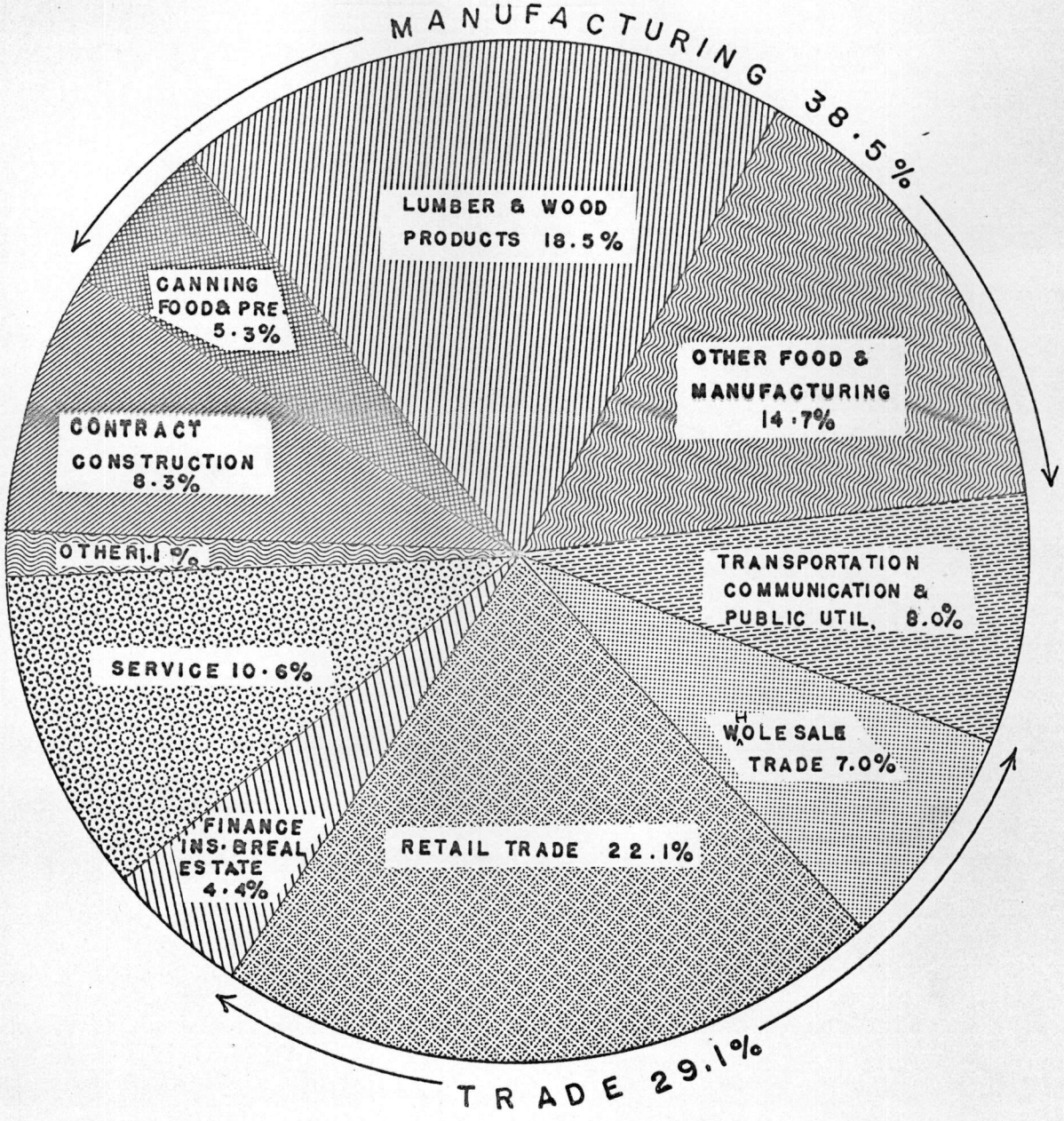
[1]United States Department of Commerce, Bureau of Census, Manufacturers' Inventories, 1958 Census of Manufactures, Manufacturers-Summary Statistics 1958 and 1957.

[2]State of Oregon, Department of Employment, Report of Employment and Earnings in Oregon, Covered by Unemployment Insurance 1958, p. 51.

WORKERS DISTRIBUTED BY INDUSTRY OF PRINCIPAL EMPLOYMENT IN 1958 IN OREGON



SOURCE: STATE OF OREGON, REPORT OF EMPLOYEMENT & EARNINGS IN OREGON 1958

FIGURE 6

had 7%. Finance, insurance and real estate was the one that followed canning and preserving industry.[1]

A comparison of median annual earnings of the principal industries in Oregon, in a period of ten years from 1949 to 1958, is shown by Figure No. 7. This shows a generally upward trend. The amount of increase for all industries ranged from $202 in 1949 to only $15 in 1955. The average annual increase in median earnings from the year 1949 to 1958 amounted to $102.[2]

Although there had been temporary changes in the order of the industries with high median earnings during that period, all industries ranked the same in 1958 as they had been in 1949. The significant characteristic of median earnings in these industries was the relationship between the amount of median earnings and the amount of average annual increase. Lumber and other wood products; transportation, communication, and public utilities; and wholesale trade, were the three industries with the highest median earnings; also they had the greatest average annual increase with $197, $166, and $173 respectively. In contrast, canning and preserving which consistently had the lowest median earnings, also had the least average annual increase of $18. This difference accounted for the increase in the difference between the highest and the lowest industries

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[1] Ibid., p. 53.

[2] Ibid., p. 22.

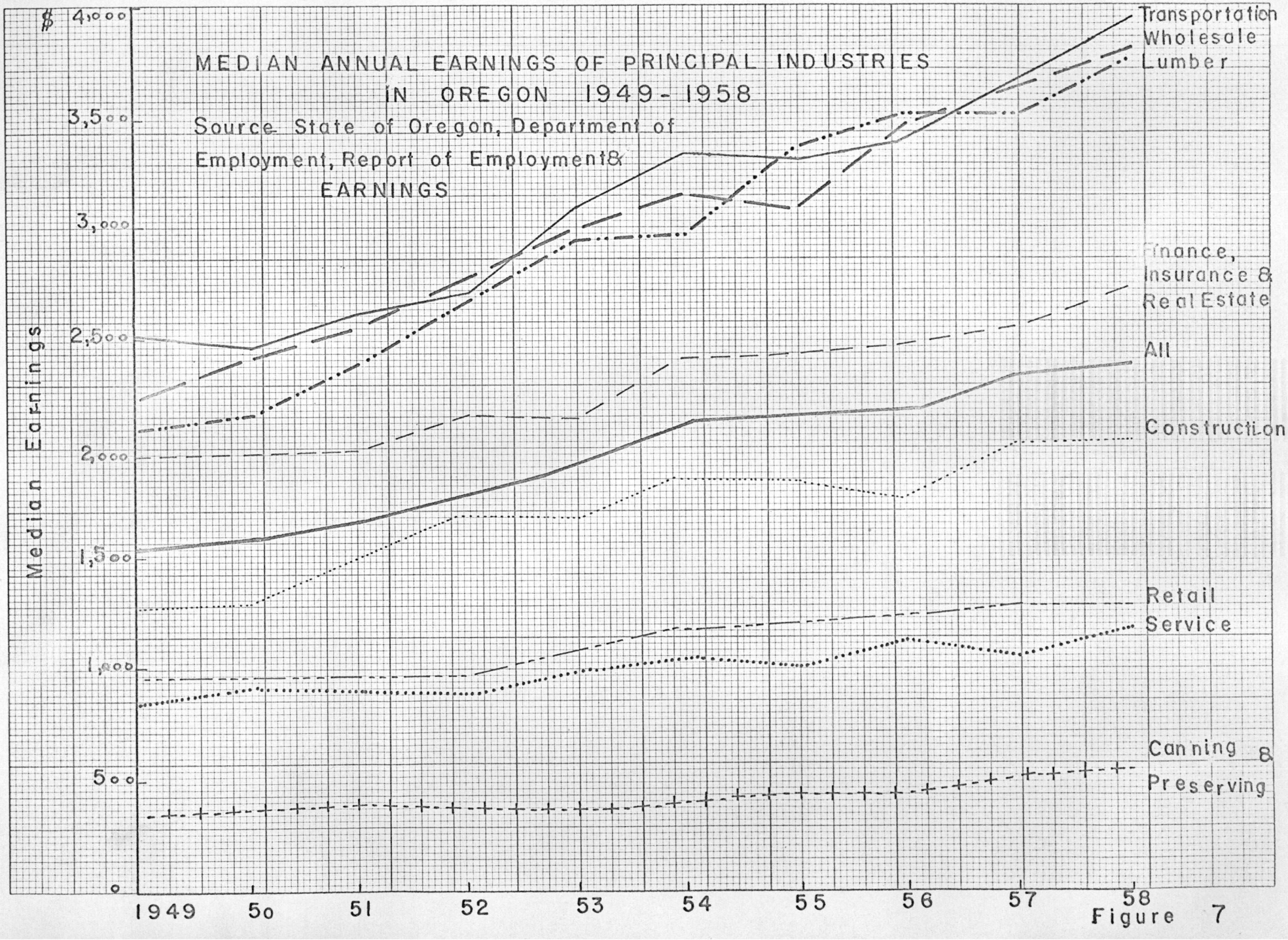
MEDIAN ANNUAL EARNINGS OF PRINCIPAL INDUSTRIES IN OREGON 1949 - 1958
Source State of Oregon, Department of Employment, Report of Employment & EARNINGS
Median Earnings
$ 4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1949
50
51
52
53
54
55
56
57
58
Transportation
Wholesale
Lumber
Finance, Insurance & Real Estate
All
Construction
Retail
Service
Canning & Preserving

Figure 7

from $2,177 in 1949 to $3,446 in 1958, an increase of 58.3%.[1] The canning and preserving industry, despite its increase of 71.2% during this period, remained in last place because of its very low median earnings.[2]

Figure No. 8 shows the number of workers within each major industry group distributed by level of annual earnings and the percentage of the industry total which any annual earning interval represented in 1958. The graph also shows both the size of Oregon's major industries in terms of number of employees and the distribution of these workers by ranges of annual income. The canning industry ranked eighth in the total number of employees. It was the only industry that had 57.5% of those who earned under $700 per year. This was the highest percentage for the lowest category of earnings. It was followed by retail trade which had 36.5%. This percentage was even higher than in agriculture which had 55.1%. The canning and preserving industry also had the smallest percentage of those earning above $6,000 a year.[3]

The particular distribution of workers along the scale of annual earnings for each industry depended upon the particular combination of factors characterizing the industry. The degree of seasonality found in the industry, the number of other industries in which workers find

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[1] Ibid., p. 22.

[2] Ibid., p. 24.

[3] Ibid., pp. 14-15.

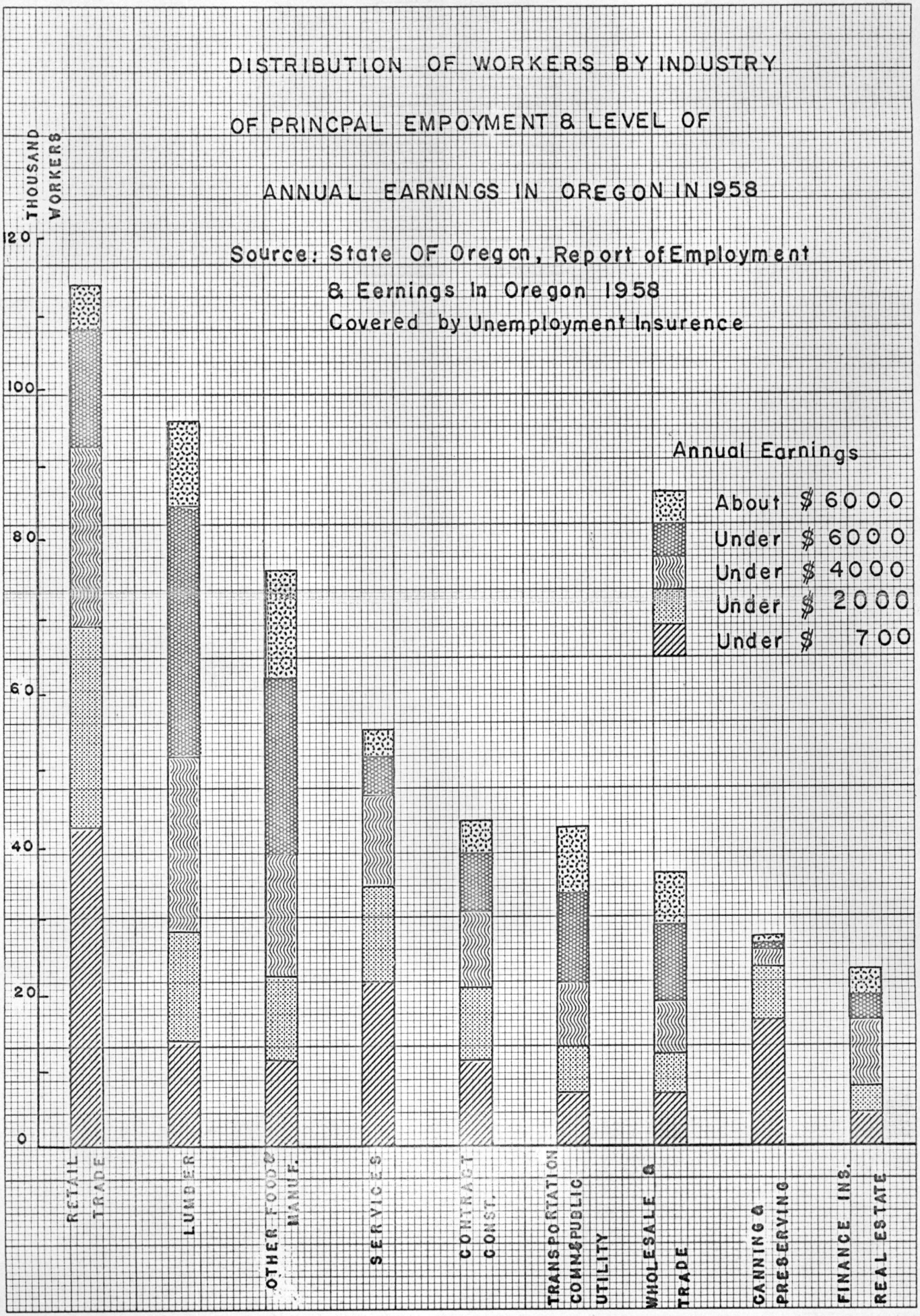
DISTRIBUTION OF WORKERS BY INDUSTRY
OF PRINCPAL EMPOYMENT & LEVEL OF
ANNUAL EARNINGS IN OREGON IN 1958
Source: State OF Oregon, Report of Employment
& Earnings In Oregon 1958
Covered by Unemployment Insurence
THOUSAND WORKERS
120
100
80
60
40
20
0
Annual Earnings
About $ 6000
Under $ 6000
Under $ 4000
Under $ 2000
Under $ 700
RETAIL TRADE
LUMBER
OTHER FOOD & MANUF.
SERVICES
CONTRACT CONST.
TRANSPORTATION COMM. & PUBLIC UTILITY
WHOLESALE & TRADE
CANNING & PRESERVING
FINANCE INS. REAL ESTATE

FIGURE 8

employment and the average hourly wage in the industry are the main factors affecting the level of annual earnings.[1]

The fruit and vegetable canning industry is a highly seasonal industry, depending upon part time female labor primarily. The median payment per hour for workers in this industry in Oregon is the second highest payment in the United States. It is preceded by California, which is $1.77 for a woman and $1.94 for a man. In Oregon it is $1.42 and $1.64 respectively. This is followed by Michigan which is $1.00 and $1.11; in Florida, $1.00 and $1.10; in Wisconsin, $1.00 and $1.09; and in Texas $1.00 for both men and women.

This proves that among workers employed in manufacturing, canning and preserving workers are among the lowest paid in the economy. The reason is that the vast majority of jobs in this industry do not demand skilled laborers, although experience is often considered valuable. A comparison of the base payment of the Eugene Fruit Growers' Association employees by sex from 1939 to 1961 is shown by Figure No. 9. It shows that the payments for both men and women are getting higher. The Eugene Fruit Growers' Association pays 2.5¢ out of 9.2¢ which is the total cost of a can of beans, to the laborers, while the amount paid for overhead is 0.7¢.[2]

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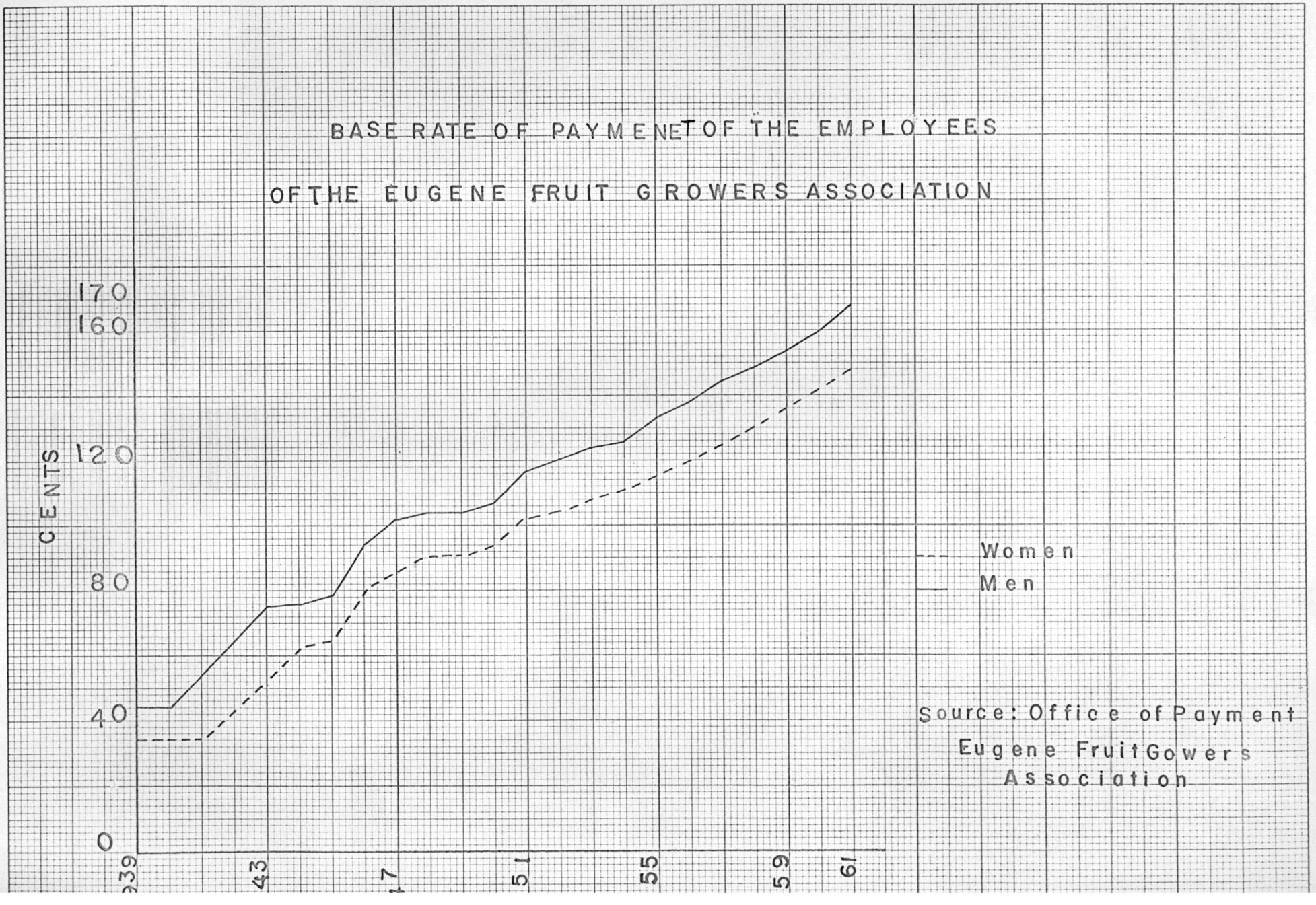
[1] Ibid., p. 16.

[2] Eugene Fruit Growers' Association, Office of Payment.



The extent of employment seasonality in the canning and preserving industry in Oregon is greater than in any other industry except agriculture. The seasonality in the canning and preserving industry as compared with construction and lumber industry is shown by Figure No. 10 for the average of ten years, 1947-1956. This shows that the seasonality in this industry is even greater in Oregon than in the United States. Moreover, the peak season is considerably shorter than in the other seasonal industries.

Canning and preserving has great year-to-year fluctuation in activity, because of the great dependence on natural elements which shows more in fish and sea food products than in fruits and vegetables.[1] Also the market conditions such as the demand, and the price situation contribute a great deal to these fluctuations.

Active operations usually begin in May and continue to expand each succeeding month until September, after which there is a sharp recession. Despite the acute seasonality of operations, the industry experiences little difficulty in obtaining its peak labor requirements. Most canneries are located in small communities where they can draw upon farm laborers, housewives, students, and others who during the rest of the year are engaged in other activities.

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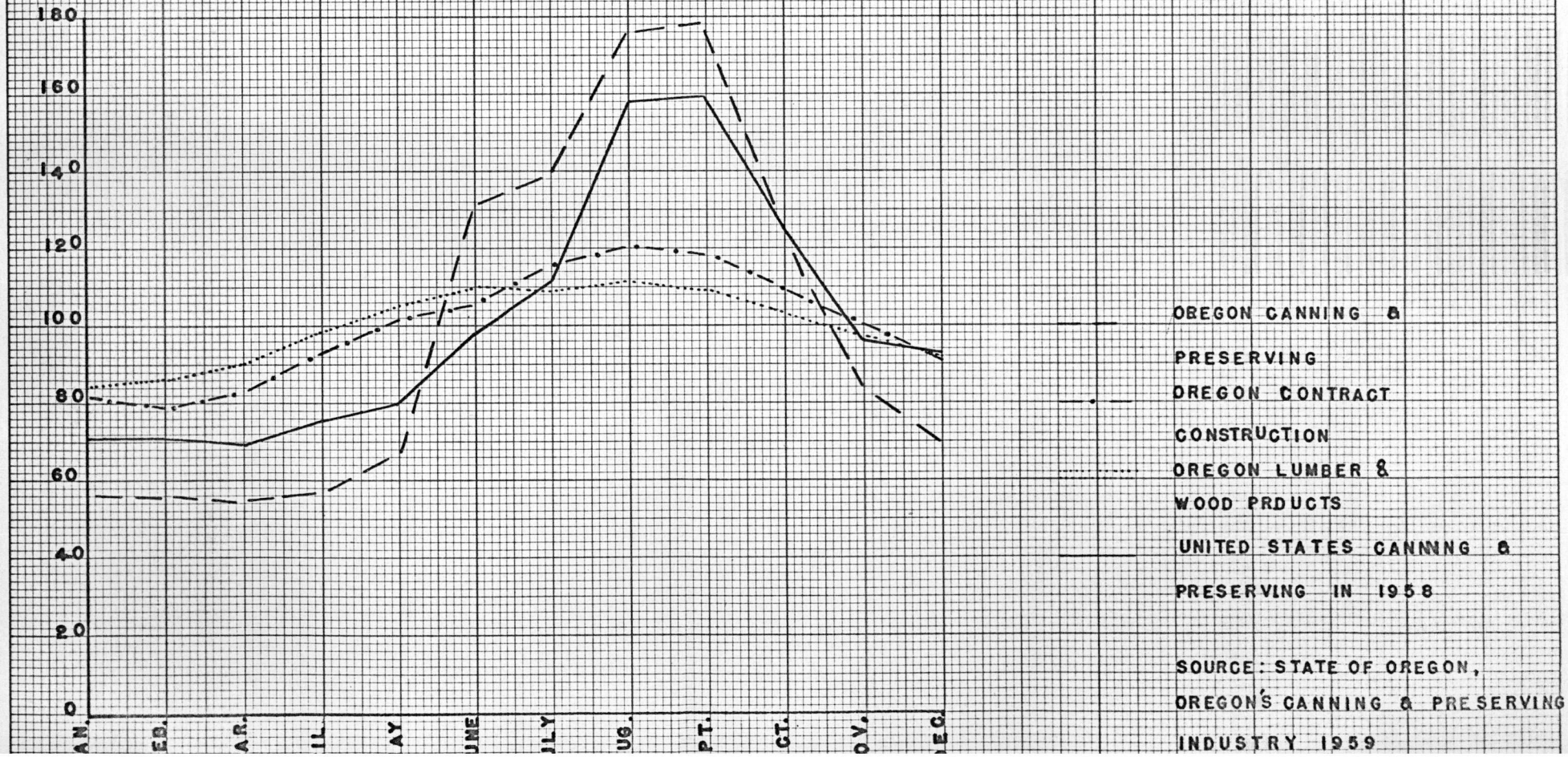
[1]State of Oregon, Department of Employment, Oregon's Canning and Preserving Industry (Salem, November, 1959), pp. 7-8.

SEASONALITY IN THE CANNING & PRESERVING INDUSTRY COMPARED WITH OTHER INDUSTRIES IN THE UNITED STATES & OREGON

Average of Ten Years 1947 - 1956



SOURCE: STATE OF OREGON, OREGON'S CANNING & PRESERVING INDUSTRY 1959

The greatest burden of seasonality is the need it creates for large working capital. Most canners pay cash for their raw materials, which causes a heavy drain upon their resources during the summer months; and since they have to carry the pack until sold, their cash receipts are spread out over the remainder of the year.

Efforts to lengthen the canning season have been along the lines of product diversification, cooperation with the growers to extend the harvesting season by growing early crops, and by staggering planting dates. Despite these efforts, seasonal irregularity remains a major problem.[1] The plants cannot be engaged in operating other kinds of manufacturing during the off season because they have specialized machinery.

Figure No. 11 shows the size of fruit and vegetable canneries by the number of employees in Oregon. The figures are as found in the 1961 Directory of Oregon Manufacturers and Buyer's Guide.[2] They are listed under the Code number 2033- Canned Fruits and Vegetables, Preserves, Jams, and Jellies. The employees of different canneries in each city during the season and during the off season are totaled together. The canneries that are counted are those that have 25 employees or more.

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[1]Alderfer and Michel, op. cit., pp. 476-477.

[2]State of Oregon, Department of Planning and Development, 1961 Directory of Oregon Manufacturers and Buyer's Guide, pp. 117-119.

THE EXISTING FRUIT & VEGETABLE CANNERIES in the NORTHWESTERN STATES

Showing the age of The CANNERIES (c)

0 1° 2° 3° 4° 5°
Miles

MAP NO. (13)

Source: Correspondence with the Managers of these Canneries

124° 123° 122° 117° 116° 115° 114° 113°

49° 48° 47° 46° 45° 44° 43°

EVERSON c
LA CONNER c
SEATTLE c
WENATCHEE
YAKIMA c
POST FALLS c
DAYTON c
WALLA WALLA c
MILTON FREEWATER c
WESTON c
LONGVIEW
VANCOUVER c
PORTLAND c
SHERWOOD c
GRESHAM c
HOOD RIVER c
THE DALLES c
SILVERTON c
SALEM
DALLAS c
CORVALLIS c
STAYTON c
JUNCTION CITY c
EUGENE c
NYSSA c
PAYETTE c
EMMETT c
FRUITLAND c
CALDWELL

STATES

showing the age of The
CANNERIES (c)

0 1° 2° 3° 4° 5°
Miles

MAP NO. (13)

Source: Correspondence with the Managers of these Canneries

EVERSON
LA CONNER
SEATTLE
WENATCHEE
POST FALLS
YAKIMA
DAYTON
WALLA WALLA
MILTON FREEWATER
WESTON
LONGVIEW
PORTLAND
VANCOUVER
SHERWOOD
GRESHAM
HOOD RIVER
THE DALLES
SILVERTON
DALLAS
SALEM
STAYTON
CORVALLIS
JUNCTION CITY
EUGENE
PAYETTE
NYSSA
EMMETT
FRUIT LAND
CALDWELL
MEDFORD
ASHLAND

FIGURE 13

The distribution of canneries as shown by the map reflects the geographical setting, both physical and cultural. There is a big concentration of canneries along the Willamette Valley, followed by the Columbia River valley as a secondary region. Outside of these two major areas are other canneries in the Rogue and Owyhee Valleys. It is noteworthy to mention that the Pacific Coast and most of the interior have none.

In the Willamette Valley conditions are very favorable, and a major part of Oregon's farm production is concentrated in this valley strip between Eugene and Portland.[1] This valley is the only sizable humid lowland in the state; and it has the highest density of the population. The moderate rainfall, mild temperatures, low elevations, smooth to rolling surface, and good soils are generally favorable to agriculture.[2] Beside these physical factors, the Willamette Valley is a rather old region as western settlement history is recorded. Through the 1850 Oregon Donation Land Law, which was applicable to all of Oregon,[3]

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[1]D. J. Bogue and C. L. Beale, Economic Areas of the United States (New York: The Free Press of Glencoe, Inc. A Division of the Crowell-Collier Publishing Company, 1961), p. 960.

[2]S. N. Dicken, Oregon Geography (Ann Arbor, Michigan: Typed and Lithoprinted by Edwards Brothers, Inc. Distributed by University of Oregon Cooperative Book Store, Eugene, Oregon), p. 97.

[3]R. H. Brown, Historical Geography of the United States (New York: Harcourt, Brace and Company, Inc., 1948), p. 469.

but used for land selections mainly in the Willamette Valley, large-sized farms had filled up the valley.[1] Beans, sweet corn, carrots, beets, prunes, peaches and cherries are all grown for canning.

It is strikingly noticeable that Salem has the biggest circle on the map. The reason is that there are seven big fruit and vegetable canneries.[2] Salem's population increases tremendously as a result of the influx of migratory workers during the harvest and the canning season.[3] The physical setting of the Salem area is suitable for orchards and truck farming especially on Keizer Bottom to the north.[4] The cannery-shed of Salem is extended to the south of Eugene.[5]

Eugene is the one that follows Salem in the number of cannery employees in the Willamette Valley. The Eugene area, which is the main subject of this thesis, will be discussed in detail in Chapter Four. There are five canneries in Portland, with slightly fewer employees than in Eugene.[6]

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[1]E. Higbee, American Agriculture, Geography, Resources, Conservation (New York: John Wiley and Sons, Inc; London: Chapman and Hall, Ltd., 1958), p. 170.

[2]State of Oregon, Department of Planning and Development, op. cit., pp. 117-119.

[3]Bogue and Beale, op. cit., p. 961.

[4]Dicken, op. cit., p. 98.

[5]Field trip to Mr. R. Stafford's farm in Pleasant Hill.

[6]State of Oregon, Department of Planning and Development, op. cit., pp. 117-119.

Portland is situated on the Willamette River, just a short distance from the point where it flows into the Columbia River. Its position at the mouth of the highly productive Willamette Valley causes it to be the outlet for a great variety of fruits and vegetables.[1] Stayton has nearly the same number of cannery employees as those of Portland.

Except for Gresham and Milton-Freewater, each of the other cities has just one cannery.[2] Milton-Freewater has three canneries and follows Salem in the number of their employees. Milton-Freewater, Weston, and The Dalles represent some of the few clusters of population around irrigated areas in eastern Oregon. Physical and economic factors have made this canning industry possible in these parts where the raw materials, the laborers, and the market are available.

These clusters represent not only urban communities but also a concentration of smaller farms and farm population in the vicinity of these cities.[3] Near The Dalles cherries dominate the orchard scene that also includes some peaches and apricots. At Milton-Freewater substantial new plantings of prunes and cherries made after the severe freeze in the fall of 1954 came into production in 1959.[4]

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[1]Bogue and Beale, op. cit., p. 961.

[2]State of Oregon, Department of Planning and Development, op. cit., pp. 117-119.

[3]Dicken, op. cit., p. 119.

[4]Oregon State Horticultural Society, Recordings of the Fifty-First Annual Report, Seventy-Fourth Annual Meetings (Corvallis, Oregon, November 19-20, 1959), p. 37.

The Hood River area is the only district of intensive cultivation depending on irrigation within the northern Oregon Cascades. It is famous for its apples although they were not its first commercial fruit. Strawberries were the first cash crop in 1890, but by the turn of the century apples were on the way to becoming the most important crop. In recent years other crops, especially pears, have become important also.[1]

Nyssa in northeastern Malheur County is one of the greatest concentration of population on the eastern border of Oregon. Irrigated truck farming has expanded considerably supplied with water from the Snake River and the Owyhee Reservoir on the flood plain. Beside the physical elements contributing to the truck farming, the cultural element has aided greatly its expansion. This was the movement of farmers of Japanese descent to the Ontario area. Most of them were successful truck farmers on the coast. The evacuees supplied a source of hired farm labor. Chief vegetables produced for processing are peas and corn.[2]

Ashland and Medford are in the Rogue River Valley, the greatest producer of fruits and nuts in the Klamath Region. The most distinctive element in the farm landscape is the production of fruits. This horticultural area is highly

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[1]Dicken, op. cit., p. 59.

[2]Ibid., p. 81.

specialized in apples, peaches, pears and cherries. A number of factors have contributed to the growth of the fruit industry, the climate, soils, and other physical features, but not the least in importance is the enterprise and energy of the people.[1] The construction of the Oregon-California Railroad through the Rogue River Valley brought in many settlers and beginning about 1908 many farmers turned to irrigated fruit raising instead of the staple grains, hay and livestock of earlier days.[2]

These were the main factors contributing to the concentration of the fruit and vegetable canneries in these valleys. The reason for the Pacific Coast and most of the interior which are devoid of this type of canneries is due to the varying qualities of the physical setting as well as the cultural setting. Some of the land of the Coast Range is too steep for cultivation unless it is terraced, the expense of which is scarcely justified. Much of the gentler sloped land can be developed into agriculture.[3] The strong tradition of fishing in the ancestral home of the people living on the coast, as in the case of the Finns of Astoria[4], or the Italian fishermen[5], contributed to the establishment of fish canneries instead of fruit and vegetable canneries.

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[1] Ibid., p. 50.

[2] Ibid., p. 46.

[3] Ibid., p. 40.

[4] Ibid., p. 117.

[5] W. Nash, Oregon There and Back In 1877 (London: MacMillan and Co., 1878), p. 239.

Agricultural development in dry eastern Oregon has been handicapped by the inadequacy of a resource. Rough topography, lack of water, and sometimes poor soils have prevented optimum development.[1] The scarcity of the population also plays a main role in the absence of this industry. Large parts of Baker, Union, and Wallowa counties in north east Oregon are in National Forests and have no permanent population.[2]

There are large areas of the Klamath Mountain Region of Southwestern Oregon with very little population. These are mostly rough, inaccessible, and not suited for agriculture[3] because of the steep slopes and high elevations.[4] Also cultural traditions could be the cause of human economic activity such as in the case of the Basques of Malheur who are primarily sheepherders.[5]

The shaded parts in the circles in Figure No. 11 represent the employees working during the off season. The degree of seasonality in this industry is well illustrated by this map. The four canneries in Lane County are taken as a sample of the seasonality. Brunner's Dryer hired 25 employees

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[1]Higbee, op. cit., p. 162.

[2]Dicken, op. cit., p. 120.

[3]Ibid., p. 119.

[4]Ibid., p. 49.

[5]Ibid., p. 117.

during the peak, and 5 only during the off season. Cox's Home Cannery for Custom Canning hired 9 employees and operated only in August and September.[1] The last one was not considered in preparing the map because the minimum for the commercial canneries was 25 employees.

The two canneries belonging to the Eugene Fruit Growers' Association are the only other plants in Lane County. The Eugene plant hired 1250 employees from July to September, and 150 during the off season of 1961. They have two shifts of 10 hours each and two extra hours for those engaged in cleaning the plant. The Junction City plant hired 300 employees during the season and 10 during the off season of the same year.[2] Before studying the fruit and vegetable canning industry in Eugene in detail, it will be essential to trace the history of this industry in the next chapter.

The study of the fruit and vegetable canning industry in this chapter, could be summarized by saying that it is a rural or small town industry. The individual plant is generally small and often specialized. The economic results of canning were stabilizing the price, stimulating the demand, and broadening the market for the seasonal fruits and vegetables. Since the beginning of this century, the

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[1]State of Oregon, Department of Planning and Development, op. cit., p. 117.

[2]Interview with Mr. Pitkin, the Manager of the Eugene Fruit Growers' Association.

annual pack of canned food showed a rapid growth accompanied with an increase in the per capita consumption.

The extent of employment seasonality in this industry is greater than in any other industry. Moreover, the peak season is considerably shorter than in the other seasonal industries. Efforts to lengthen the canning season have been along the lines of product diversification, and cooperation with the growers to extend the harvesting season by growing early crops. The degree of seasonality found in this industry, the number of other industries in which workers find employment, and the average hourly wage in the industry are the main factors behind the low level of annual earnings.

The distribution of the fruit and vegetable canneries in Oregon by the number of their employees has been shown by Figure No. 11. It reflects the physical and the cultural settings. The big concentration of canneries is in the Willamette Valley with Eugene, Portland and Stayton following Salem in their number of employees.

CHAPTER II

HISTORY OF THE FRUIT AND VEGETABLE CANNING INDUSTRY

Drying, salting, and smoking to keep meat, fish and a few fruits from one season to another has been known for ages. Sailors and armies used these ways of preserving foods; but months at sea in war vessels weakened fighting men so greatly that attempts were made to find an improved method for preserving food.

In the eighteenth century, in 1765, an Italian abbé named Spallanzani heated meat extracts and other foods in closed glass flasks for an hour. He found that they kept many weeks without spoiling. This was a scientific experiment, but he had not gone further, nor did other scientists who repeated his experiments in the eighteenth century.[1]

The art of canning was discovered by a Frenchman, Nicolas Appert, though he did not call it "canning" because he used glass jars. The tin can was not yet invented. In the year 1795, France was in revolution and at war with nearly all Europe on land and sea. French soldiers and sailors were dying from scurvy and other diseases. Among

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[1]Collins, op. cit., pp. 3-4.

the military measures enacted by the French government was the offering of a bounty of twelve thousand francs to the citizen who could devise an improved method of preserving foods. The object was to secure better quality and to reduce the loss in waste and spoilage in foods used in military and naval stores. This bounty seemed generous at that time and was sufficient to attract the attention of some capable men.

Nicolas Appert was forty-five years old with a long experience in handling foods. Being a pickler, a preserver, a wine-maker, confectioner, and brewer and distiller, he had cooked food in large kitchens and taken contracts for supplying the French army. He worked for fifteen years on the problem. Although he started in 1795, he worked until 1804 before he attained his first success which consisted of heating the product and then hermetically sealing the container.

Appert had no scientific education but he may have known about the Italian abbé's discovery, for his process of canning was worked out on the same principle. But even so, he started where the Italian scientist left off and found a process by which nearly every kind of fresh food--fruits, vegetables, meats, fish and even eggs and cooked dishes could be kept several years. He made that process so simple that any housewife could do it!

He used wide-mouthed glass bottles and found a way of sealing them tightly by stoppers of cork as there were no

rubber rings or screw or clamp tops. He cut the cork perfectly by hand. Special apparatus was needed to put the stoppers in tightly and wire them in the glass bottles which could stand heat.

In 1809 Appert was awarded the prize by Napoleon. Appert started a canning business that is still maintained in France by his descendants. He spent all his life in experiments to improve canned foods. Appert's procedures, used in canning more than 50 different canned foods, were set forth in his treatise, "Art of Preserving all kinds of Animal and Vegetable Substances," published in 1810, which became the basic reference work for subsequent developments in canning procedures and technology.[1]

From Appert's time to the present time, the history of canning consists of the development of better containers, improved equipment, time-saving machinery, and research. This has led to the discovery and understanding of the scientific principles on which canning is based and the practical application of science to the industrial operations.

It was not until 1860, when Louis Pasteur announced his theory of fermentation, that anything was accurately known about the true causes of food spoilage.[2] From the time of

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[1]Collins, op. cit., p. 6.

[2]National Canners Association, The Story of the Canning Industry (Washington D.C., 1948), p. 2.

Pasteur there was a period of some years before scientific work was directed specifically to canning. Due to the foundation laid by Pasteur for the science of bacteriology, the canning and preserving of foods made real progress.[1]

In 1810, following Appert's discovery, foods were canned in England. Bryan Donkin and John Hall began to preserve food by Appert's method. Then Peter Durand introduced and patented the "tin canister", made of iron coated with tin, which could be turned out by a good tinsmith at the rate of 10 cans a day. Donkin and Hall sent tins of food to authorities of the British army and navy for trial in 1813. Also, supplies were sent to stations at St. Helena and the West Indies.[2]

The first real business success in canning was made by Englishmen. Britain, in working to defeat Napoleon, had built a great commerce of their own. They had the ships and the customers for world trade, and English dainties in sealed glass bottles became so well known between 1810 and 1825 that people would have no other.[3]

As early as 1808, Humphrey Davy, the English chemist, had found that when calcium chloride was added to boiling

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[1] Ibid., p. 2.

[2] National Canners Association, The Canning Industry (Washington D.C., 1957), p. 5.

[3] Collins, op. cit., p. 9.

water its temperature could be increased to 240 degrees or more. This saved time and improved the methods for preserving.[1]

"Tinned foods" steadily gained acceptance, not only among soldiers and sailors, but also among civilians. Canned foods were tried in the Arctic with success in 1815 by Otto von Kotzebue, a Russian explorer, and in 1819 by Captain Edward Parry.[2]

Canning Industry in the United States

The canning industry in the United States was a small business prior to 1855, the principal pack being sea food, which in a fresh condition could not be transported inland with safety. At that time most cities were small, and fruits and vegetables of all kinds were grown in their immediate vicinity and delivered fresh by wagon. There was not the big demand for foods out of season, or from other lands that developed later.

When the Civil War began in 1861, Lincoln called hundreds of thousands of Northern troops into the field. There was a need to supply them with food in the field. Food resources were taxed, and in their efforts to supply the demand, army contractors turned to canned foods. The

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[1] Ibid., p. 16.

[2] Department of Commerce, Canned Foods (Bureau of Foreign and Domestic Commerce, Miscellaneous Series, XXXXXIV, 1917), p. 7.

amount of cans of food being put up yearly at the beginning of the Civil War is not known. But in 1870, after war growth, the output had reached thirty million cans.[1] The superiority of canned food over those which were dried, salted, and pickled came to be. The soldiers in camps and hospitals, supplied with canned foods, learned of their excellence and value and later carried the information to every section.

Domestic and commercial canning increased constantly especially in the period of the gold rush. California and Oregon had developed their orchards so rapidly that only an equal expansion of the canning industry by 1860 had saved the Pacific Coast states from overproduction.[2] Another factor had increased the demand of canned foods during the seventies. This was the use of canned foods by schools and dormitories.[3] Later in 1898, the canning industry increased its production to meet the demand during the Spanish-American War.[4]

Today the United States is not only the largest producer of canned foods in the world, but also the largest consumer. The industry has been developed upon the principle that the

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[1]Collins, op. cit., p. 13

[2]Earl Chapian May, The Canning Clan, A Pageant of Pioneering Americans (New York: Macmillan Company, 1937), p. 110.

[3]Collins, op. cit., p. 13.

[4]May, op. cit., p. 439.

foods are prepared in the most attractive and palatable form, convenient for storing in any place and for a reasonable time.

The beginnings of the canning industry in the United States go back to 1817, when William Underwood determined to establish a food canning industry in the United States after his visit to England where he served as an apprentice in the trade of pickling and preserving in London. His efforts in New Orleans did not succeed so he started another attempt in the North. Having no funds, he tried to get the people interested in his project, but it was not until 1821 that he was able to establish a small canning plant in Boston where he packed fruits for pie-making, pickles and condiments in bottles. He was the first in the United States to can tomatoes and to put up lobsters. He was a pioneer in using tin instead of glass. On his bottles he used a "London Label".[1] Most of his products were sold in South America and the Far East.

There was a record of the packing of salmon, lobsters, oysters, and fruits and vegetables in New York by Thomas Kensett and his father-in-law, Ezra Daggett, in 1819. Kensett was granted the first American patent on the tin container in 1825.[2] He then moved to Baltimore because he recognized the great potentialities of Chesapeake Bay area

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[1]Collins, op. cit., p. 9.

[2]National Canners Association, The Canning Industry (1957), p. 6.

as a canning center. In the water of the Bay there were abundant oysters, crabs, and fish. Around its shores grew tomatoes and peaches, apples, plums, berries, and other fruits for canning. In this locality there were many laborers who were needed in the canning since all the work of gathering, washing, shelling, peeling, filling, and cooking was done by hand. Not only was the Bay area a good location for canning, but also for shipping the products to other sections of the country. Having these potentialities, the northeastern region of the United States became the world's greatest canning region.

In 1839, Isaac Winslow attempted to cook corn in a crude steam cooker at his home in Maine. Between 1840 and 1850, salmon and lobster were canned in Maine, oysters were packed in Baltimore, and tomatoes were canned commercially by Crosby in Pennsylvania. During the next decade, 1850-1860, commercial canneries were started in New York, Maryland, and Delaware. Gail Borden became one of the greatest benefactors through his development of a process for condensing milk and sealing it hermetically. He established the first canned milk factory in the United States in 1856.[1]

In 1861, a Baltimore canner named Isaac Solomon applied Davy's method of adding calcium chloride to boiling water in

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[1]National Canners Association, The Canning Industry (1957), p. 6.

the processing of canned food. This reduced the time required for boiling the cans from five or six hours to half an hour, on the average. It was also found that the temperature of boiling water could be increased by adding common salt. Cooking the can in boiling oil was still another way of securing higher degrees of heat.[1]

Among the pioneers was Louis McMurray. He commenced packing "Hermetically sealed" oysters and Maryland fruits. His first products were sold in New Orleans. When the devise of using calcium chloride was first known, he made use of it and succeeded in shipping his products to different parts of the world. He established a cannery in Baltimore, employing one thousand people during the busy season.

McMurray was one of the first canners to establish the cannery close to the fresh-food supplies, improving the quality by getting the food into the can with the least delay, while most of the canneries were located in cities, where the farmers brought the food sometimes several days after harvesting. In 1870 he experienced a shortage of laborers who left to work in Baltimore. This led him to invent and to patent capping steels and a furnace with which a boy could seal twice as many cans as a skilled tinsmith working with the old-fashioned capping iron. He also used automatic machines which enabled him to pack 200,000

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[1]Collins, op. cit., p. 16.

cans of corn a day while the best canners were limited to two or three thousand cans a day by using the old methods. It was during this period of McMurray's life that inventors made canning a great American industry.[1]

One of the great developments which helped the growth of the industry was the invention of the retort, or pressure cooker, by A. K. Shriver of Baltimore in 1874. He perfected and patented an "autoclave" or closed kettle in which processing was done with live steam or superheated water. Shriver's kettle gave higher degree of heat, so that canned foods could be processed with less danger of spoiling, and it also shortened the time needed for processing.

Canned foods were put up so quickly that it was difficult to wash, peel, slice, and prepare the fruits, vegetables and other materials fast enough to keep pace with it, and inventors were spurred on to devise automatic machinery for those purposes. About the same year, John Fisher developed a method of processing in a kettle with dry or superheated steam, which gave higher temperature. Yet, another way of obtaining higher temperature was devise in a very strong closed chamber of steel in which the cooking was done by steam pressure.[2]

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[1] Ibid., pp. 17-21.

[2] Ibid., pp. 22-23.

Modern Development of the Canning Industry

The half-century immediately following the Civil War was characterized by numerous mechanical developments and inventions, each of which helped put canning on a progressive automatic mass production basis. The industry continued to expand as canning plants were started in new areas, and new products were added to the canned food list such as condensed soups, which were processed in 1897. Many of the fruit and vegetable canneries in Iowa, Ohio, Indiana, Illinois, and California were established between 1870 and 1880. The number of canneries increased from less than 100 in 1870 to 1800 in the year 1900.[1]

The first application of the science of bacteriology to canning in the United States was made by H. L. Russell of the University of Wisconsin in 1895. He was followed by Prescott and Underwood at the Massachusetts Institute of Technology in 1896. Later, organized research was made by the United States Department of Agriculture.[2] Another important technological development that did much to expand canned foods production was the invention of the sanitary can, which replaced all former types of food cans in commercial use since the beginning of this century.

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[1]National Canners Association, The Canning Industry, (1957), p. 7.

[2]A. W. Bitting and K. G. Bitting, Canning and How to Use Canned Foods (Washington D.C.: National Canners Association, 1916), p. 13.

The twentieth century witnessed a continuation of canning industry expansion and of further development of automatic machinery. Automatic equipment was devised to pit cherries, to peel, halve, quarter, slice, and core apples and other fruits, and to snip the inedible ends off beans. The industry trended toward a scientific basis.

By giving the food plenty of heat when being processed, the inventors had overcome most of the difficulties, but not all. In the first years of the twentieth century, canners began to get together to discuss their business and their problems. The National Canners Association was formed in 1907, and in 1913 established research laboratories to study canning technology. Leaders of the canning industry were in the forefront of effort that resulted in the establishment of the original Food and Drug Act of 1906. Research was applied to the growing and control of the raw products of the farm and orchard, which introduced many strains of fruits and vegetables particularly suitable for canning.

Bronson Barlow of the University of Illinois prepared a thesis in 1913 in which he demonstrated that there were certain spore-forming bacteria known as thermophilic, bacteria capable of living at high temperatures. This discovery was significantly important to the canning industry.[1]

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[1]National Canners Association, The Story of the Canning Industry, (1948), p. 2.

In 1913, the canning industry looked ahead to an era of scientific food preservation. The National Canners Association established a research laboratory in Washington, followed by the opening of two laboratories, one in Seattle in 1919, and the other in San Francisco in 1926. Of the many studies undertaken by these laboratories, among the most important were those begun in a Washington laboratory in 1918 which resulted in processing methods based on scientific principles in place of the old rule-of-the-thumb practice.[1]

Shifts of the Canning Centers Toward the Pacific Coast

The development of the fruit and vegetable canning industry in the first quarter of this century was accompanied by a great expansion in the number of products packed and by considerable shifting of the centers of greatest production. The rapid development of the fruit-growing districts of the Pacific Coast transferred the center of production of canned fruits from the Atlantic seaboard to California, Oregon, and Washington. At the same time considerable changes occurred in the relative rank of the states producing the most important vegetable canning crops. Tomatoes, corn, and peas were the most important of the canning vegetables. Peaches, apples, and pears held first rank among the fruits.

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[1]National Canners Association, The Canning Industry, (1957), p. 13.

In 1899, the outstanding characteristics of the industry were the small sizes and wide distribution of the plants canning these staples. Assuming that the minimum for commercial production in any state was 100,000 pounds, there were 32 states canning tomatoes, 21 corn, 18 peas, 13 pumpkin, 24 apples, 14 peaches, and 11 pears. In general, most canning plants were small and were canning small quantities of practically all kinds of foods produced in their surrounding areas. The production of special varieties for canning purposes was underway, but there were few areas in which intensive production of canning crops had begun.[1]

Maryland led in the packing of tomatoes, beans, sweet potatoes, and berries; Illinois and Iowa led in the canning of sweet corn; New York in the canning of apples; and California in the packing of peaches and cherries. Bean packing was chiefly centered in Maryland and New York. Illinois, Ohio, and Indiana were the only other important bean-packing states.

In the canning of fruits, there was also a marked shift in the centers of production. In 1899, apples were canned in commercial quantities in twenty-four states, but in the year 1925, the producers were only twelve states. New York was the leader in the quantity canned, followed in order by

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[1]United States Department of Agriculture, Horticultural Manufactures, Agriculture Yearbook, (1925), Bureau of Agriculture Economics and Bureau of Plant Industry, p. 607.

Washington, Maine, Oregon, and Michigan. The production had remained stationary in Pennsylvania. It had been greatly decreased in Maryland, and had almost ceased in Indiana, Illinois, Missouri, New Jersey, Ohio, and West Virginia.

California was by far the leader in the canning of peaches and pears. A small amount of peaches were packed in Michigan, New York, Utah, and Delaware. Washington and Oregon had become large producers of canning pears, greatly surpassing New York; while Michigan was the only eastern state that had a small increase in its production. California and Oregon had become the most important states in the packing of cherries, followed by Michigan, Washington, New York, and Maryland.

In 1899, Maryland was the largest producer of canned berries, (all berries were reported collectively prior to the census of 1909) followed by New York, California, Michigan, Oregon, and Pennsylvania. By the end of the first quarter of the century, Oregon became the largest producer of canned berries with Washington second. Maryland, Michigan, and California produced approximately equal quantities of berries. New York production had fallen considerably, while Pennsylvania ceased to be a commercial producer.

The rapid increase in production of the fruit and vegetable canning industry in the beginning of the twentieth century was due in part to the increase of the production of

corn, tomatoes, peas, beans, peaches, apples, and pears which had been staples since the establishment of the industry, and in considerable part to the large production of new products for canning such as asparagus, spinach, sweet potatoes, apricots, prunes, and plums and berries. Some of these products produced almost entirely upon the Pacific coast, and in Idaho, made this region predominant in the production of canned fruits and vegetables.[1] The packs of canned fruits and vegetables in the United States in 1909 and 1919 is shown by Figure No. 12.

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[1]United States Department of Agriculture, Horticultural Manufactures, op. cit., pp. 612-613.

FIGURE NO. 12

PACKS OF CANNED FRUITS AND VEGETABLES IN THE UNITED STATES IN 1909 AND 1919[1]

STATE	1909	ORDER	1919	ORDER
	String Beans			
New York	452,634	(1)	722,535	(1)
Maryland	142,877	(2)	395,649	(2)
Pennsylvania	61,298	(3)	86,900	(8)
Minnesota	58,700	(4)	---	
Wisconsin	54,576	(5)	305,142	(3)
Michigan	51,787	(6)	88,445	(7)
Colorado	46,031	(7)	100,309	(5)
California	36,135	(8)	173,490	(4)
Ohio	32,941	(9)	20,314	(12)
Indiana	31,948	(10)	11,088	(15)
Maine	18,812	(11)	89,241	(6)
Oregon	12,383	(12)	27,902	(10)
Utah	10,500	(13)	51,028	(9)
North Carolina	9,567	(14)	4,630	(17)
Virginia	6,660	(15)	14,286	(14)
Washington	5,204	(16)	25,975	(11)
Tennessee	---		17,079	(13)
Louisiana	---		10,821	(16)
All other states	43,271		54,991	
TOTAL	1,025,324		2,199,825	
	Blackberries			
California	78,024	(1)	118,832	(3)
Maryland	29,883	(2)	48,589	(6)
Washington	24,052	(3)	252,620	(1)
New Jersey	18,629	(4)	15,963	(8)
Idaho	16,687	(5)	---	
North Carolina	14,464	(6)	32,645	(7)
New York	8,424	(7)	9,309	(10)
Virginia	6,524	(8)	2,961	(12)
Michigan	6,312	(9)	81,022	(4)
Ohio	---		7,958	(11)
Oregon	---		230,205	(2)
Texas	---		52,490	(5)
All other states	24,226		11,927	(9)
TOTAL	210,538		910,657	

[1]United States Department of Agriculture, Horticultural Manufactures, op. cit., pp. 608-610.

FIGURE NO. 12 - Continued

STATE	1909	ORDER	1919	ORDER
		Cherries		
California	78,024	(1)	618,210	(1)
New York	90,445	(2)	30,636	(6)
Oregon	22,770	(3)	149,203	(3)
Michigan	20,572	(4)	184,472	(2)
Maryland	10,092	(5)	6,757	(8)
Colorado	8,470	(6)	51,929	(9)
Washington	---		146,782	(4)
Utah	---		33,079	(5)
Ohio	---		10,676	(7)
Virginia	---		1,812	(10)
All other states	13,918		129,276	
TOTAL	390,351		1,362,832	
		Peaches		
California	1,149,590	(1)	6,869,152	(1)
Maryland	80,489	(2)	239,790	(2)
Michigan	74,595	(3)	170,758	(3)
Georgia	71,931	(4)	144,609	(4)
New York	41,727	(5)	48,053	(6)
Arkansas	7,980	(6)	46,402	(7)
North Carolina	7,370	(7)	---	
Tennessee	7,235	(8)	---	
Ohio	5,199	(9)		
Delaware	---		68,411	(5)
Washington	---		26,352	(8)
Oregon	---		22,303	(9)
New Jersey	---		20,700	(10)
Utah	---		16,633	(11)
Virginia	---		12,121	(12)
All other states	21,097		21,571	
TOTAL	1,467,213		7,706,855	
		Pears		
California	433,796	(1)	1,049,922	(1)
Maryland	67,427	(2)	185,610	(2)
New York	51,686	(3)	171,187	(4)
New Jersey	43,750	(4)	105,090	(6)
Oregon	14,598	(5)	164,733	(5)
Washington	11,849	(6)	179,878	(3)
Michigan	8,066	(7)	39,774	(8)
Delaware	---		95,275	(7)
Virginia	---		12,077	(9)
All other states	6,910		18,064	
TOTAL	637,782		2,021,610	

FIGURE NO. 12 - Continued

STATE	1909	ORDER	1919	ORDER
		Prunes		
Oregon			114,683	(1)
California			87,653	(2)
Washington			52,623	(3)
New York			1,954	(4)
All other States			16,797	
TOTAL			273,710	
		Plums		
California	138,996	(1)	363,024	(1)
New York	52,853	(2)	88,320	(2)
Michigan	11,420	(3)	75,980	(3)
Oregon	9,841	(4)	16,666	(4)
Washington	4,100	(5)	10,830	(5)
All other States	2,827		16,701	
TOTAL	220,057		571,521	
		Strawberries		
Maryland	106,724	(1)	75,215	(2)
New York	32,159	(2)	32,089	(4)
New Jersey	30,758	(3)	19,717	(8)
California	13,137	(4)	21,414	(6)
Michigan	9,754	(5)	87,892	(1)
Pennsylvania	4,983	(6)	---	
Oregon	3,490	(7)	21,107	(7)
Louisiana	---		43,063	(3)
Washington	---		25,426	(5)
All other States	7,681		48,174	
TOTAL	208,406		374,097	

CHAPTER III

THE FRUIT AND VEGETABLE CANNING INDUSTRY IN EUGENE

The canning industry of Eugene began at the Eugene City Cider Mill. This was a fruit drying and canning establishment built by W. H. Abrama in 1883 with an excellent location in the eastern portion of the city between Eighth and Ninth Streets. The cider mill had a manufacturing capacity of fifty barrels per day; the fruit dryer a capacity of two hundred bushels of apples, or one hundred and fifty bushels of plums per day; while in the factory there was a Boome and Boschert's press, which had a power equal to one hundred and fifty tons dead weight, the first of its kind imported into Oregon.[1]

The Eugene Canning and Packing Company built a fruit canning factory in Eugene in 1891. This plant was operated only one year under the first management. It failed to pay expenses, and in 1894 the mortgage on the plant was foreclosed, and it was bid for by S. B. Eakin as trustee for the creditors. Then a company was formed and the plant was operated intermittently largely as a fruit dryer until 1900,

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[1]A. G. Walling, Illustrated History of Lane County, Oregon (Portland, Oregon: Printing and Lithographing House of A. G. Walling, 1884), p. 440.

when it was purchased by W. K. Allen and W. G. Allen, who continued to operate it as a dryer until 1904, when a canning department was added. Due to the national financial panic of 1907, and for other reasons, this cannery was not able to finance the 1908 crop of fruit. Directors of the Lane County Fruit and Vegetable Growers' Association met to consider the situation. J. O. Holt, the Association's manager, had plans which were destined to give it a rare distinction in the cooperative field[1] (see below). The growers, acting through the Association, were able to lease the idle property; it canned the fruit of the members, selling as much as possible in the fresh state.[2]

The Lane County Fruit and Vegetable Growers' Association, being composed of a group of horticulturists, agriculturists, and businessmen, came into existence on January 11, 1908, with the signing of the Articles of Incorporation, and the adoption of a set of By-Laws. Previous to this, on November 28, 1907, a meeting was held at which time a preliminary organization was formed. Its capital stock was $5,000 of which $3,030 was subscribed. On January 18, 1908, the Board authorized an assessment of 20% of the capital stock which gave a working capital of $756.[3] They began business in a small

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[1] May, op. cit., p. 240.

[2] Eugene Fruit Growers' Association, 50th Anniversary.

[3] _____, Plants at Eugene, Oregon; Junction City; Creswell. 1928.

building on Oak Street near Ninth and remained there for the first two years. The Company handled principally supplies and looked after the sales of fresh fruits.

They canned in 1908;

345,548 lbs.	Cherries	8,348 cases
133,070 lbs.	Pears	1,960 cases
30,409 lbs.	Loganberries	487 cases
16,373 lbs.	Red Raspberries	193 cases
1,285 lbs.	Strawberries	32 cases
	Total	11,010 cases

On the 19th of January, 1909, there were, represented in person and by proxy, 213 shares of stock. At that time the name was changed to the Eugene Fruit Growers Association; the idea behind the change being that Eugene was more widely known than Lane County.

The 1909 fruit crop was extremely short and all the surplus fruit beyond the needs of the city of Eugene was disposed of to the Allen Fruit Company's cannery. By 1910 the capital stock of the Association was increased from $5,000 to $25,000 and the constitution was changed so that no person could hold more than 500 shares of stock. It also limited the amounts of annual dividends that the Association could declare to 10%.

They purchased the plant of the Allen Fruit Company for the price of $18,000. This deal secured the nucleus of the present plant. They improved the size of the preparation room in 1911. The number of stockholders had increased to 167, and the stock value was $17,890. In 1914 the drier was

removed to the present location, and a prune packing plant and warehouse were built, and a vinegar plant was added to the south side of the prune packing plant. They purchased property at Junction City in 1914 and built the first unit of the Junction City plant. Another addition was built south of the original Eugene plant in 1916. Then they operated the Creswell plant under a lease in 1917.

Ten years after it had begun the total number of stockholders was 632, holding 3,545 shares, having a par value of $35,450. They were operating a cannery, prune drier and packing plant, a spray plant and were shipping fresh fruit. The first unit of the Junction City plant had been erected and operated one season. For the year 1917 the fruit sales valued $321,373, while the total sales valued $342,403. They packed 57,157 cases at Eugene, 9,135 cases at Junction City, and 1,960 cases at Creswell with a total of 68,252 cases of fruits and vegetables. Their labor payroll was $34,223. The Association handled 3,004,380 pounds of fruits and 1,288,773 pounds of vegetables.[1] In 1918 the plant at Creswell was purchased and they installed a box factory at Eugene.

In 1919 they purchased the Ice Plant and Cold Storage facilities from the Eugene Ice and Storage Company. Oregon Growers Cooperative Association was organized and the Eugene Association released its members having apples and dried

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[1]Eugene Fruit Growers Association. Plants at Eugene, Oregon, Junction City, Creswell. 1928.

prunes to the Oregon Growers Cooperative Association. In 1922 an apple packing house was built at Creswell. In 1923 an addition was built to the preparation room at Eugene. In 1926 there was a two-story warehouse addition to the Eugene prune drier with an estimated capacity of 75 tons per 24 hours; and a warehouse addition to the Junction City plant.

In 1927 they shipped 20 cars of fresh fruits--apples, pears, and cherries. They received two million, seventy-one thousand pounds of fresh prunes for canning and drying, a total of 19,412,000 pounds of all sorts of fruits and vegetables; also, 170,000 pounds of filberts and walnuts. There were 94 stockholders on the rolls owning 378 shares of capital stock, an average of four shares each in 1908 and became 1801 stockholders owning 19,758 shares, par value $10,000; an average of 11 shares each in 1928. During the depression the Association shut down the plant in Creswell.[1]

Figure No. 13 shows the age of the existing fruit and vegetable canneries in the Pacific Northwest, that have between 25 and 2400 employees during the canning season. The data shown on this map was obtained by correspondence with the managers of these canneries as there was not enough data in the literature dealing with the history of this industry.

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[1]Eugene Fruit Growers' Association. Plants at Eugene, Oregon, Junction City, Creswell. 1928.

124°
123°
120°
119°
118°
117°
46°
45°
44°
43°

Portland
Forest Grove
Hilsboro
Sherwood
Tigard
Newberg
Gresham
Woodburn
Silverton
Salem
Dallas
Stayton
Corvallis
Junction City
Eugene
Medford
Ashland
Milton Freewater
Weston
Nyssa

FRUIT & VEGETABLE CANNERIES IN OREGON

NUMBER OF EMLOYEES

AREA OF CIRCLE DENOTES THE SIZE OF THE THE CANNERIES BY NUMBER OF EMPLOYEES IN THE YEAR 1961

820
2500
5100

THE BLACK SHADE SHOWS THE NUMBER OF EMPOYEES

Portland
Forest Grove
Hillsboro
Sherwood
Tigard
Newberg
Gresham
Woodburn
Silverton
Salem
Dallas
Stayton
Corvallis
Junction City
Eugene
Medford
Ashland
Milton Freewater
Weston
Nyssa
45°
44°
43°
42°
124°
123°
122°
121°
120°
119°
118°
117°

FRUIT & VEGETABLE CANNERIES

IN OREGON

NUMBER OF EMLOYEES

AREA OF CIRCLE DENOTES THE SIZE OF THE THE CANNERIES BY NUMBER OF EMPLOYEES IN THE YEAR 1961

820
2500
5100

THE BLACK SHADE SHOWS THE NUMBER OF EMPOYEES DURING THE OFF SEASON

Source: State of Oregon, 1961 Directory of Oregon Manufacturers & Buyers Guide.

0 10 20
Miles

FIGURE 11

There was no mention of the canneries that went out of business except for six in Oregon and one in Washington and there was not enough information to determine all the plants not now operating in the Pacific Northwest. The seven canneries that went out of business started in Oregon City in the year 1875[1], Eugene in 1883[2], Brownsville in 1912[3], Creswell in 1914[4], Medford in 1920[5], Mount Vernon in 1923[6], and Pendleton in 1936[7]. The last one is now a freezing operation.

The Eugene Fruit Growers' Association is one of the oldest canneries in the Pacific Northwest as shown by Figure No. 13. It is noteworthy that none of the 39 canneries shown by this map was established during the last thirteen years. This is partly due to the popularity of frozen foods and the fact that the existing canneries were enough to meet the demand.

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[1]R. M. Highsmith, editor, Atlas Of The Pacific Northwest Resources and Development (Corvallis: Oregon State University Press, 1962), p. 129.

[2]Walling, op. cit., p. 440.

[3]Correspondence with the Manager of The Western Oregon Packing Corporation in Corvallis.

[4]Eugene Fruit Growers' Association, Plants at Eugene, Oregon; Junction City, Creswell, 1928.

[5]Correspondence with the Manager of the Rogue River Packing Corporation, Medford, Oregon.

[6]May, op. cit., p. 146.

[7]Correspondence with the Manager of the Smith Canning and Freezing Company, Pendleton, Oregon.

Development of Fruit and Vegetable Canning in Eugene

Starting with a capital of $756 in 1908, the Eugene Fruit Growers Associations plant had a value of $750,000 by 1934. The stockholders received their dividends of 6 per cent plus bonuses, but during the depression of the 1930's they were reduced to 3 and 4 per cent[1], then became 5 per cent.[2] Sales had grown from $15,000 in 1908 to almost $10 million in 1957. The employees were three with a payment of $2.50 per day in 1908,[3] and the payroll became $2.5 million in 1957.[4] The cannery contribution to Lane County payroll harvesting was $1,500,000 and payroll canning was $2,500,000. Its payment to growers was $3,000,000 in 1957.[5]

Beginning with 20 cars of fruits shipped during its first operating year, the cannery increased the annual production until it shipped 452 cars during 1934, and 540 in 1935,[6] which became between 2920 and 4380, with a rate

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[1]May, op. cit., p. 243.

[2]Interview with Mr. Blandig, R.P. Office Manager in charge of account keeping of the Eugene Fruit Growers Association.

[3]Eugene Fruit Growers Association. Plants at Eugene, Oregon; Junction City, Creswell, 1928.

[4]_____, extracts from Manager's Report, 1957.

[5]Eugene Fruit Growers Association, Tour Aide.

[6]May, op. cit., p. 243.

of 8 or 12 a day in 1961. The Eugene plant uses 50,000 gallons of water per hour to clean, cook, and cool their products. One million gallons per day of polluted water is treated by the city at a cost to the cannery of $33,000 a year for the Eugene plant and $2,500 for the Junction City plant.[1]

The Eugene Fruit Growers Association plant was the first to can carrots in the United States in the year 1915.[2] In 1923 they installed the first continuous pressure cooker in the Northwest. The continuous process eliminates variation between batches, and permits a shorter cooking time. The cannery has seven batteries of these automatic cookers.[3]

In 1931 this Association was the first canner of whole kernel corn in Oregon. By 1958 a new line added in produces vacuum pack whole kernel corn in restaurant size cans. One cupful of liquid was used per can, thus reducing the shipping cost. The cans were filled, weighed, the lid was clinched, air pumped from can to give a high vacuum and sealed the lid tight. Then the cans went by cable to the cooking room to be given a quick cooking in a continuous automatic pressure cooker. This was the first commercial use of a continuous cooker for this style pack in the large can size in the United States.

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[1]Interview with Mr. Pitkin, the Manager of the Eugene Fruit Growers Association.

[2]Eugene Fruit Growers Association, Tour Aide.

[3]_____, 50th Anniversary.

The Eugene Fruit Growers Association operates test gardens, to choose which varieties and strains of fruit and vegetables thrive best, under local growing conditions. Constant experimentation and study of regional advantages dictated changes and increasingly the Association direct its operations toward processing of vegetables and those particular fruits for which the Willamette Valley conditions are especially suited, and toward handling fine filberts and walnuts.

Continuous improvements had resulted in considerable additional property, construction of additional preparation space, warehouse additions in Eugene in 1951 and in Junction City in 1954, a new freight loading dock in Eugene in 1954 and Eugene warehouse additions in 1956, increasing storage space by the equivalent of 350 box cars. In 1956 a covered concrete dock provided loading facilities for 16 cars on the 21-box car siding. Purchase of property in Junction City in 1957 provided frontage on two railroads.[1]

The Eugene plant now occupies nine acres. The Junction City plant occupies 1.5 acres, although the Association owns 16 acres between the two railroads which will be used for the future expansion of the Junction City plant. The number of employees in the Eugene plant reaches 1250 at the peak and drops to 150 during winter. They have two shifts for

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[1]Eugene Fruit Growers Association, 50th Anniversary.

10 hours each and two extra hours for those who are engaged in cleaning the plant. In Junction City there are 300 employees during the season and 10 during off-season.

The Eugene plant was built on 8th and Ferry Street when the Mill Race used to run close to the plant. Water power was needed for the small ice machine they had. Now the plant is 1500 feet from the Willamette River which was once used for disposal of the waste water. The Southern Pacific Railroad line running close to the Willamette River made an ideal location for the plants either in Eugene or in Junction City. The plants are located northeast of Junction City and east of Eugene. Since the prevailing winds are from the southwest, air pollution is not a problem.[1]

Economics of Cooperative Marketing of Fruits and Vegetables

Farmers cooperative marketing associations grew out of the farmers' economic necessity for finding an efficient method of marketing their products, which would procure for them a fairer and more equitable price than they had previously been able to command. By getting into farm cooperatives they were exempt from federal income tax. Treasury Department regulations allow farm cooperatives which pay patronage refunds to its patrons under contractual arrangements to exclude

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[1]Interview with Mr. Pitkin, Manager of the Eugene Fruit Growers' Association.

all items so paid from their taxable income, with the net result that most cooperatives pay little or no income tax.[1]

E. A. Stokdyk, who was the President of the Berkeley Bank for cooperatives, described the economic objectives of farmers' cooperatives as narrowing the spread between terminal market prices and returns to farmers. They maintain a reasonable gross spread between terminal market and local market prices. They allocate supplies among market areas to obtain highest returns, and increase the demand through sale promotion and advertising. They increase the total returns by timing and limiting sales which would improve the market setting and the price reports.[2]

To increase total returns the cooperatives limited their sales of a particular product through state and federal action. This method is especially true of those commodities where an inelastic demand exists where buyers pay a smaller total amount for increased quantities. For improving the market setting the farmers' cooperatives settle with their members on a quality and grade basis for their products instead of an area average, as is done by the Eugene Fruit Growers' Association. Standardization of package, grades, quotations, and terms of sale have helped cooperatives to improve their market setting.

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[1]Robert Paul Blanding, The Farmer Cooperative Tax Exemption Controversy (Eugene: Master Thesis in Business Administration, University of Oregon, 1949), p. 3.

[2]E. A. Stokdyk, Economic Objectives of Farmer Cooperatives, Miscellaneous Report 90 (Washington, D.C.: U.S. Department of Agriculture, 1945), pp. 5-21.

The bargaining power of the individual farmers has been considerably strengthened by the use of cooperative associations in selling or buying farm products and supplies. The association with its specialists has a control of volume, knowledge of market facts, ability to evaluate them, ability to convince others to make transactions, and use of withholding power, that enables the organized group to obtain a much better return than would be possible by the individual farmer with his limited knowledge and power.

Farmer marketing cooperatives usually receive, grade, store, process, and sell the agricultural products raised by their members. They use "Marketing Contracts" to set forth the duties and the rights of the producer-members and the cooperative.[1]

In the case of perishable commodities there was a great advantage to shippers in having their own representatives in the various markets, to be sure that goods are properly handled, to inspect their condition on arrival, and to report to headquarters about market conditions and prices, so that goods may be sent to the most favorable markets, as was done by the California Fruit Grower's Exchange, which has its own representatives in all the principal markets.[2] Also there were the Florida Citrus Exchange, the Mutual Oregon Distributors, the Michigan Potato Exchange and the Western New York

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[1]Blanding, op. cit., pp. 20-21.

[2]L. D. Weld, The Marketing of Farm Products (New York: The MacMillan Company, 1916), p. 419.

Growers' Cooperative Packing Association and other examples of federation marketing fruits and vegetables.[1]

Fruit and Vegetable Cooperatives

The first serious attempt of cooperatives in the United States occurred during the Granger Movement in 1867. The farmers were enabled to get better prices for their crops. The co-operation saved to the growers the large profits of middlemen in buying farm supplies.[2] During the period from 1870 to 1876, it had the greatest influence upon associated activities in American agriculture. It narrowed retail margins in stores that were supplying farm products and its legislation affected the railroads.[3]

The elaborate attempts to develop cooperative marketing and purchasing at that time collapsed as suddenly as they had appeared, and the unfortunate experiences of thousands of farmers postponed the more rational movement which began several years later. It was not until about 1890 that the first permanently successful farmers' cooperative organizations began to appear. The movement since that time has

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[1]United States Department of Agriculture, Marketing Fruits and Vegetables, Agriculture Yearbook (1925), p. 665.

[2]Albert S. Bolles, Industrial History of the United States (Norwich, Connecticut; Cincinnati, Ohio; Peoria, Illinois: The Henry Bill Publishing Company, 1878), pp. 23-24.

[3]Henry H. Bakken and Marvin A. Schaars, The Economics of Cooperative Marketing (New York and London: McGraw Hill Book Company, Inc., 1937), p. 49.

been gradual, and accompanied by many unfortunate experiences which have served as checks to a more rapid development.[1]

Among the farmers of the north central and far western parts of the United States cooperation had made the greatest headway--especially in Minnesota, Wisconsin, Iowa, Illinois, North Dakota and South Dakota, to a certain extent in Nebraska and Kansas where were located more than two-thirds of all cooperative associations. "Another region of extensive development was the Pacific Coastal States where some of America's largest, oldest, and best known cooperatives are to be found".[2]

The Fruit Growers Union, started in 1867 at Hammonton as a cooperative system. Cranberry growers organized in New Jersey as early as 1872, in Massachusetts in 1895, and in Wisconsin in 1906-1907. The peach growers along Lake Erie organized in 1878, and the growers in Delaware in 1881. On the Pacific Coast the first organization among the fruit producers was started in 1881. Many associations were organized during the period 1875-1900.[3]

No significant growth of local associations took place at the beginning of the last century. From 1895 to 1920 a gradual expansion in numbers of associations, membership,

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[1]Weld, op. cit., p. 413.

[2]Bakken and Schaars, op. cit., p. 46.

[3]Ibid., p. 56.

and volume of business took place. Fifty percent of all associations dated back to the period 1914-1923.[1] There was a diversity of associations such as the organization of regional citrus and decidous fruit associations in California; of apple marketing companies in Oregon and Washington; of potato marketing cooperatives in Colorado, Virginia, Florida, Kansas, and Maine; of cranberry sales companies in Wisconsin, New Jersey and Massachusetts. In some markets cooperative commission firms were established to handle fruit on the commission basis for either cooperative or non-cooperative country shippers. A relatively small number of horticultural and vegetable producers of the United States were included in the organization.

In 1935-36 there were 1,063 fruit and vegetable associations with 166,000 members, or 4.5 percent of all memberships in the United States cooperatives, and transacting $212 million worth of business reported to the Farm Credit Administration. Of all agencies handling fruit and vegetables the cooperatives have been among the most important in establishing definite grades and standards as well as uniform packs. Relatively little cooperative canning of fruits and vegetables was carried on on the Pacific Coast. Cooperative drying of fruits, such as prunes, apricots, and raisins, was being successfully accomplished by nationally known cooperatives.[2]

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[1] Ibid., p. 46.

[2] Ibid., pp. 57-58.

In 1919 the Oregon Cooperative Growers' Association was launched. It handled many kinds of fruits and vegetables. The Association's purpose was to encourage fruit production; to store, can preserves, and market products; to stop speculation in fruits; to stabilize prices to develop markets; to increase consumption; to eliminate unnecessary middlemen and to retain those needed; to advertise Oregon's fruit industry, and to stabilize land prices and credits.

Some 18,000 fruit growers in Oregon pledged their support to the organization through a five-year contract. These growers controlled 30,000 acres of fruit. The organization was a non-capital, non-profit, a purely cooperative concern. The membership fee was $10 and it was transferable with the members property. All members had equal voting power.

The Association owned nine packing plants, located respectively at Forest Grove, Salem, Yamhill, Dallas, Scotts Mills, Creswell, Sutherlin, Myrtle Creek, and Riddle. In 1923 the Association handled approximately 15,000,000 pounds of prunes.[1] It failed because it handled too many dissimilar products. They planned to handle 80 percent of the Oregon fruit crop, but it was not able to handle more than 40 percent. There were no local units as in the case of the California Fruit Growers' Exchange to come between the growers and the central, to act as shock absorbers, to give the growers a

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[1]Newel Howland Comish, Cooperative Marketing of Agricultural Products (New York, London: D. Appleton and Company, 1929), pp. 55-56.

chance to handle their local problem, as in the case of the California Fruit Growers Exchange. Also the Oregon Cooperative Growers' Association purchased or built many plants at inflated war time prices which affected their finances and contributed to their failure.

The North Pacific Cooperative Prune Exchange had grown out of the Oregon's Association. Its function was that of a selling agency, to advertise, inspect, and sell prunes. It had contracts with growers' local associations, which provided that the exchange should market the locals' fruit.

The locals were composed of prune growers who owned or leased packing plants for the purpose of doing their own packing. Every local had control of its own packing, and whatever economies accrue from packing, grading or blending went to the members of each respective local unit. Each local, also, determined and arranged whatever advances it cares to make to its members.

The exchange made the sales, issued the shipping orders to the locals, invoiced the products, and made periodic distribution of the funds to the locals in proportion to the amount of prunes sold. In 1924 nine locals had joined the exchange. During the 1926-1927 season it marked 13,332,097 pounds of prunes for its nine member units.

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[1] Ibid., pp. 56-57.

The Eugene Fruit Growers' Association

The Lane County Fruit and Vegetable Growers' Association, which was the origin of the Eugene Fruit Growers' Association, was described by Carl Chapin May as follows:

> . . . J. O. Holt, the Association's manager, laid before his board of directors plans which were destined to give it a rare distinction in the co-operative field.[1]

From studying the characteristics of cooperative associations; and the history, the economics of cooperative marketing of agricultural products; it became clear that the Eugene Fruit Growers' Association is not a true cooperative in a strict definition of the term, but it is an ordinary business cooperation doing business in a cooperative way, since it was not organized as a corporation.[2] It gives a limited interest which is 5% on the capital stock to one share which amounts to $10. It returns net savings to patrons on the basis of the amount of patronage. In these regards it operates as a cooperative except for having one vote for each share of stock a member owns.[3] The maximum for shares per person is 750 shares or $7500.[4] This

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[1]May, op. cit., p. 240.

[2]Interview with Mr. R. P. Blanding, office manager in charge of account keeping of the Eugene Fruit Growers' Association.

[3]Constitution and By-Laws of the Eugene Fruit Growers' Association, Eugene, Oregon, January, 1911.

[4]Interview with Mr. Chase T., a grower on the Board of Directors of The Eugene Fruit Growers' Association.

explains the gradual loss of their members accompanied by the rapid growth of their capital. Figures 14 and 15 show that, during the period of 1947-1961, membership decreased by 289 or 15.8%, while capital increased by $1,991,364 or 267%.[1] Another reason contributing to the membership decrease was that the growers do not receive the money for their products until the cannery has sold them which might take a whole year or two for some kinds of products that the cannery may decide to store when it is not profitable to sell. On the other hand, other cash and cooperative canneries in Salem and Albany pay their growers within one week or two of delivering their crops to the cannery.

The price paid to the growers by the Eugene Fruit Growers' Association could be higher than those paid by other canneries, because the growers share the profits of the canning processes. From interviews with some of the growers of the Eugene and Junction City plants, and others who sell to cash or cooperative canneries in Albany and Salem, it was found that, in general, the members of the Eugene Fruit Growers' Association are big landowners or those who can afford to have the advantage of having the largest number of votes by buying many shares.

The number of the members of the Eugene Fruit Growers' Association is shown in Figure 14, beginning with 1922, when they started to keep records, until 1961. There was a

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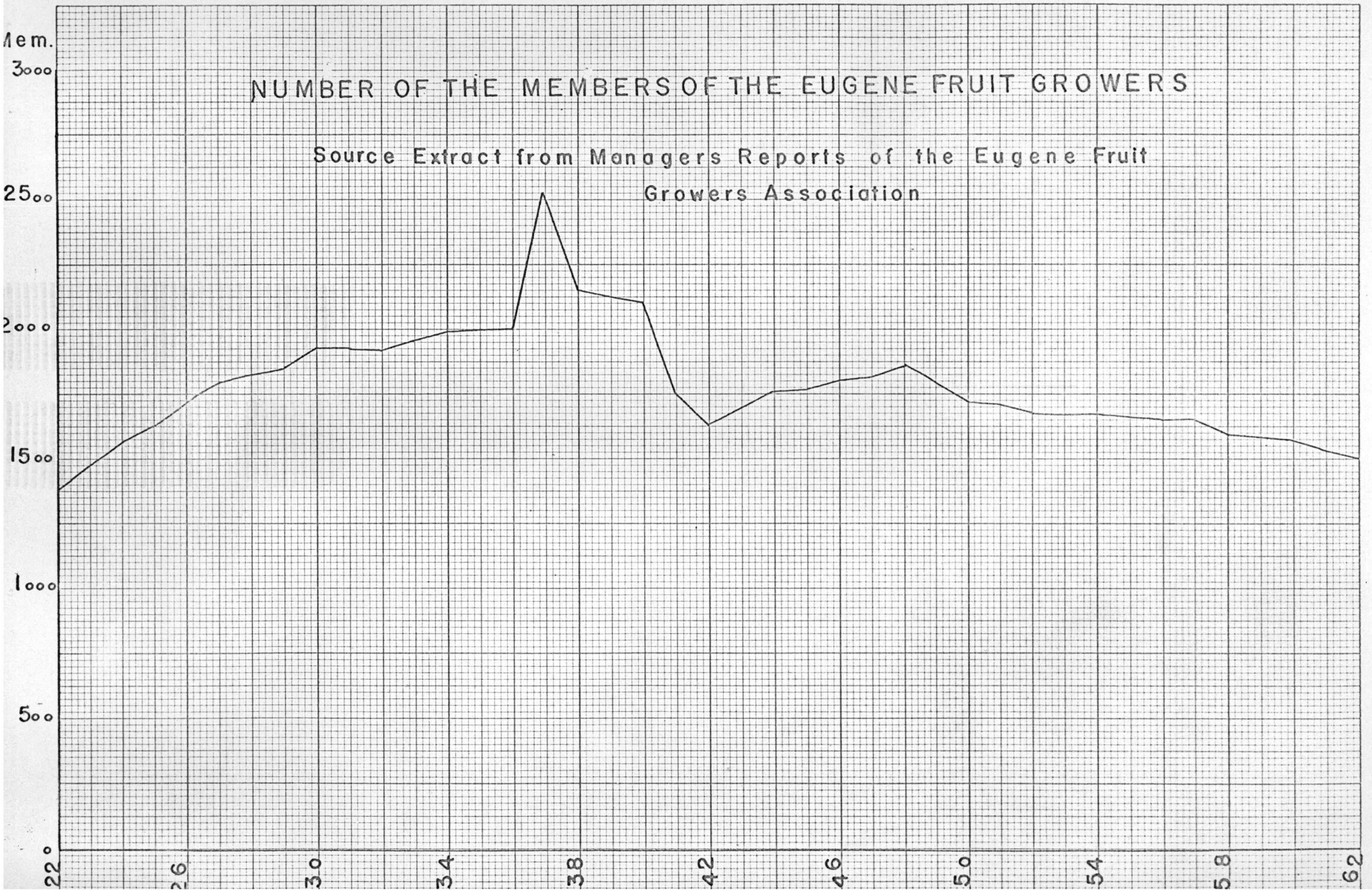
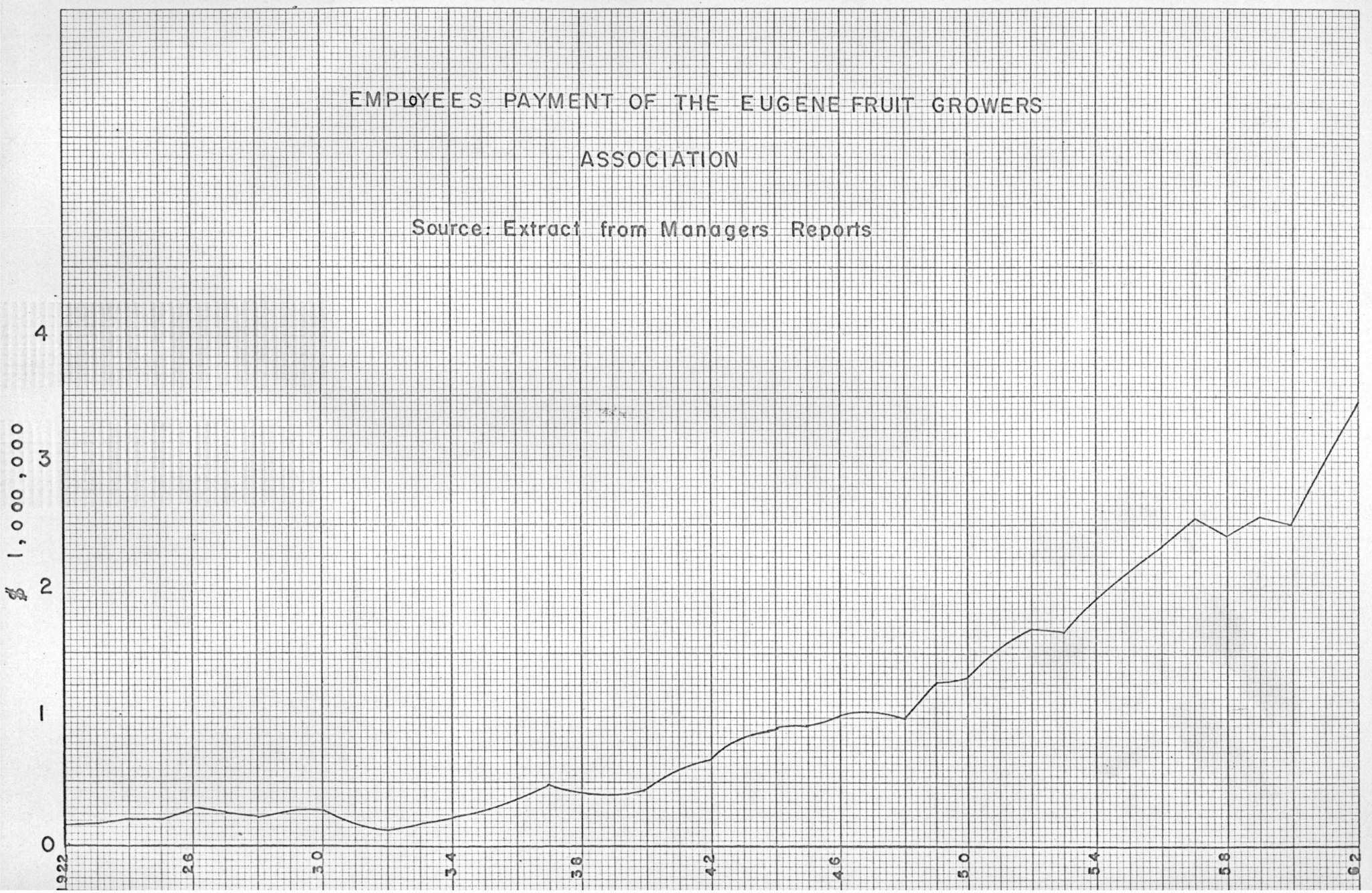
[1]Derived from the figures of the Yearly Extracts from Manager's Report for the years from 1922-1961, Eugene Fruit Growers' Association.



EMPLOYEES PAYMENT OF THE EUGENE FRUIT GROWERS ASSOCIATION

Source: Extract from Managers Reports

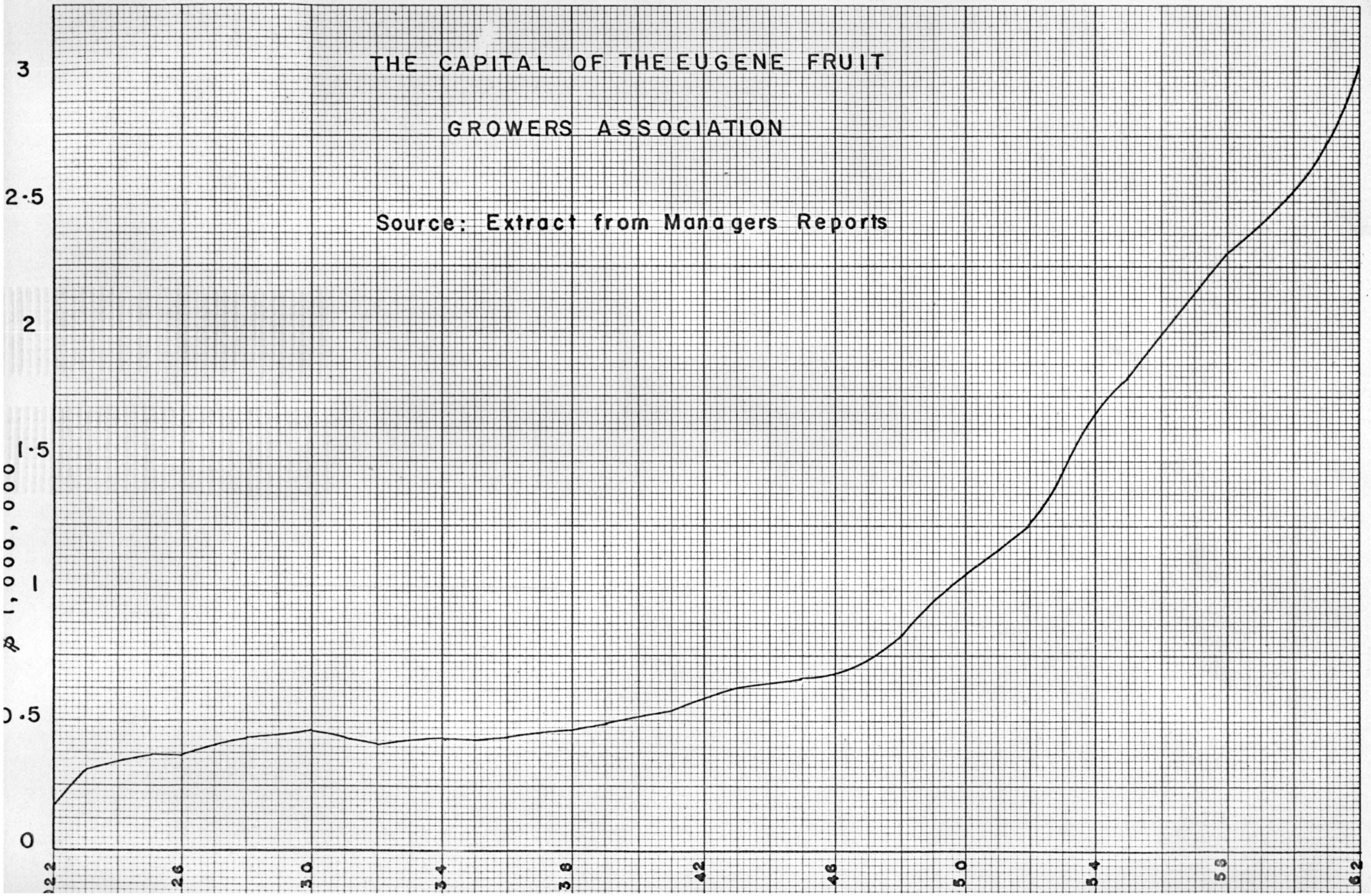


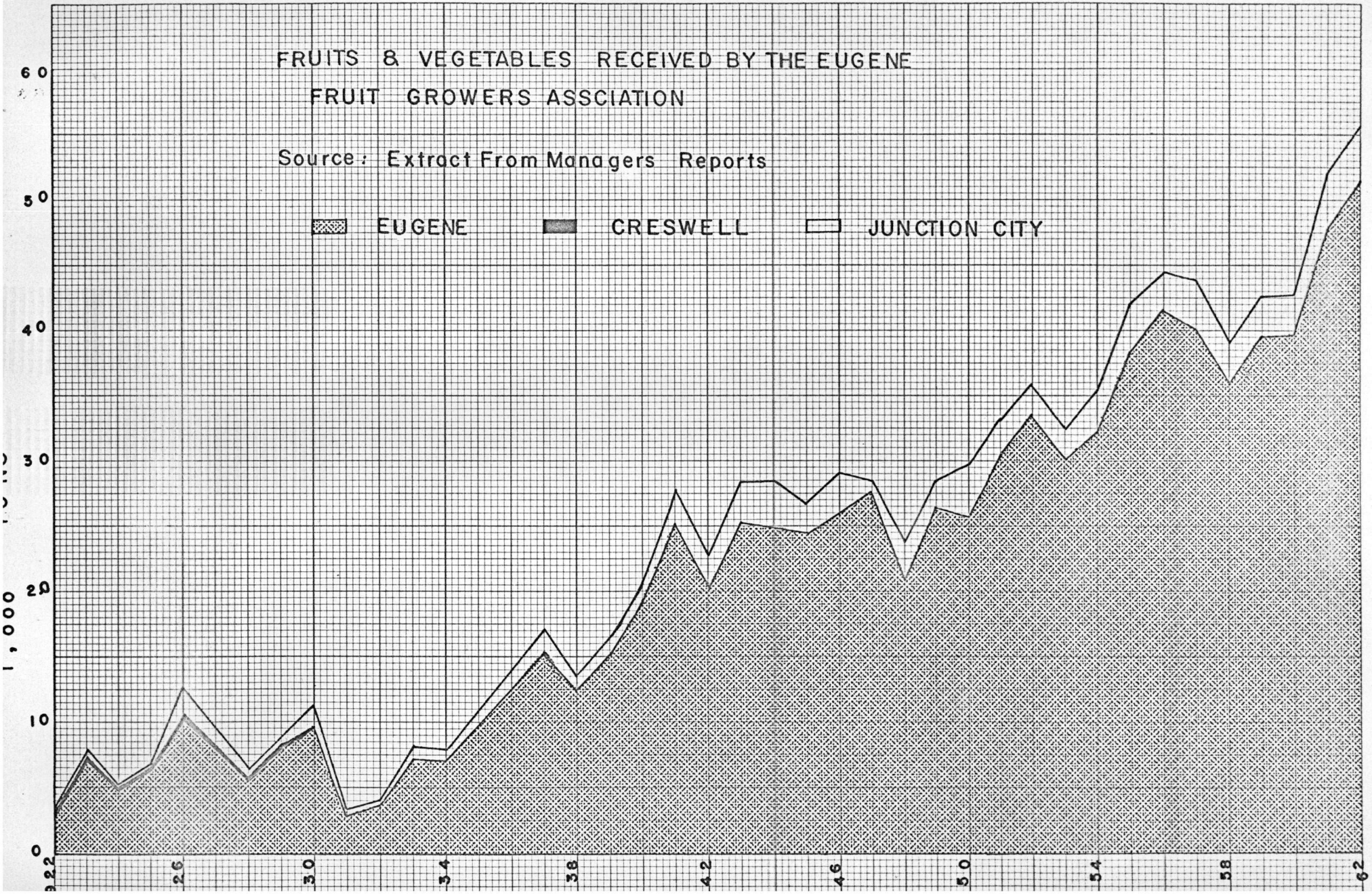
continuous growth in the number of the members between 1922 and 1930. The increase was 576 members or 41.1% more than in the year 1922. Their capital increased $302,505 in the same period, while their employment payment increased $118,132. They handled 7,362 tons of fruits and vegetables more than in 1922, and their value of shipments increased $602,581 (see Figures 15, 16, 17, and 18, respectively).

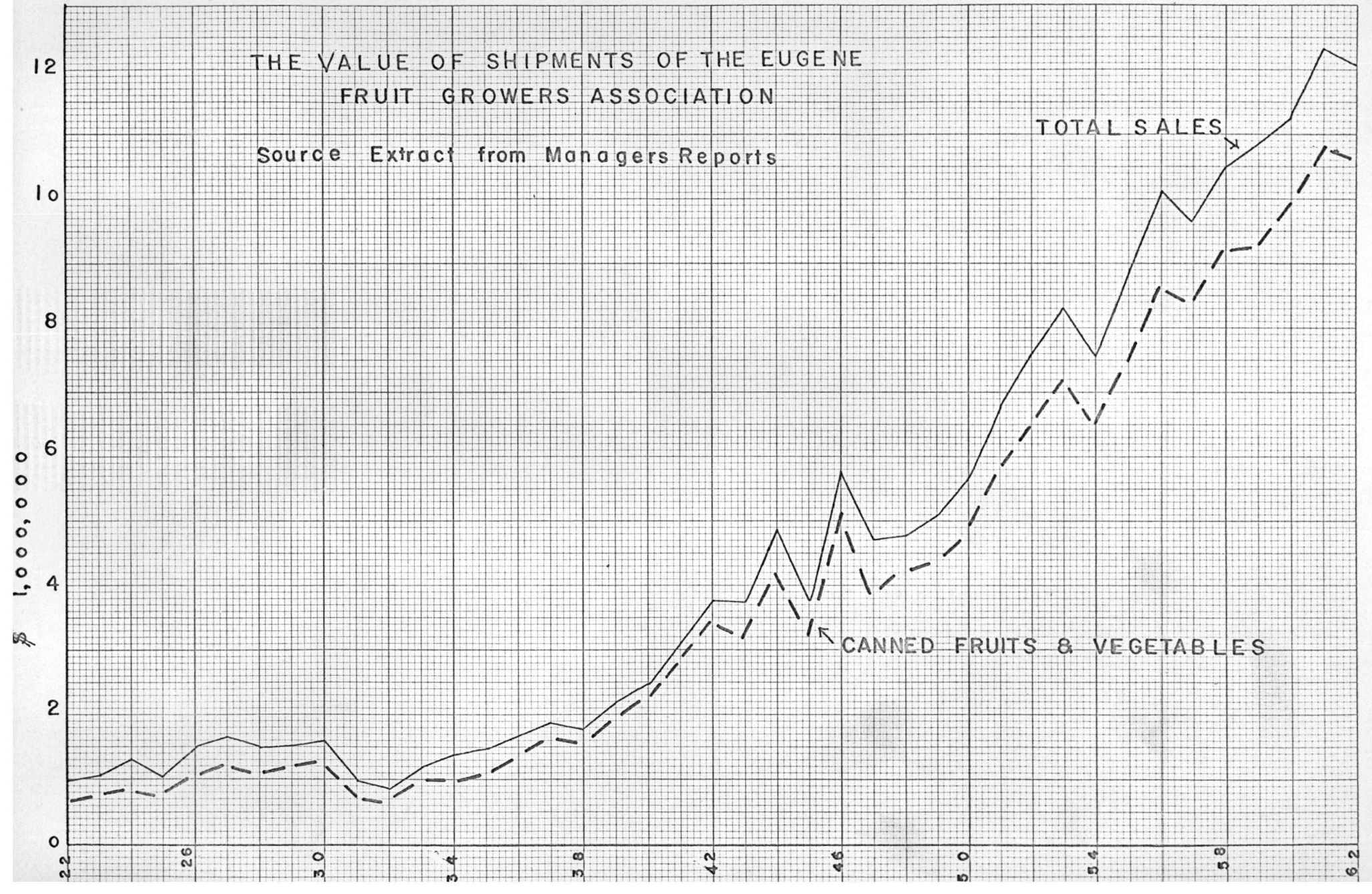
It was a growing business until the thirties, when it was affected as all other businesses by the depression. The growth of their members continued gradually but slowly. The increase in the members between 1930 and 1931 was only two members. In 1932 the decrease was seven people, but in 1933 there was an increase of 16 over 1932.

By 1934 the market conditions became better and there was an increase of 48 members over those in 1933 or 59 over those in 1930 or 635 members over those in 1922. Although their capital was $32,308 less than that in 1930 the increase of 1934 over 1931 in the capital was $8,746, in the employment payment was $29,984, in the tonnage of fruits and vegetables handled was 4,482 tons. As for their value of shipments it was $384,937.

In the year 1935 their members increased 37 persons than in 1934, and in 1936 there were 13 members over those in 1935, and in the year 1937 the market conditions proved







to be the most favorable for this kind of business and the number of the members reached its peak through all its history. They were 2533 members of 28.5% more than in 1930 or 84% more than those in 1922. Comparing the number in 1937 by the figure of 1961, they were 999 more members or 65% more than those in 1961.[1]

In the year 1938 there was a decline in the demand as a result of over-production that 372 members left the Association, some of them were retired. Between 1939 and 1940 there was a slight decline in the number of the members, followed by a sharp decline in 1940-41. The reason was the reorganization of the Association, restricting the right of voting to the growers only instead of every member as before. They gave the stockholders who were not growers the choice of being members without having the right to vote, or else selling their stock, which most of them preferred to do. It was time when a good number of the old growers were retired. This made a loss of 888 members in the year 1942 of those in the year 1937.[2]

There was a gradual increase of their members following the year 1942 until the year 1948 as there was a big demand for canned foods during the Second World War. When the war was over there was an over-production in 1947 and the market

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[1]Derived from the figures of the yearly extracts from Manager's Report for the years from 1922-1961, Eugene Fruit Growers' Association.

[2]Interview with Mr. E. I. Pitkin, the Manager of the Eugene Fruit Growers' Association.

conditions became so unfavorable that the cannery decided to keep their cans for the next year hoping for better prices. Also they reduced the tonnage of the fruits and vegetables to be received by their plants in 1948. Consequently, their value of shipments for the year 1947 was less than in 1946. Their employees in 1948 were less in numbers than those in 1947, the value of their shipment became somewhat higher in 1948 than in 1947.

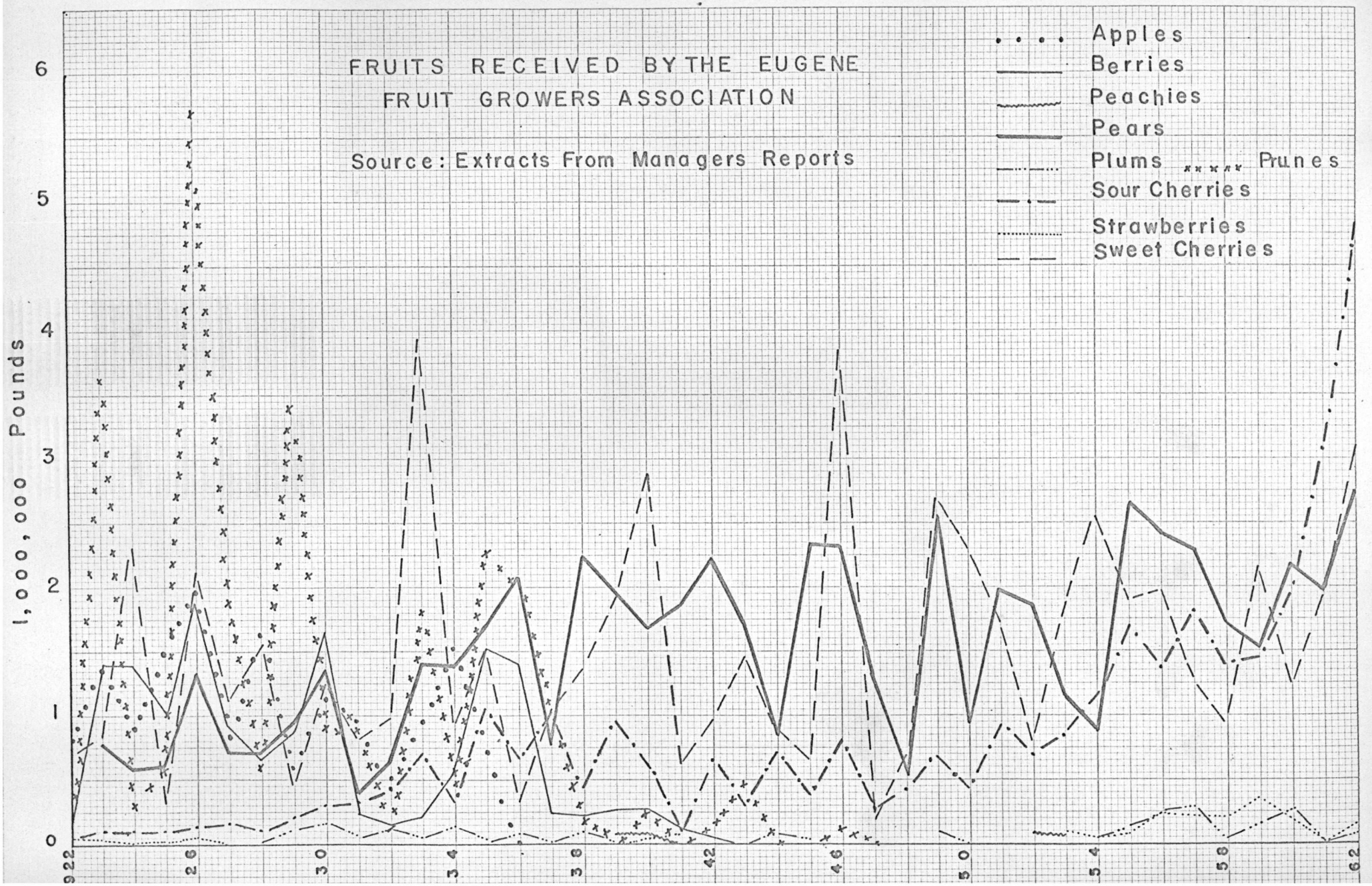
Nearly the same condition of fluctuation of market conditions and prices caused a drop in their tonnage received in 1938, but in 1942 there were other reasons contributing such as the shortage in the tin supply caused by the seizure by the Japanese of the important tin sources in Malaya during the war, and they could not find enough cans. Also the Federal War Labor Board controlled the wages in 1941, the cannery wages were frozen and the laborers found better payments in other kinds of business.

The Eugene Fruit Growers' Association specializes in the canning of beets, beans, corn, and carrots. Their pack in 1961 was over 10% of the beets canned in the United States or 35% of the Northwest. They canned 18% of the nation's carrots. Although it is called the Eugene Fruit Growers' Association, yet their production has been about 91.8% vegetables and only 8.2% fruits. The cannery received 476,876 tons of vegetables and 39,529 tons of fruits in 1961.

In the Eugene plant they can mainly table beets, sweet corn, green beans, carrots, wax beans. These are in the order of the amount received in 1962. The Junction City plant specializes in canning beans only. Figures 19 and 20 show the growth in the amount of fruits and vegetables received by the Association from 1922 to 1962. This also shows that they used to can a small amount of many other vegetables and fruits such as tomatoes, spinach, squash, cabbages, celery, prunes and apples.

Many reasons contributed to the decline of certain kinds of fruits and vegetables. The highly specialized machinery, and the fluctuating market conditions for different crops are the main reasons why the cannery now specializes in canning certain crops.

The canning season is somewhat long compared with other canneries. They start canning at the end of April until December. They can large amounts which enable them to have a daily shipment year round. In April the canning season starts with canning and freezing rhubarb which is continued in May with the canning and freezing of the early strawberries. In June they continue canning strawberries, and they start canning cherries. In July they can Blue Lake beans, yellow wax beans, table beets, Black cherries, Royal Anne cherries, and also canning and freezing Red Tart cherries and rhubarb.



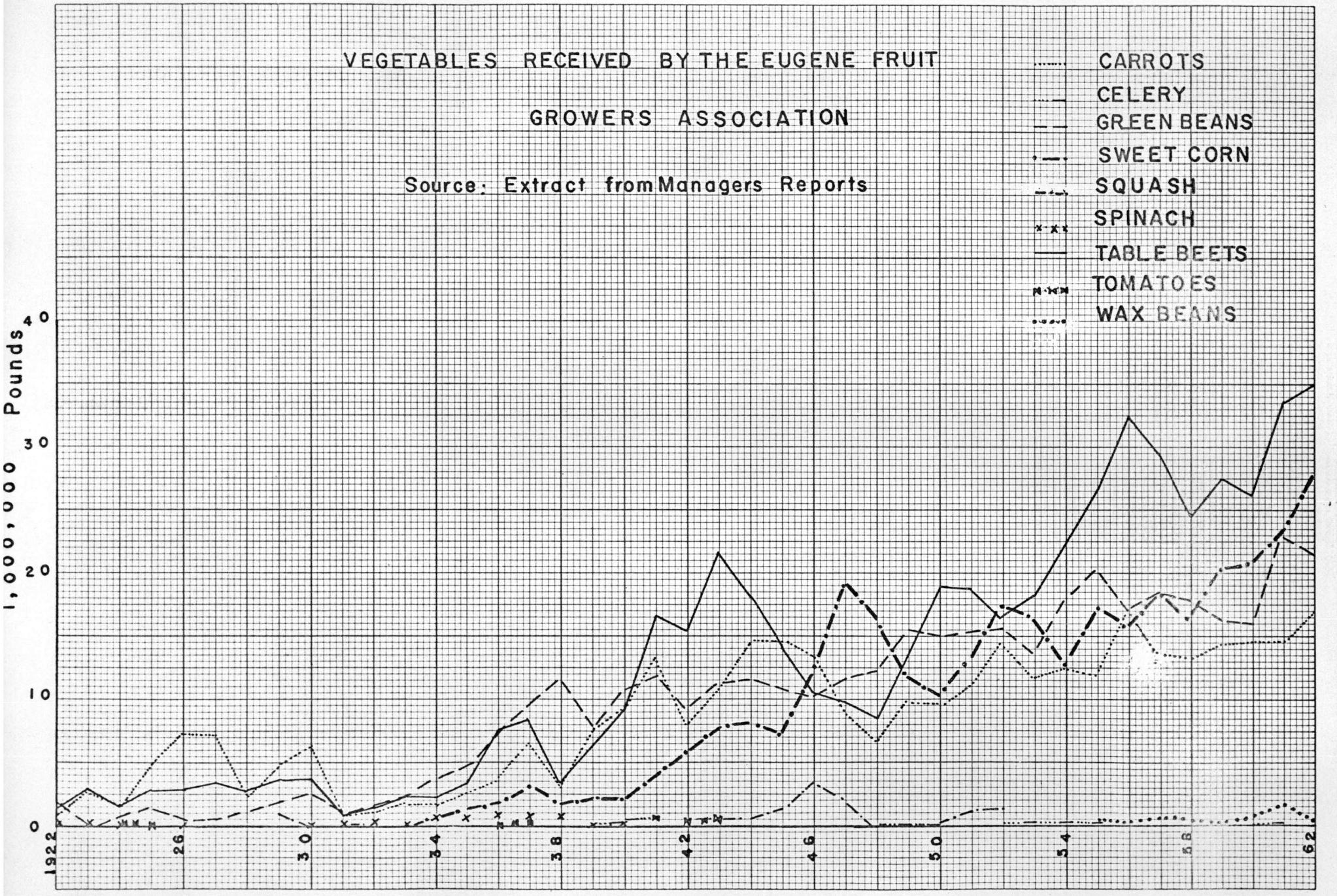

VEGETABLES RECEIVED BY THE EUGENE FRUIT
GROWERS ASSOCIATION
Source: Extract from Managers Reports
CARROTS
CELERY
GREEN BEANS
SWEET CORN
SQUASH
SPINACH
TABLE BEETS
TOMATOES
WAX BEANS
1,000,000 Pounds
0
10
20
30
40
1922
26
30
34
38
42
46
50
54
58
62

Figure 20

In August they can the same crops as in July except for Black and Royal Anne cherries and rhubarb; they also process the early corn. In September they can crabapples, Bartlett pears, and dried filberts and walnuts. Also they have canning and freezing, stemming and pitting of Brime cherries, which continue until the end of December. In October they can celery, carrots, corn, Bartlett pears and dry filberts and walnuts. In November they can carrots and vegetables for salads and also they can peas. The end of the canning season is in December, when they can carrots and continue stemming and pitting of Brime cherries.

Cooperation Between the Cannery and the Farmers

The cannery provides the farmers with selected kinds of seeds, protected with fungicide and insecticide. They also provide them with fertilizers and spray for which the farmers pay after they harvest the crop. The growers of vegetables sign a contract with the cannery which states that they will deliver to the cannery a certain number of tons of a specific kind of variety and grade; this emphasizes the importance of having a good quality.

The growers, considering the possibilities that may affect their crops, plant more acreage than needed so that they will be able to get the amount they have to deliver. In most cases the farmer has a surplus which he cannot sell

to another cannery, nor is it profitable to sell it to the fresh market. If the market conditions are good, the cannery will buy 10% more than the contract. In case of bad market conditions the farmer will plow the surplus under; this adds nutrients to the soil and saves the fresh market from over-production.

The contracts in regard to the fruits are somewhat different than those for vegetables. The cannery calls for the entire fruit crop of their growers. Fruits account for about 8% of the canned crops. The contract for some kinds of vegetables, such as sweet corn, beets and beans, states that the farmer should plant at different times in order to provide the cannery with a six week early crop followed by the ordinary crop. This enables the cannery to have a long canning season.

All the crops are trucked by the growers to the Eugene Fruit Growers' Association's plants. The beans are delivered to the Junction City plant on 12th and Greenwood Streets, which solely specializes in the canning of beans. As soon as the Junction City plant receives its full capacity of beans, the Eugene plant starts canning beans. As for all the other kinds of fruits and vegetables, the growers deliver them to the Eugene plant on 8th and Ferry Streets.

The growers are responsible for their truck expenses. Some of them, having one truck, make about 12 trips a day to the cannery during the harvesting season.

CHAPTER IV

THE CANNERYSHED OF THE EUGENE FRUIT GROWERS' ASSOCIATION

The cannerysheds is within the surrounding area of the Eugene and Junction City plants. The members have their farms in the Willamette, the McKenzie, and the Umpqua Valleys. The majority of the farms are less than forty miles north of Eugene; a few vegetable farms are located south of Eugene. However, the pear and peach orchard, seventy miles south of Eugene, forms the southern limit of the cannerysheds. The majority of the farms are located east of Highway 99 West.

The farms occupy the valley bottom lands, except for the cherry and pear orchards that are more extensively grown on higher ground, which extends into the foothill section. Although pear and peach orchards are in the vicinity of Sutherlin and Roseburg, yet they contribute a very small percentage of the cannery crop.[1]

The extent of the cannerysheds reflects the geographical setting, both physical and cultural. The moderate rainfall,

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[1] Interview with Mr. E. I. Pitkin, Manager of the Eugene Fruit Growers' Association.

mild temperature, low elevation, smooth to rolling surfaces, sufficient water supply and good soils are the main physical characteristics of this area. The population concentration in this part of the valley represents good opportunities for supplying laborers as well as providing a good market. The irrigation projects on the Willamette and the Umpqua Rivers helped in developing truck farming. The enterprise of the people and their cultural background were among the main factors to determine the existence of the truck farming and the canning industry.

The valley has a uniform climate. The summers are cool, July averaging 66° F., and winters are mild, with January averaging about 40° F. Precipitation is slightly less than 40 inches. About 98% of the annual precipitation, or 37.47 inches, falls between the beginning of September and the end of June. Most of the precipitation falls in the form of rain, but some falls as snow. The frost free season is approximately 200 days.[1] The dry summer months afford favorable weather for harvesting fruit and vegetable crops.

A part of the valley soil-forming material is extremely old, and some of the deeper materials have been deposited by present or former streams. The soils are acid in reaction to a greater or less degree and have been leached of lime carbonate and other more or less soluble minerals.

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[1]S. N. Dicken, Oregon Geography (Ann Arbor, Michigan: Typed and Lithoprinted by Edwards Brothers, Inc., 1959), p. 95.

On the recent alluvial deposits near the rivers the soils range from sandy loams to clay loams. The best of these are fertile, generally well-drained, and favorable for irrigation. The old alluvial fill of the valley provides most of the agricultural land where vegetables are grown. Orchards are mainly on the hill sides where deep and well-drained soils are found. The soils of the fields visited are the following types:

The Chehalis soil is of mixed origin which has a brown or rich-brown surface soil and subsoil. The subsoil shows no compaction, and though somewhat stratified, it is not consistently ligher textured than the surface soil. The textures of the Chehalis soil are silt loam, silt clay loam, and fine sandy loam.

The Chehalis silt loam is a moderately deep, well-drained, medium textured friable, brown alluvial river bottom soil. It is over 36 inches in depth with a moderately permeable, medium textured subsoil. At lower depths the subsoil has more permeable layers of sand and silt. This soil is slightly acid, has high fertility and occurs on slopes from 0 to 3 percent. The infiltration rate of this soil is about 0.5 inch per hour. Four feet of soil has a water holding capacity of four inches.[1]

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[1]United States Department of Agriculture, Soil Conservation Service, Land Condition IIS4 Chehalis--2 M4 X 1. (ORE-AREA 4, USDA-SCS Portland, Oregon, 1954, M-1933-2).

This soil occurs in the Eugene area in the Willamette Valley from the north of Lane County as far south as Eugene. It is also found in the Mohawk, and the McKenzie Valleys with considerable areas south of Coburg. Other areas are along the Coast Fork Willamette River, the Middle Fork Willamette River, particularly to the west of Natron and north of Trent.[1]

The Chehalis silt clay loam soil is similar to the above, except for the surface soil to a depth from 9 to 12 inches, is rich-brown, and the subsoil is lighter in color, with a uniform clay loam texture to a depth of five feet. It occurs to the east of Junction City, in Santa Clara area to the north of Eugene, in Natron, Jasper, and Dexter. The bottom lands bordering Coast Fork and Middle Fork Willamette River, Row River and Mosby Creek are largely of this soil.[2]

Chehalis fine sandy loam has a rich brown or grayish-brown color. It is a well-drained, medium and heavy textured soil, over 60 inches deep with a moderately permeable, medium textured subsoil. At lower depths, the subsoils have more permeable layers of sand and silt. This soil is slightly acid, having high fertility. The infiltration rate

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[1]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon. Number 33, Series 1925 (U. S. Government Printing Office, 1930),p. 48.

[2]Ibid., p. 49.

is about 0.5 inch per hour. Five feet of soil has a water holding capacity of 10 inches.[1]

This type of soil occurs in a great number of small areas throughout the river bottom lands of the following: two miles east of Junction City, and one and a half miles southwest of Coburg, bordering the McKenzie River and the Willamette River north of Eugene in Santa Clara area, bordering the Middle Fork Willamette River, and north of Thurston. This soil is very productive and is generally used for truck farming as well as other farm crops.[2]

The Newberg soil is a recent river bottom soil as the Chehalis, but the former has more permeable sandy substratum and lighter textured surface soil.[3] This sandy texture has a tendency to break the capillary action of the soil, causing the surface soil to dry out more quickly than those with heavier subsoils. The Newberg silt loam soil is found west of Marshall Island, and several areas are found near the junction of the Willamette and McKenzie Rivers, and west of Coburg.

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[1]United States Department of Agriculture, Soil Conservation Service, Pacific Region, Land Condition IIe7 Chehalis, Newberg R7-183 Revised 10-9-53 (ORE-AREA 4 USDA-SCS, Portland, Oregon, 1954).

[2]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925 (U.S. Government Printing Office, 1930), p. 46.

[3]_____, Soil Conservation Service, Land Condition I Newberg, Chehalis, Willamette. R7 Revised 10-9-53 (ORE-AREA 4 USDA-SCS Portland, Oregon, 1959).

The Newberg loamy sand surface soil consists of brown or light-brown loamy sand from 8 to 12 inches deep. The subsoil is stratified and extremely variable in texture. Below a depth between 30 and 40 inches it is underlain by deposits of gravel and sand. A great number of small areas of this soil border the Willamette River from the north of Lane County to Eugene, the McKenzie River, the Coast Fork, and the Middle Fork Willamette River.

The Newberg fine sandy loam surface soil is moderately acid, but the subsoil is only slightly acid. The texture of this soil ranges from sandy loam to silt loam. This soil occurs along the stream channels or the recently abandoned ones. It occurs in very small places along the Willamette River north of its junction with the McKenzie River and in many areas bordering the Middle Fork Willamette River.[1]

The Willamette Soil is developed from an old alluvial material and is found on low terraces.[2] It ranges from slightly acid to strongly acid in reaction.[3] The Willamette

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[1]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon. Number 33 Series 1925 (U. S. Government Printing Office, 1930), pp. 51-53.

[2]_____, Soil Conservation Service, Land Conditions I. Newberg, Chehalis, Willamette. R7 Revised 10-9-53 (OREGON-AREA 4 USDA-SCS Portland, Oregon, 1959).

[3]_____, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon. Number 33 Series 1925 (U. S. Government Printing Office, 1930), p. 31.

soil is representative of the weathering conditions found in the well-drained old valley-filling soils of the Eugene area.[1] The surface layer is brown, loose granular loam containing organic matter in various stages of decomposition. The upper subsoil layer is dark-brown silt clay loam extending to a depth from 30 to 35 inches. The lower subsoil layer which continues to a depth from 42 to 50 inches is somewhat lighter-brown than the surface soil. It is dense, compact, silty clay or light clay where the illuviated material is found.

The Willamette silty clay loam soil in the Eugene area borders the bottom land soils west of the Willamette River in the northern part of Lane County extending south to Eugene. This is an elongated belt from one to three miles in width. The other area is between the Willamette and McKenzie Rivers, from their junction extending up the McKenzie River Valley to the east of Thurston. Smaller areas occur between the hill soils on the west and those bordering the Willamette River. This soil is considered the best old valley filling for agricultural purposes.

The Camas soil is of mixed origin derived mainly from basaltic rocks. It is a droughty, well drained, medium textured soil. This is an alluvial river bottom brown soil

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[1] Ibid., p. 11.

[2] Ibid., pp. 31-32.

that is 36 inches deep and has a gravelly, rapidly permeable subsoil. The reaction of this soil is neutral to moderately acid. This soil has a high fertility and occurs on slopes from 0 to 7 percent. The infiltration rate of the soil is about 0.5 inches per hour. Four feet of this soil has a water holding capacity of 8 inches.[1] The Camas gravelly clay loam in the Eugene area is found in small areas east of Junction City,[2] west of Coburg,[3] southeast of Goshen and northeast of Pleasant Hill.[4] Several areas border Row River, Mosby and Lost Creeks.[5]

Maytown soil is a brown stream bottom soil which is 60 inches deep. It has a medium texture, a moderate fertility, and a moderate acidity. It is poorly drained because it has a moderately shallow subsoil. The infiltration rate is about 0.5 inches per hour. Five feet of soil has a water holding capacity of 10.5 inches. Water moves at an average

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1 _____, Soil Conservation Service, Land Condition IIe4 Camas (OREGON AREA 4 USDA-SCS Portland, Oregon, 1954).

2 _____, Soil Conservation Service in Junction City, Oregon.

3 _____, Linn-Lane Soil Conservation Service in Harrisburg, Oregon.

4 _____, Upper Willamette Soil Conservation District, Soil Conservation Service in Eugene, Oregon.

5 _____, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon. Number 33 Series 1925 (U. S. Government Printing Office, 1930), p. 55.

rate of 0.3 inches per hour through this soil.[1] The fields visited that have this type of soil are east of Junction City.[2]

Salem gravelly clay loam soil is a brown bench soil over 60 inches deep.[3] It is derived mainly from basalt but contains some material from sedimentary rocks.[4] Below an average depth of 40 inches the subsoil is of paler-brown color, less compact, and lighter in texture than the surface soil.[5] It has a medium texture, a high fertility, and a moderate acidity. It is a well-drained soil, with a more compact, gravelly, moderately rapid permeable subsoil. The infiltration rate of this soil is about 0.5 inches per hour. Five feet of this soil has a water holding capacity of eight inches.[6]

There are few areas of Salem gravelly clay loam in which the surface soil is free of gravel. This type of soil is

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1 _____, Soil Conservation Service, "Land Condition IIw4 Maytown", Oregon--17 8 52, USDA-SCS Portland, Oregon, 1959, M-2706-3.

2 _____, Soil Conservation Service in Junction City, Oregon.

3 _____, Soil Conservation Service, Pacific Region, "Land Condition IIs1 Salem", Oregon Area 4 R7-183 Revised 10-9-53 USDA-SCS Portland, Oregon, 1959, M-2552.

4 _____, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925 (U. S. Government Printing Office, 1935), p. 13

5 Ibid., p. 42.

6 _____, Soil Conservation Service, Pacific Region, "Land Conditions IIs1 Salem", Oregon Area 4 R7-183, Revised 10-9-53, USDA-SCS Portland, Oregon, 1959, M-2552.

found in the Eugene area associated with the Willamette soil type in the north of Lane County as far south as Eugene and in the northwest of Springfield. Other areas border on the McKenzie River and Fall Creek. One of the largest areas is one mile northeast of Pleasant Hill.[1]

Woodburn type of soil is a brown bench soil, over 60 inches deep. It is a moderately well drained, medium textured soil. This soil has a moderate acidity and a high fertility. Woodburn soil occurs on slopes from 0 to 7 percent. The infiltration rate is about 0.4 inch per hour. Five feet of soil has a water holding capacity of 8.5 inches. Water moves at an average rate of 0.2 inch per hour.[2] The fields visited which have this type of soil are to the northwest of Coburg.[3]

The Melbourne Series is a residual, brown or slightly reddish-brown, soil. At an average depth of 40 inches the parent material of shale or sandstone is found. The surface of Melbourne clay loam that has a red subsoil consists of brown or dull-brown platy loam which is composed of

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[1]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925 (U. S. Government Printing Office, 1930), p. 42.

[2]_____, Soil Conservation Service, "Land Condition IIs5 Woodburn", (Oregon- 17 8 52 USDA-SCS Portland, Oregon, 1959, M-2706-1).

[3]_____, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925 (U. S. Government Printing Office, 1930), pp. 10, 21.

considerable organic material in various stages of decomposition.[1] The subsoil is yellowish brown or reddish yellow. The deeper material overlying the bedrock is mottled with yellow, brown and red because of the presence of partly weathered particles.[2] Melbourne soils occur in a small area on Bailey Hill; other areas are in the vicinity of Jasper and to the southeast of Pleasant Hill, and west of Cottage Grove in the vicinity of Lorane and Crow.[3]

Agriculture Techniques

All kinds of vegetables are irrigated, while the majority of the orchards depends entirely upon rain. Irrigation in Western Oregon has developed to major importance in the last 36 years.[4] All the farms visited use sprinkler systems. Some pump the water from the ditches to the sprinklers; others get the water from wells.[5] Sprinkler irrigation provides a great flexibility to the operator as well as great economy in the use of water. It removes the necessity

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[1] Ibid., p. 21.

[2] Ibid., p. 10.

[3] Ibid., p. 21.

[4] Oregon State College, Federal Cooperative Extension Service, Soil and Water Resources, Oregon Agriculture 20, August 1952 Reprinted October 1953 (Corvallis, 1953), p. 6.

[5] Field observation.

for heavy land leveling and may be applied in such manner as to prevent leaching even on relatively steep slopes.

The sprinkler system is made up of four parts: sprinkler, pipelines, a pumping plant, and debris-removal equipment.[1] Sprinkler heads rotate for uniform distribution. The main pipelines carry the water from the pumping plant to many parts of the field. Lateral pipelines carry the water from the main pipelines to the sprinklers. Permanent pipelines are usually made of steel. They are commonly buried to facilitate farm operations. Portable pipelines are made of aluminum. The farmer sets the outlet pipes 60 feet apart and the laterals 40 feet apart. The laterals may be 1000 feet long.[2]

Crop rotation is essential for building up the organic matter in the soil, and in minimizing insect and disease damage. As the farmer rotates the crops about the farm, he may not need to irrigate a given field every year. Therefore, when using sprinkler type of irrigation, it can be shifted to follow the crop. Rotation is practiced in all the farms visited except for a small field of corn which is the only crop grown in the whole farm.

All the fields visited are provided with a good drainage system which was developed long before the irrigation system.

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[1]United States Department of Agriculture, Claude H. Pair, Sprinkler Irrigation, Leaflet No. 476 (U. S. Government Printing Office, 1960), p. 2.

[2]Interview with Mr. T. Chase, a fruit and vegetable grower.

The use of tile for draining the Willamette Valley lands started in the year 1870. Since that time thousands of miles of tile have been laid and open ditches were dug to drain the valley lands. During the '40's the establishment of open ditches for drainage has been greatly accelerated through practice payment programs of the Production and Marketing Administration.[1]

The farmers use commercial fertilizers in order to have higher yield for their crops as well as to make a sound use of soil conservation measures. The time for applying fertilizers depends on both the crop and the type of fertilizer. Nitrogen fertilizers can be applied at any time during the early part of the growing season for most irrigated crops. More than one application of nitrogen fertilizer during the growing season is preferable for some crops. For most vegetable crops, phosphate fertilizers are needed at planting time.[2] The fertilizer a farmer uses may be recommended by the County Extension Agent, based upon the soil test, as shown by a soil test report of Mr. Roy Stolsig's farm to the south of Coburg.

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[1]Oregon State College, Oregon Agricultural Experiment Station Collaborating with the U. S. Department of Agriculture and the Oregon Federal Cooperative Extension Service, Soil and Water Conservation and Use. Oregon Agriculture 9, March 1952 (Corvallis, 1952), p. 49.

[2]Interview with fruit and vegetable growers along with field observations.

Soil Test Report

Oregon State College, Corvallis, Oregon

Agricultural Extension Service, Lane County

Soil acidity		6.5	6.4
Phosphorus	lbs/A	63	42
Potassium	lbs/A	312	327
	me/100g	0.40	0.42
Calcium	me/100g	9.7	10.0
Magnesium	me/100g	3.60	4.10
Total bases	me/100g	13.70	14.52
Boron	ppm	0.46	0.45

"Explanation of Soil Test Value:

Lime equivalent is the amount of lime, that will neutralize the soil acidity, but is not necessarily the amount needed for the specific cropping program. A lime recommendation will be made by the County Extension Agent.

Pounds per acre (Lbs/A) parts per million (ppm) and milliegrievalents per 100 grams of soil (me/100g) are different ways of expressing the amounts of nutrients found in the soil by the particular methods used in the Soil Testing Laboratory. Fertilizer recommendation for specific crops will be based on these values.

Total bases represent the addition of potassium, calcium and magnessium and will be used in making the lime recommendation. 1 me of calcium per 100 grams of soil is 400 Lbs. of calcium per acre. 1 me of magnesium per 100 gram of soil is 240 Lb. of magnesium per acre."[1]

A cover crop is another method for adding organic nutrients to the soil, as well as keeping them from leaching. It is also being used as winter protection from erosion. A cover crop must be planted as early as possible for good

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[1]Oregon State College, Agricultural Extension Service, Corvallis, Oregon.

growth and protection. A good growth and stand must be obtained by the middle of December and is to be maintained on the land until the spring when it will be plowed under.[1]

Among the other agricultural techniques is the selection of seeds, which is decided by the cannery. The control of weeds, the insect control, and the adequate protection of the plant from diseases are important for obtaining a good crop yield and quality. The yield varies from year to year depending upon both physical and cultural factors affecting the given crop. The availability of having the adequate number of agricultural workers at the proper time also contributes to the quality and the quantity of the crop.

To become familiar with the cooperation that exists between the County Extension Service and the farmer, a trip was made with Mr. D. L. Hatch, the Lane County Extension Service Agent, to visit the farm of Mr. D. Reetz on River Road, southeast of Junction City. The cooperation between the Eugene Fruit Growers' Association and their farmers was discerned during a visit to the orchard of Mr. C. Maughan on Bailey Hill west of Eugene, when Mr. Leo Christensen, the Field Service Agent came to discuss the crop situation and to offer the cannery service.

The criteria used in selecting the farms for this study are as follows: farms whose owners are members of the Eugene Fruit Growers' Association, who sell all their products to

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[1]Field observation and interview with fruit and vegetable growers.

this cannery, or those who sell certain other crops to other canneries. Farms that were owned by a previous member of this association. Neighboring farms, growing the same crop, and in which case at least one of the farmers sells to this cannery.

The fifteen farms chosen are on the valley land and on the foot hill section that have a local relief of 260 feet. They have seven soil types preferred for this kind of farming in the Eugene area. The major crops for this cannery are grown in the selected farms. They are located in the vicinity of Junction City, Coburg, Eugene, Springfield, Jasper, Goshen, and Pleasant Hill, Oregon. The general characteristics of the main fruit and vegetable crops within the canneryshed and the specific characteristics of the farms visited are discussed in the following sections.

General Characteristics of the Main Fruit and Vegetable Crops Within the Canneryshed

The truck farms of vegetable crops visited were pole snap beans, bush snap beans, table beets, carrots, and sweet corn. The fruit crops were the Royal Anne Sweet Cherry, sour cherries, strawberries, and Marion Blackberries.

Pole Snap Beans

Pole snap beans are FM-I-K of the early varieties, and 231 of the late varieties. The methods of seeding include setting the planter to drop 5 seeds per foot or row, planting the seed from 0.75 to 1.5 of an inch deep on loam soils and 1.5 to 2 inches on sandy soils. The amount of seeds needed are from 25 to 30 pounds of seed per acre. They are spaced from 4.5 to 5 feet between rows, but 3 inches between the plants.[1]

The farmers start planting the pole snap beans from late April to late May. Beans are picked from the middle of July to the third week of August. Irrigation is necessary for a period of approximately 60 days.[2] For fertilization the farmers use from 100 to 120 pounds of nitrogen per acre. They put from 50 to 70 pounds per acre at seeding. Fifty

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[1]Oregon State College, Federal Cooperative Extension Service, Commercial Production of Pole Snap Beans in Oregon, Extension Bulletin 783, (Corvallis, June 1960), p. 3.

[2]Interview with Pole Snap Bean Growers and Mr. Truman Chase and Mr. Roy Stolsig.

pounds of nitrogen per acre are put as side-dressing during the growing season, which begins at the first bloom.[1] The use of phosphorus (60 to 180 pounds per band), and potash (40 to 60 pounds per acre in bands) is recommended at the time of seeding.[2]

Seven pictures were taken in a pole snap bean field to the southeast of Coburg.[3] They represent the different operations through the season. The operation begins by plowing the field from 8 to 12 inches deep. About the first of May the farmer smooths down the field by using the disking machine as shown in Figure 21. This machine has a capacity of smoothing 5 acres per hour. Figure 22 shows the planting of the beans by using a bean planter with a fertilizer hopper. The planter makes a hill-drop of 5 beans every 6 inches in rows 5 feet apart. It puts the fertilizers 4 inches below the level of the seeds. This planter has a capacity of two acres per hour.

After spraying the pole snap bean field, the farmer uses the cultivator, as shown in Figure 23. It kills the weeds by stirring the soil and cutting the roots of the weeds. It has a capacity of one acre per hour. The early beans are cultivated about the first of June; after which

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[1]Interview with Mr. Roy Stolsig.

[2]Oregon State College, Cooperative Extension Service, Fertilizer Recommendation, Pole Beans (Willamette Valley), F R 12, January 1958.

[3]Mr. Roy Stolsig's farm.

Figure 21 - Disking a Pole Snap Bean Farm

Figure 22 - Planting a Pole Snap Bean Farm

Figure 23 - Cultivating a Pole Snap Bean Farm

Figure 24 - Setting the Post in a Pole Snap Bean Farm

they are cultivated once every 10 days. By the middle of July the beans are too high for the machine to be used. This is the time when hand labor is required to pull the weeds as shown in Figure 26. During the picking season the pickers' feet kill what is left of the weeds.

Pole beans are supported and trained by means of end posts, support posts, wire, and string. The holes for the posts are dug mechanically. Then the posts are set by hand into the stake press as shown by Figure No. 24. It takes an hour to set 250 stakes in the ground. Each stake is 2 x 2 inches. They are pressed into the soil at 20 foot intervals down the bean row. The wire at the top and the heavy twine at the bottom are securely fastened to the end posts. Figure No. 25 shows a part of this operation being done by hand. Although this could be done by machine, this farmer prefers to have it done by hand.

Figure 26 shows the bean field. The horizontal white line in the field represents the sprinkler irrigation pipe which is set at about 6 feet above the ground. The last operation is the picking of the beans, weighing the sacks across the scale to keep a record of each pickers' work, and putting the beans in tote boxes as shown in Figure 27. At the end of the season vines are cut down and the wires are rolled onto spools by machine.[1]

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[1]Interview with Mr. Roy Stolsig, a pole snap bean grower.

Figure 25 - Fastening the Wire to the Posts in a Pole Snap Bean Farm.

Figure 26 - Sprinkler Irrigation in a Pole Snap Bean Farm

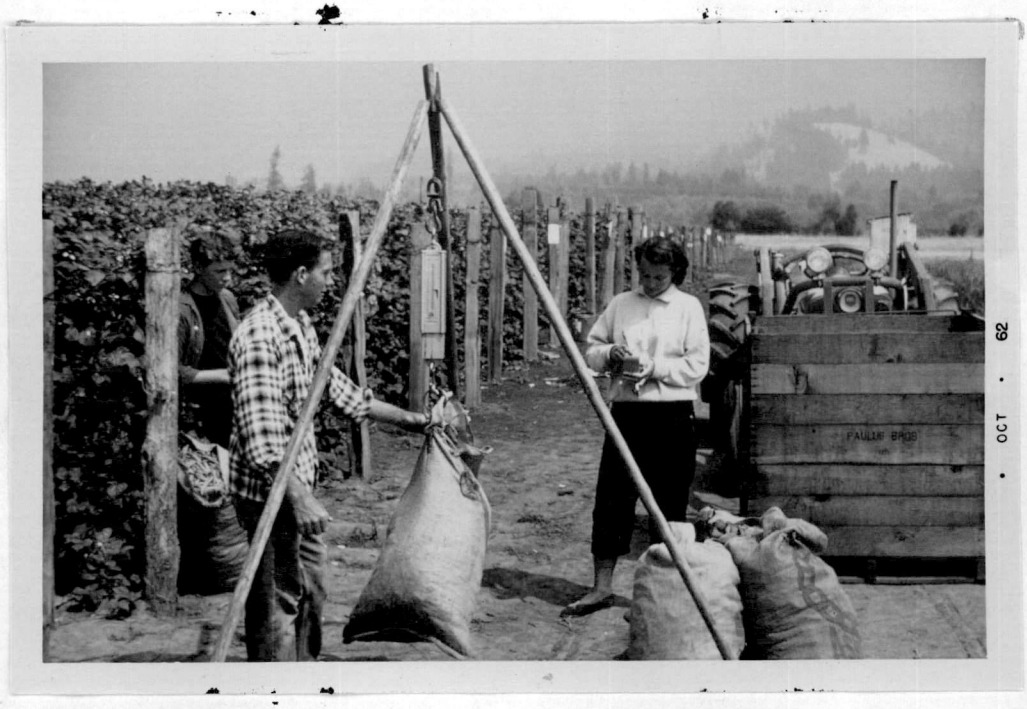

Figure 27 - Weighing the Sacks of the Pole Snap Beans

Beans are picked by hand with five to seven pickings being made four to five days apart.[1] The cannery gives the farmers a measure to use for picking the right size at the right time because all pods of a certain size should be removed at each picking.[2] The pickers are mostly students or housewives; they are paid 2.5¢ per pound with a bonus of .5¢ to those who continue to pick for the whole season.[3] In 1961 there was an experimentation by a mechanical harvester for pole snap beans which may become popular in the near future.[4]

Bush Snap Beans

Blue Lake and Puregold (wax) beans are the varieties of bush snap beans grown in this area. The method of seeding is to set a 2 to 4 row planter to drop 9 seeds per foot of row. The seeds are spaced from 36 to 38 inches between the rows. It takes about 60 pounds of seeds per acre.[5] The farmers start planting from the middle of June to the middle of July. The first harvest of the early crop begins after

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[1]Interview with pole snap bean growers Mr. T. Chase and Mr. R. Stolsig.

[2]Interview with Mr. Carl Robertson, Field Department of the Eugene Fruit Growers' Association.

[3]Interview with pole snap bean growers Mr. Chase and Mr. Stolsig.

[4]Interview with Mr. T. Chase, a pole snap bean grower.

[5]Oregon State College, Federal Cooperative Extension Service, Commercial Production of Bush Snap Beans in Oregon, Extension Bulletin 787, (Corvallis, June 1960), p. 3.

50 or 65 days. Irrigation is necessary when the upper soil moisture declines, and at the time of flowering.[1]

Fertilization is accomplished by using 50 to 100 pounds of nitrogen per acre. The farmers use 50 to 120 pounds of phosphorus per acre.[2] Fertilizers are applied in bands from 3 to 4 inches deep and 2 inches to the side of the seed row.[3] Bush snap beans are harvested mechanically within the cannery-shed, though they could be harvested by hand with two to five pickings being made four to five days apart.[4]

Table Beets

The table beets are mainly of Detroit Dark Red variety.[5] Planting small whole beets requires 12 to 16 pounds of seeds per acre. Cut, sliced, or diced beets takes from 8 to 12 pounds of seeds per acre. The seeds are spaced from 10 to 20 seeds per foot, depending upon the stand desired and according to the difficulties with damping off and slugs on individual farms. For small whole beets 15 plants are spaced per foot, while for the larger sized beets they are from

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[1]Interview with Bush Snap Bean Growers, Mr. T. Chase, Mr. J. Dyksterhuis, and Mr. R. Stafford.

[2]Oregon State College, op. cit., p. 3.

[3]Interview with Bush Snap Bean Growers, Mr. T. Chase, Mr. J. Dyksterhuis, and Mr. R. Stafford.

[4]Oregon State College, op. cit., p. 4.

[5]Interview with Mr. E. I. Pitkin, Manager of the Eugene Fruit Growers' Association.

6 to 10 plants per foot. The distance between the rows is from 24 to 28 inches.[1]

Beet seeds as commonly planted are not single seeds, but fruits containing several seeds. Therefore it becomes necessary to pull out the excess plants to prevent crowding in the row. Thinning is usually done as soon as the seedlings are large enough to be handled easily and before they exceed 2 inches in height.[2] Table beets are planted from the beginning of April to the beginning of June. They are harvested from 90 to 150 days from germination.[3]

Irrigation is required throughout the growing period to obtain the best quality and high yield of the beets. It is a crop that responds well to frequent irrigation. If the soil is allowed to become excessively dry, root growth and fertilization uptake are impaired. Interruption of growth is thought to be associated with malformation of beets.[4] For these reasons the cannery asks the farmers to irrigate the table beets.[5]

Nitrogen and phosphorus are the main plant nutrients limiting the yield of table beets in the Willamette Valley.

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[1]Oregon State College, Andrew A. Duncan and W. A. Frazier and H. J. Mack, "Oregon Vegetable Production Brief: Beets", Sp. 18-47, February 1960.

[2]United States Department of Agriculture, Victor R. Boswell, Growing Table Beets, Leaflet No. 630 (Washington D.C., 1961), p. 3.

[3]Oregon State College, Duncan et al., op. cit., Beets.

[4]Interview with Mr. S. Hurd, a beet grower.

[5]Interview with Mr. Carl Robertson, Field Department of the Eugene Fruit Growers' Association

Rates of 80 to 100 pounds of nitrogen per acre are needed in order to obtain the highest yield of table beets. Nitrogen is generally applied before planting, and when the cover crop is plowed under. Half of the nitrogen is applied during early season irrigation.

An application of phosphorus fertilizer is recommended for a starter effect in the spring when the soils are cold. Banded phosphorus applications also are important for early vigor of seedlings in combating the damping off. The farmers apply 60 pounds of phosphorus per acre in the form of superphosphate, banded one inch directly under the seed at planting time.[1]

Table beets are harvested by machine that digs, removes tops and loads in one operation. It is immediately trucked to the cannery where it is weighed. After weighing the loaded truck, the final figure is obtained by subtracting the weight of the unloaded truck.[2]

Carrots

Red Cored Chantenay is the variety of carrot grown for canning purposes in the canneryshed.[3] The method of seeding is to select planter setting and tractor speed to drop 10 to

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[1]Oregon State University, Cooperative Extension Service, Fertilizer Recommendation, Table Beets (Willamette Valley), FR 13 Revised March, 1962.

[2]Interview with Mr. Carl Robertson, Field Department of the Eugene Fruit Growers' Association.

[3]Interview with Mr. E. I. Pitkin, Manager of the Eugene Fruit Growers' Association.

12 seeds per foot of row. The farmers plant the seeds one-fourth to one-half of an inch deep. Carrots are planted from the middle of April to the middle of June. They are harvested from the beginning of October to the beginning of December.[1]

Irrigation is required by the cannery as the color of the carrots depends to some extent on the moisture in the soil.[2] Fertilizer is usually broadcast ahead of planting. It takes 100 pounds of nitrogen per acre. From 50 to 75 per cent of this amount is broadcast before planting, and the remainder is used at the first irrigation.[3] Carrots are harvested mechanically.

Sweet Corn

Golden Cross Bantam has replaced the early white kernel variety in the canneryshed.[4] The farmer's method of seeding is the drill method which makes the plants evenly distributed in the rows.[5] The amount of seed needed is from six to

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[1]Oregon State College, Andrew Duncan, W. Frazier, and H. Mack, "Oregon Vegetable Production Brief: Carrot", SP 18-40, January, 1960.

[2]Interview with Mr. S. Hurd, a carrot grower.

[3]Oregon State College, Duncan et al., op. cit., Carrot, SP 18-40, January, 1960.

[4]Interview with Mr. D. L. Hatch, the Lane County Agricultural Extension Agent.

[5]Interview with Mr. S. Hurd, a sweet corn grower.

eight pounds per acre. The average depth of planting sweet corn seed is about two inches.

The early sweet corn crop is planted in May. Planting is continued successively from the spring until the middle of June. It is harvested about 20 to 22 days following silking during the middle of August.[1] Irrigation is required by the cannery to provide the early maturity of the ears and a more uniform shape.[2]

For fertilization the farmers use 100 pounds of nitrogen per acre.[3] Part of it is banded at planting time with 60 to 75 pounds of phosphorus.[4] The remainder is applied before planting, or later in the season as a side-dressing. Sweet corn is harvested mechanically in the early morning or after sunset to avoid the heat during the day which causes mechanical injury to the soft corn. The crop is delivered to the cannery soon after being harvested.[5]

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[1]Oregon State College, Bouquet, "Growing Sweet Corn for Market and Manufacture", Extension Bulletin 706 (Corvallis, July 1950), p. 9.

[2]Interview with Mr. Carl Robertson, Field Department of the Eugene Fruit Growers' Association.

[3]Oregon State College, Cooperative Extension Service, Fertilizer Recommendations, Sweet Corn, (Willamette Valley), FR II, January 1958.

[4]Interview with Mr. D. L. Hatch, the Lane County Agricultural Extension Agent.

[5]Interview with sweet corn growers Mr. Hurd and Mr. L. B. Thomas.

Sweet Cherries

Royal Anne Sweet Cherries, or Napoleon, as it is known in Europe, is the variety grown in the canneryshed.[1] It is a large, vigorous, upright tree spreading with a moderately open top when mature. Royal Anne sweet cherries are primarily a canning and brining variety, which is fairly susceptible to cracking. Its full blossom occurs at the middle of April, and the cherries are harvested in the beginning of July. This variety is self-sterile, and cross pollination is necessary. It is pollinated by Van, Black Republican, Hoskins, and Corum.[2]

Soil management and fertilizer programs for orchards are different from those for vegetables, but it is the same in regard to a cover crop. Good winter cover crop controls winter soil erosion and provides a spring green manure crop. Irrigation is not necessary as the rainfall is adequate within the canneryshed.

Orchards of a 30 by 30 foot spacing with 48 trees per acre require about 100 pounds of actual nitrogen. Young orchards of 5 years old require one-fourth of a pound of nitrogen per tree to obtain the desired amount of new growth.

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[1] Interview with Mr. E. I. Pitkin, Manager of the Eugene Fruit Growers' Association, and a sweet cherry grower.

[2] Oregon State College, Agricultural Experimental Stations, Quentin B. Zielinski, Walter Mellenthin, and William Sistrunk, Sweet Cherries for Oregon, Station Bulletin 570 (Corvallis, June, 1959), pp. 3,14.

Old orchards that are from 35 to 40 years old require up to 2 pounds of actual nitrogen per tree. The age and vigor of the tree, together with the amount of terminal growth, determine the rate of applying nitrogen.[1]

The first harvest of a Royal Anne Sweet Cherry tree starts in its fourth or fifth year of age. The cherries are harvested in June just before they are fully colored.[2] They are then packed in wooden barrels filled with a bleaching and preserving solution made from sulphur dioxide and lime. After the bleaching period, the cherries are stemmed, sized, pitted mechanically, and graded manually in the cannery.[3]

Sour Cherries

Red Tart Montmorency is the sour cherry variety grown for canning in the canneryshed. The trees are spaced 22 to 25 feet in each direction. The Montmorency sour cherry tree begins bearing in its third or fourth year of age and it reaches maturity at the seventh or eighth year. Sour cherries are harvested between the middle and the end of July.

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[1]Oregon State College, Cooperative Extension Service, Fertilizer Recommendation, Sweet Cherries (Willamette Valley), FR 25, January 1959.

[2]Interview with sweet cherry growers Mr. C. Maughan and Mr. E. I. Pitkin.

[3]Eugene Fruit Growers Association, Tour Aide, p. 4.

Both sour and sweet cherries are hand picked. Mechanical harvesting, which started in Michigan, is used on an experimental basis in this canneryshed.[1]

Strawberries

The Northwest variety is the standard variety grown in this canneryshed.[2] This variety, from Washington, was introduced to Oregon in 1949. Northwest has largely replaced the Marshall variety as it is more tolerant to virus diseases. Its season is later than the Marshall variety by 5 to 7 days and it is less affected by early frosts.[3]

The costs of production have risen in recent years along with the price of land. Profitable strawberry production is obtained when yield per acre is high. Competition from other area, in particular from areas of high yield per acre, is becoming more acute. Yields of at least 4 tons per acre must be obtained in order to be profitable under the present average costs of production.[4]

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[1]Interview with Mr. Hatch, the Lane County Agricultural Extension Agent.

[2]Interview with strawberry growers Mr. J. Dyksterhuis and Mr. D. Reetz.

[3]Oregon State University, Federal Cooperative Extension Service, Strawberry Growing in Oregon, Extension Bulletin 748, (Corvallis, 1957), p. 8.

[4]Ibid., p. 4.

The farmers within the canneryshed use young plants for planting strawberries. It takes about 10,000 plants per acre. They are spaced each 12 inches in the row. The rows are 42 inches apart. It is preferable to plant strawberries during periods of cool, moist weather. The farmers plant strawberries from the beginning of April until the end of May. The crop is harvested from the beginning to the middle of June of the following year.[1]

Irrigated berries are 25 to 100 per cent larger than the non-irrigated ones, and an average increase in yield of 91.5 per cent is obtained.[2] Irrigation during summer stimulates the growth of the strawberries and helps to produce a good crop in the following year. Irrigation is practiced at intervals of two weeks to one month until the beginning of the fall rain.[3] The amount of irrigation depends upon the weather conditions. Strawberries grow in a wide range of soil types and under various conditions, but the best yields are obtained on deep, fertile, well-drained soils of high moisture-holding capacity.

The preparatory soil treatment for strawberries usually involves the use of manure for organic matter and of a cover

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[1]Interview with Mr. J. Dyksterhuis, a strawberry grower.

[2]Oregon State University, Federal Cooperative Extension Service, Strawberry Growing in Oregon, Extension Bulletin 748 (Corvallis, 1957), p. 17.

[3]Ibid.

crop, adding a nitrogen fertilizer, such as ammonium sulfate or ammonium nitrate, aids materially in the decomposition of refuse. Rates of 100 pounds of actual nitrogen are effective in the decomposition of this material. The cover crops are legumes--such as vetch or Austrian field peas sown in combination with rye, oats or barley. These are usually sown in late summer or early fall and turned under in the spring.[1]

Strawberries are hand picked during the cool part of the day. All types of berries are softer when they are warm than when they are cool. Less mechanical injury is likely to occur if they are picked in the early morning. Strawberries are picked and put in carriers which hold 6 one-pound boxes. These are kept in the packing or the assembly shed until they are trucked.[2]

Blackberries

Marion Blackberry has been most extensively tested in Marion County. It meets the needs of small fruit industry not fully met by Thornless Evergreen and Boysen varieties. Marion Blackberry has an earlier harvesting season than

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[1] Ibid., pp. 5-6.

[2] Interview with Mr. J. Dyksterhuis, a strawberry grower.

Evergreen blackberry, and more yields than Boysen variety. The fruit quality of Marion blackberry has been superior to that of both other varieties.[1]

The farmers plant the small Marion Blackberry 9 to 10 feet apart in the row. The rows are separated by 9 feet. Marion Blackberry is planted during the first three weeks of April. In the following year the roots spread rapidly to occupy nearly all the soil area between plants. The harvest starts on the middle of July of the second year. Full crop is obtained on the fourth year of age. The plant may last for 10 years or more, depending upon its vigor.

Irrigation is necessary during the summer, especially when it is dry. The farmers irrigate Marion Blackberry before and after the picking season, and once more before the fall rains. For fertilization the farmers use 130 pounds per acre of nitrogen, and 170 pounds per acre of phosphorous.

The vines of the blackberries are supported by posts. They are set 25 feet apart in the row. Two different levels of wires are supporting the vines; one is 2 feet high and the other is 5 feet. Marion Blackberries are hand picked. The farmers pay the pickers between 4 and 5¢ a pound. The berries are delivered to the cannery as soon as they are picked.[2]

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[1]Oregon State College, Agricultural Experiment Station, George F. Waldo, the Marion Blackberry, Circular of Information 571 (Corvallis, February, 1957).

[2]Interview with Mr. T. Chase, a Marion Blackberry grower.

Specific Characteristics of Some Farms Within the Canneryshed

To the east of Junction City, three farmers, members of the Eugene Fruit Growers' Association, were visited. Their farms are to the west of the Willamette River. Mr. W. Peterson's farm is to the northeast of Junction City. It is to the east of Dane Lane and to the southeast of the Southern Pacific Railroad. South of this farm and west of Love Lake Road is Mr. J. Hentze's farm. Further east and closer to the Willamette River is the farm of Mr. A. Bodker. All three farms were surveyed by the Soil Conservation Service in Junction City.

Mr. W. Peterson's farm is found on the Eugene Quadrangle Topographic Sheet, Oregon 15 Minute Series, section 28 of Township 15 South, Range 4 West. The elevation is between 320 and 321 feet with the general trend of the slope being toward the northwest.[1] Figure 28 shows that Chehalis, Camas, Maytown, and Newberg are the soils found in this field.[2] The soil texture is silty clay loam with a ph of 6.6[3]

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[1]Oregon 15 Minute Series Topographic Sheet.

[2]United States Department of Agriculture, Soil Conservation Service in Junction City, Oregon.

[3]Soil test done by the author.

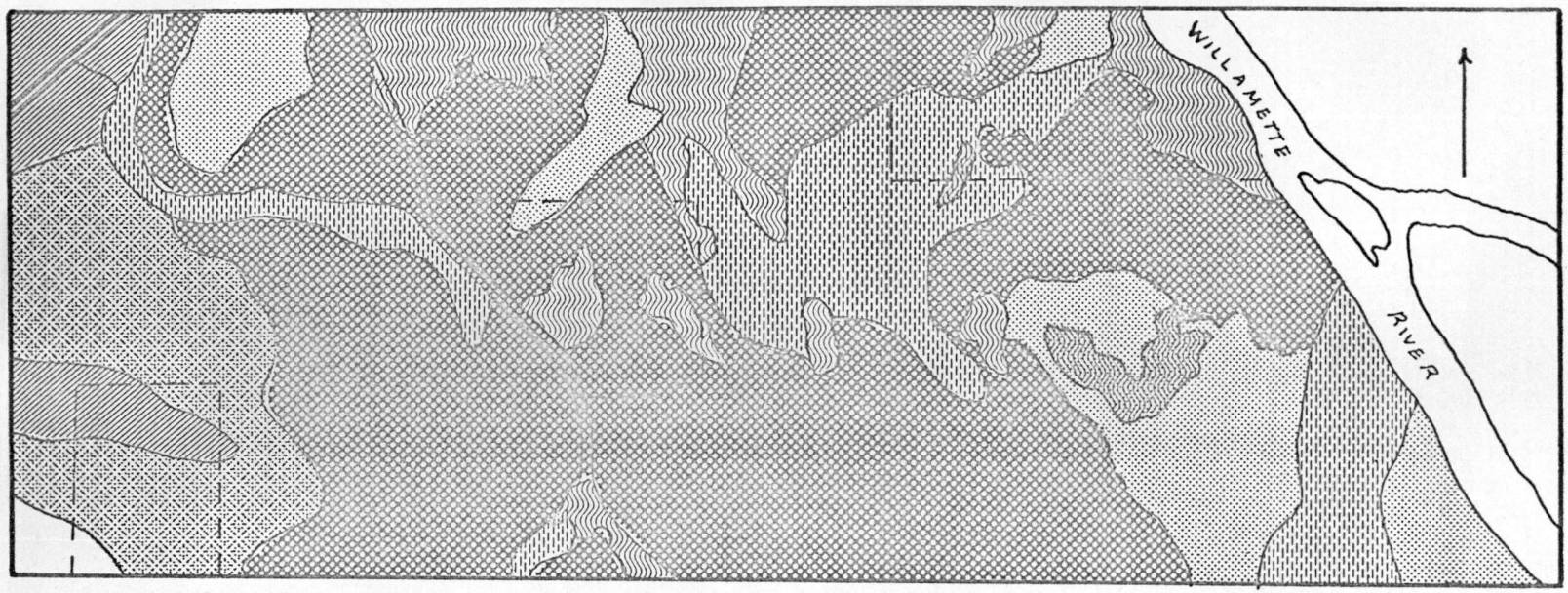

Figure 28 SOILS OF THE PETERSON FARM
NORTHEAST OF JUNCTION CITY
SCALE: 4" = 1 MILE

CAMAS
CHEHALIS
NEWBERG
MAYTOWN
SALEM
WILLAMETTE
FARM BOUNDARY

SOURCE: SOIL CONCERVATION DEPARTMENT IN JUNCTION CITY

In this farm Mr. W. Peterson grows 35 acres of table beets and 55 acres of sweet corn. He uses Brome grass and Crimson clover as a cover crop. The yield is 16 tons per acre of the table beets, and 6.5 tons per acre of the sweet corn. The crop is delivered to the Eugene Fruit Growers' plant in Eugene soon after being harvested.[1]

The farm of Mr. J. Hentze is found on the Eugene Quadrangle as parts of sections 32 and 33 of Township 15 South, and Range 4 West. The elevation is about 325 feet.[2] Willamette Soil is in most of the western part of the field. A small area of Salem soil is found to the west, while Chehalis is found in most of the eastern parts. Maytown soil occupies an old channel in this field. Camas soil is found in a small area in the east as shown by Figure 29.[3] The soil texture is sifty clay loam with a ph of 6.6[4]

Mr. J. Hentze has 30 acres of Blue Lake beans, 19.5 acres of sweet corn, 14 acres of Royal Anne Sweet Cherries, and 9 acres of Red Tart Sour Cherries. Thirty-two acres of this farm are rented for $50 a year per acre. He sells the beans to the California Packing Company in Salem, whose

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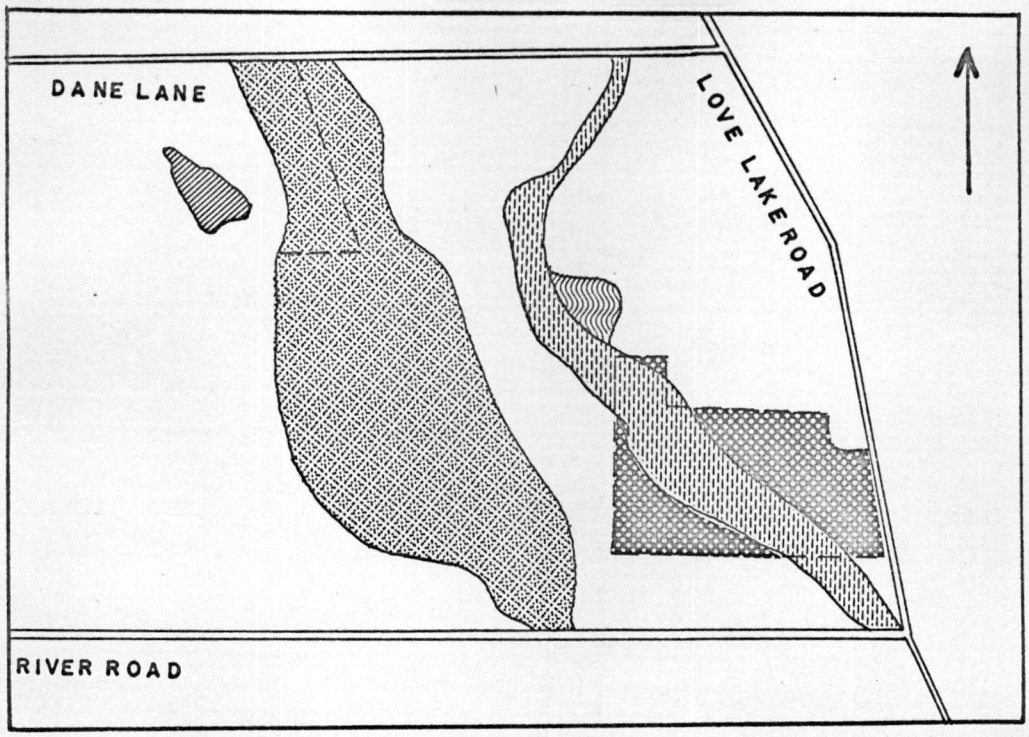
[1]Interview with Mr. W. Peterson, a truck farmer.

[2]Oregon 15 Minute Series Topographic Sheet.

[3]United States Department of Agriculture, Soil Conservation Service in Junction City.

[4]Soil test done by the author.



SOILS OF THE HENTZE FARM
EAST OF JUNCTION CITY

CAMAS
CHEHALIS
MAYTOWN
SALEM
WILLAMETTE
— — FARM BOUNDARY

SCALE 4" = 1 MILE

SOURCE: SOIL CONCERVATION DEPARTMENT IN JUNCTION CITY

FIGURE 29

agent receives the crop in Junction City. The other crops are trucked to the Eugene Fruit Growers' plant in Eugene.

The water is pumped to the sprinkler system from a well 28 feet deep. The beans are irrigated every 9 days and the sweet corn every 10 days, depending upon the weather conditions. For a four year crop rotation period, he alternates beans with sweet corn. On the fifth year he plants grain such as barley. The yield is 9 tons per acre of beans, 6.5 tons of the sweet corn, 3.5 tons of the sweet cherries, and 5 tons of the sour cherries.[1]

Mr. A. Bodker's farm is found on the Eugene Quadrangle in section 34 of Township 15 South, and Range 4 West. The elevation is about 325 feet.[2] Figure 30 shows that Newberg soil occupies most of the field, leaving a very narrow belt of Chehalis soil to the north.[3] The soil texture is silty clay loam with the ph of 6.4.[4]

Mr. A. Bodker has 20 acres of Blue Lake beans, and two Royal Anne Cherry trees. Among his agriculture techniques is the use of barley or clover as a cover crop. For crop rotation, he alternates corn and beans with alfalfa

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[1]Interview with Mr. J. Hentze, a fruit and vegetable grower.

[2]From Oregon 15 Minute Series Topographical Sheet.

[3]United States Department of Agriculture, Soil Conservation Service in Junction City, Oregon.

[4]Soil test done by the author.

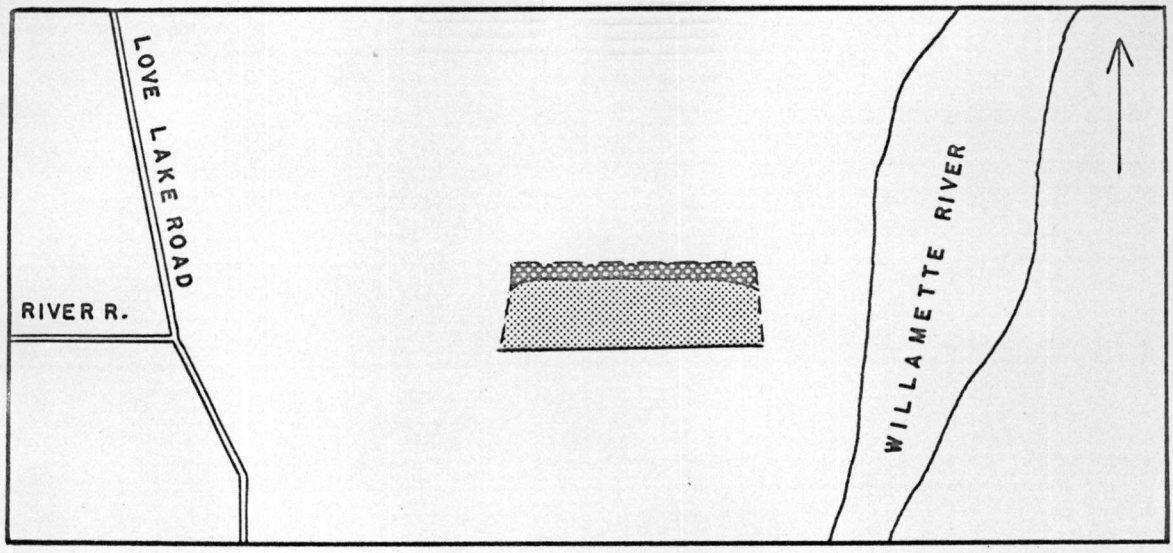

FIGURE 30

SOILS OF THE BODKER FARM
EAST OF JUNCTION CITY

CHEHALLIS
NEWBERG

SCALE: 4" = 1 MILE

SOURCE: SOIL CONSERVATION DEPARTMENT IN JUNCTION CITY

every fourth or fifth year. The corn he grows is used to feed his dairy cattle. The yield of the beans is 9 tons per acre. He gets about $100 for the crop of his two cherry trees.[1]

To the southeast of Junction City and to the south of Marshall Island is the farm of Mr. D. Reetz. Maple Drive road connects it with River Road to the west. The Willamette River borders this farm from the eastern side. On the Eugene Quadrangle, the field occupies a part of Section 23, Township 16 South, and Range 4 West. The elevation is 350 feet for the most part of the field. The general trend of the slops is toward the east and the northeast. The elevation of the eastern part, close to the river, is 345 feet.[2]

This field has been surveyed by the Soil Conservation Service in Junction City. Chehalis silt loam soil extends from the northwestern to the southern and the southeastern parts of the field. Newberg silt loam soil is found in a small area in the western part. Newberg sandy loam soil is found close to the river and occupies most of the north and northeastern parts, as shown by Figure 31.[3] A soil test

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[1]Interview with Mr. A. Bodker, a fruit and vegetable grower.

[2]Oregon 15 Minute Series Topographic Sheet.

[3]United States Department of Agriculture, Soil Conservation Service in Junction City, Oregon.

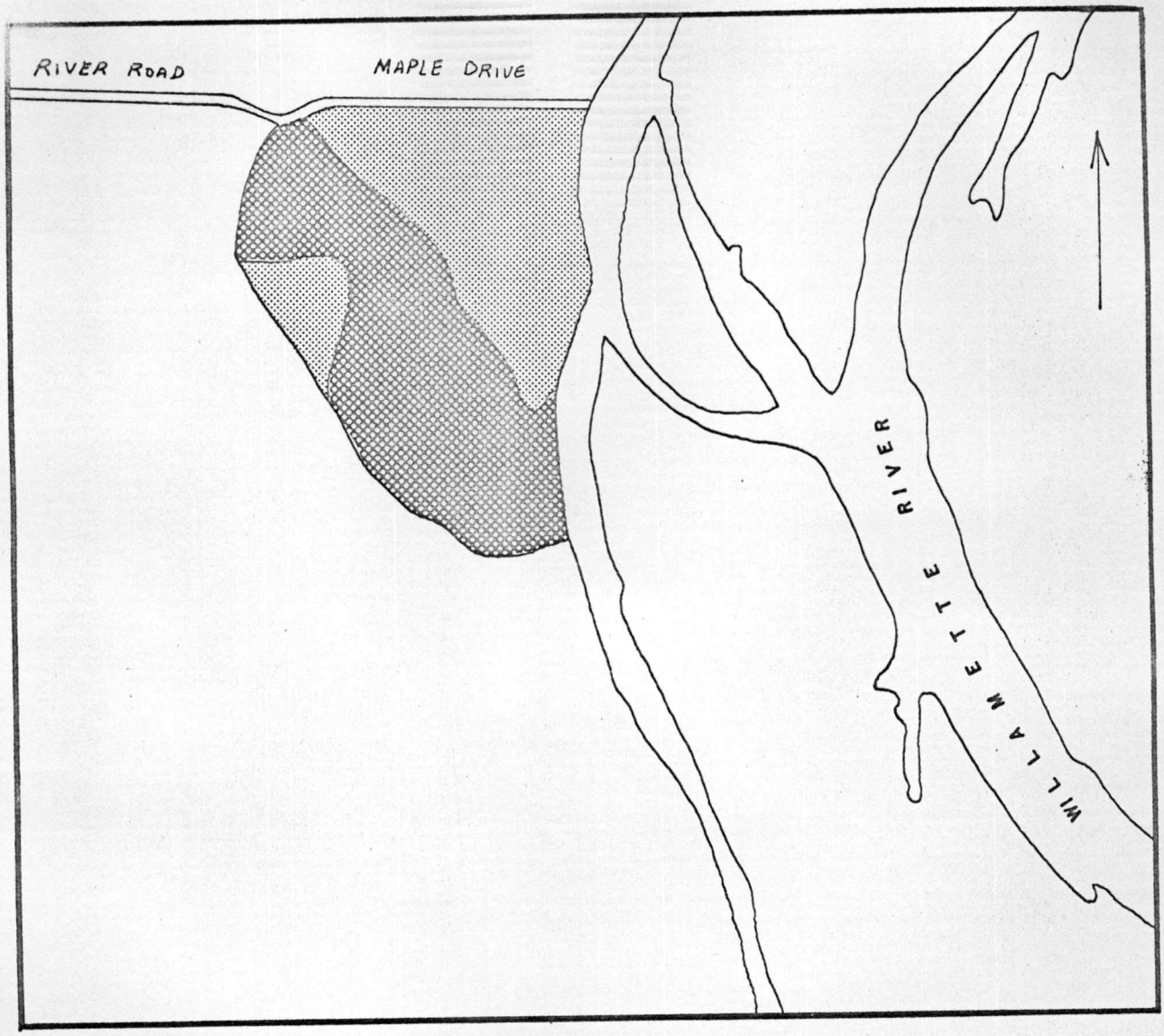

FIGURE 31 SOILS OF THE REETZ FARM
SOUTH EAST JUNCTION CITY

CHEHALIS.
NEWBERG.

SCALE : 8" = 1 MILE

SOURCE : SOIL CONCERVATION DEPARTMENT IN JUNCTION CITY

has been made by Oregon State University. The ph of the samples taken were 6.2 and 6.3.[1]

This farmer grows 20 acres of strawberries, and 16 acres of Blue Lake pole beans. A rye grass cover crop is planted in the fall, and turned under in the spring as a soil nutrient. The farmer is going to try subsoiling, and as long as he thinks this practice is beneficial he will use it as a yearly practice. This involves loosening the soil below the depth of the tillage without inversion, and with the minimum mixing of the soil.

Mr. D. Reetz had the highest yield of strawberries in Lane County for the year 1961, which was 5 tons per acre.[2] The cool summer of 1962 contributed to the better yield that reached 6.1 tons per acre. For the beans, the yield is about 10 tons per acre. He sells the strawberries to the Web-Coe Fruit Processing Inc. in Creswell, and the beans to the California Packing Company in Salem.[3]

To the northwest of Coburg is Mr. J. Christensen's farm. Coburg-Harrisburg Road is to the north and the northwest, Lane Turn Road passes through the eastern part of the farm, and the McKenzie River is further south. This farm

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[1]Oregon State University, Corvallis, Oregon, Agricultural Extension Service, Lane County.

[2]Interview with Mr. D. L. Hatch, Lane County Agricultural Extension Agent, Eugene, Oregon.

[3]Interview with Mr. D. Reetz, a fruit and vegetable grower.

is found on the Eugene Quadrangle, Sections 29 and 32 of Township 16 South, and Range 3 West. The elevation is between 380 and 385 feet for the most parts of the field. In the northern part the elevation reaches 390 feet.[1]

The area of the field with the highest elevations forms a part of one of the McKenzie terraces. The lowest elevations form a part of the Mill Slough Channel. Old cleared channels separate the crop lands as shown by the air photograph in Figure 32. Local relief, soil differences, and the use of mechanical agriculture are the main reasons for excluding these low channels from the crop land.

This farm has been surveyed by the Soil Conservation Service in Harrisburg. Figure 33 shows that Chehalis soil is dominant in this field. Woodburn soil is found in the northern part, while Camas soil is found in small areas to the southeast, and the southwest.[2] A soil test has been made by Oregon State University. The ph of the soil from the samples tested were 5.8, 5.3, and 5.6.[3]

Mr. J. Christensen has 50 acres of sweet corn, 35 acres of table beets, and 12 acres of carrots. The yield is 6 tons per acre of the sweet corn. It is 12 tons of the early

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[1]Oregon 15 Minute Series Topographic Sheet.

[2]United States Department of Agriculture, Linn-Lane Soil Conservation District, Soil Conservation Service in Harrisburg, Oregon.

[3]Oregon State University, Corvallis, Oregon, Agricultural Extension Service, Lane County.

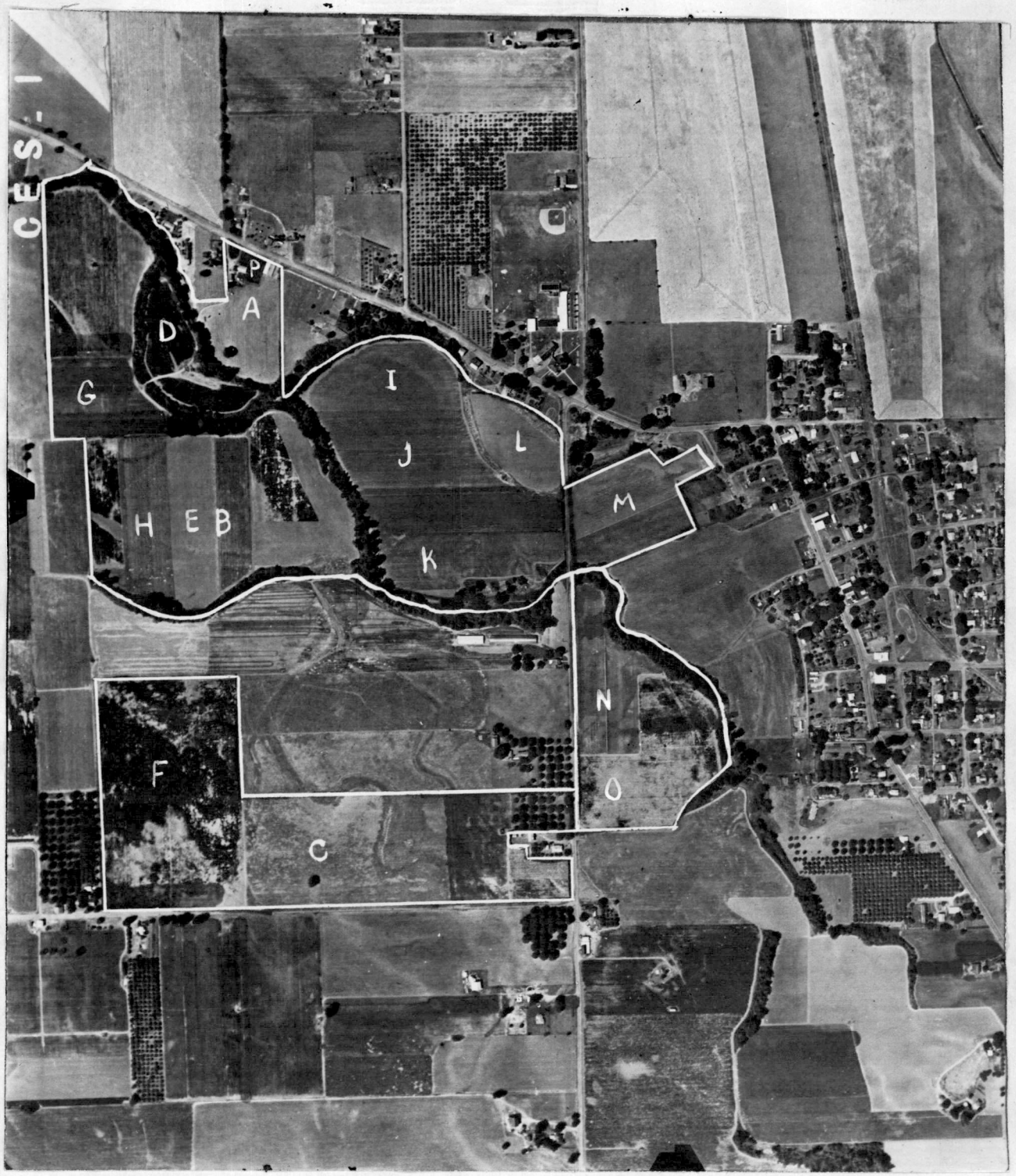

Figure 32 - 1961 Air Photograph Showing Mr. J. Christensen's Farm Northwest of Coburg (Scale 6.6 inches = one mile). A. Alfalfa; B. Sweet Corn 16 acres; C. Sweet Corn 27 acres; D. Beets 3 1/2 acres; E. Alfalfa; F. Mint 19 acres; G. Mint 15 acres; H. Beets 3 acres; I. Mint 6 acres; J. No crop; K. Carrots 7 acres; L. Sweet corn 3 acres; M. Beets 8 acres; N. Sweet Corn 13 acres; O. Carrots 5 acres; P. Homestead.

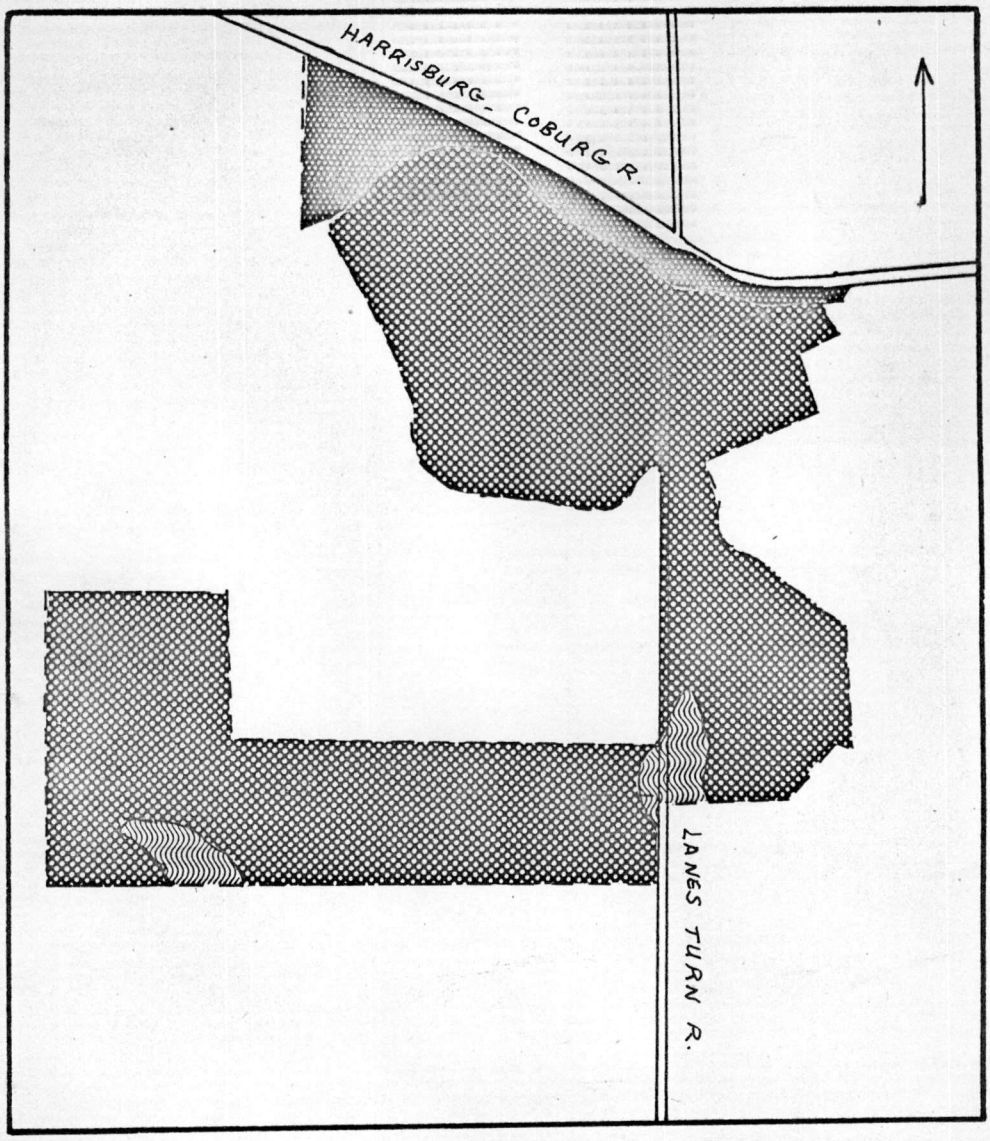

FIGURE 33

SOILS OF THE CHRISTENSENS FARM N.W. COBURG

CAMAS
CHEHALIS

FARM BOUNDRY BEFORE 1961

SCALE: 6·6" 1 MILE

SOURCE SOIL CONSERVATION DEPARTMENT IN HARRISBURG

table beets, and from 25 to 30 tons of the regular table beet crop. Carrots yield from 20 to 30 tons per acre. Mint is planted in this farm, and is being rotated in the following year by table beets. This technique in crop rotation accounts for the high table beets yield.[1]

Three of the farms visited are to the south of Coburg. They belong to close neighbors; Mr. R. Stolsig who sells to Dole Corporation in Salem, and Mr. S. Hurd and Mr. L. B. Thomas are members of the Eugene Fruit Growers' Association. Their farms are shown on the Eugene Quadrangle in Section 33 of Township 16 South, and Range 3 West. Interstate Highway 5 and the Coburg Ridge are to the east of these fields.

The elevation is between 390 and 395 feet. The general trend of the slops is to the west.[2] These fields were surveyed by the Soil Conservation Service in Harrisburg. The soil in the most part of the fields is Chehalis, except for the east part of Mr. Hurd's and Mr. Stolsig's farms, in which the Willamette soil is found as shown by Figure 34.[3] The ph of the soil is 7.[4]

Mr. Stolsig has 27 acres of Blue Lake FM-I-K beans. The yield is 10 tons per acre. Among his agricultural

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[1]Interview with Mr. J. Christensen, a truck farmer.

[2]Oregon 15 Minute Series Topographic Sheet.

[3]United States Department of Agriculture, Linn-Lane Soil Conservation District, Soil Conservation Service in Harrisburg, Oregon.

[4]Soil test done by the author.

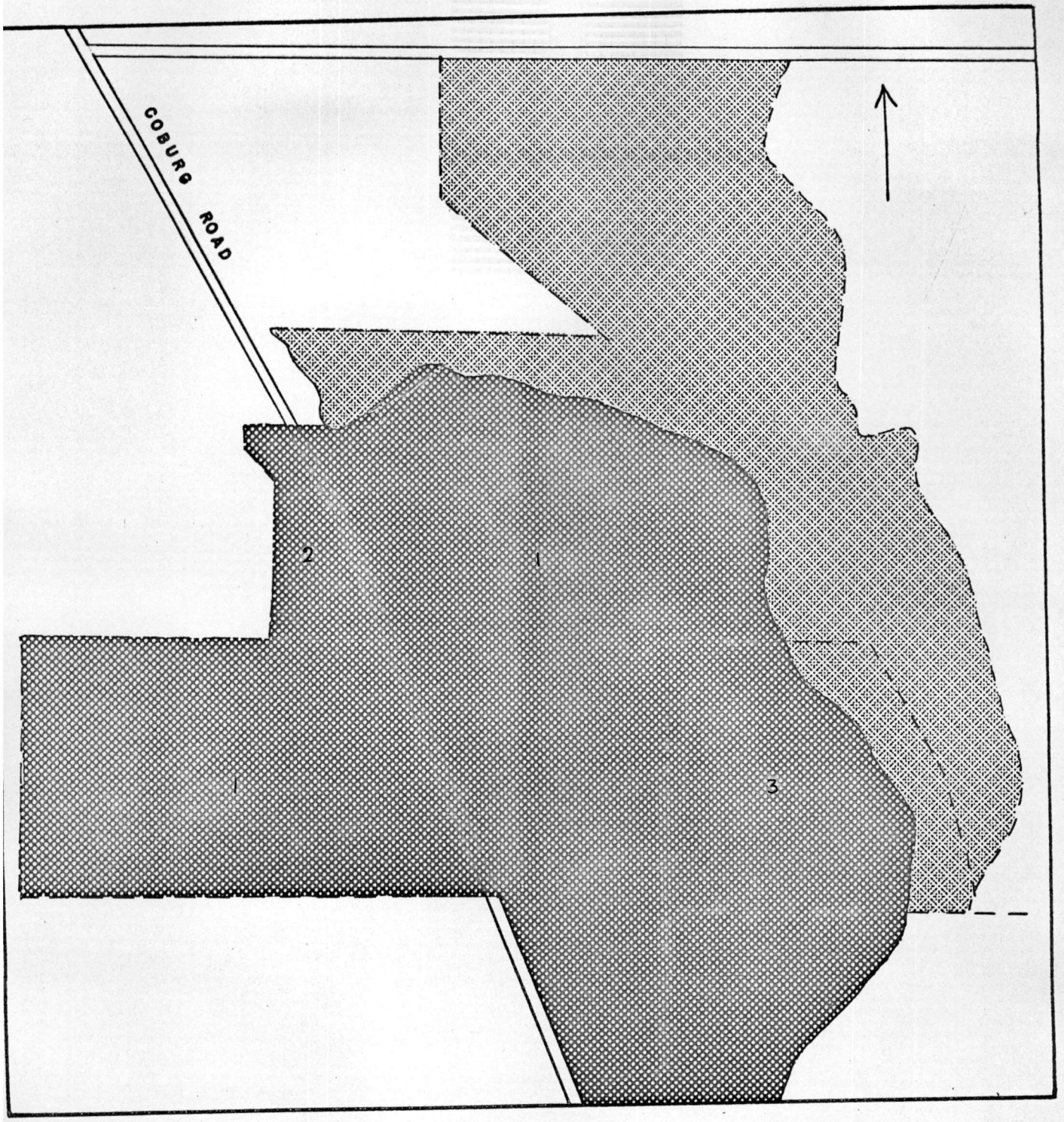

FIGURE 34

SOILS OF THE S. HURD, L.B. THOMAS, & R. STOLSIS FARMS N.W. COBURG

NO.: 1 2 3

CHEHALIS

WILLMETTE

-- FARM BOUNDRY

SCALE: 8" = 1 MILE

SOURCE: SOIL CONSERVATION DEPARTMENT IN HARRISBURG

techniques are planting rye grass as a cover crop, and irrigating once before blossoming and every four days thereafter, depending upon the weather conditions. He uses ammonium nitrate for fertilization at blossoming time and after the third picking. After harvesting, he trucks the crop to Glenwood, between Eugene and Springfield, where it is received by the Dole Cannery agent.[1]

Mr. S. Hurd has a farm 160 acres for growing vegetables. He plants 100 acres of sweet corn, 35 acres to table beets, and 25 acres of carrots. Sweet corn and table beets are planted twice each season. A period of six weeks separates the early crop from the regular one. The average yield for Mr. Hurd's sweet corn is 6 tons per acre. For table beets and carrots the average yield is between 26 and 30 tons per acre. The early table beet crop yields between 12 and 15 tons per acre, which is about half the yield of the main crop.[2]

Mr. L. B. Thomas has a 15 acre corn field to the west side of Coburg road. This farm extends west to the Mill slough, which is bordered by some vine maple and poplar trees. The yield of his corn is between 4 and 5 tons per acre. He pays $3.50 per ton for harvesting, and $2 for delivering the crop to the Eugene Fruit Growers' Association plant in Eugene.[3]

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[1]Interview with Mr. R. Stolsig, a truck farmer.

[2]Interview with Mr. S. Hurd, a truck farmer.

[3]Interview with Mr. L. B. Thomas, a sweet corn grower.

To the southwest of Coburg, and west of Coburg Road is the farm of Mr. Dyksterhuis. It is to the east of Coburg Bottom South Road, and to the north of the McKenzie River. This farm is found on the Eugene Quadrangle, Section 5 of Township 17 South, and Range 3 West. The elevation is about 390 feet.[1] The principal crops being grown are beans and strawberries. This farm was surveyed by the Soil Conservation Service in Harrisburg.

Most of the soils in this farm have an effective depth of less than sixty inches with a medium texture topsoil, as shown by Figure 35A. A soil test with a fertilization recommendation has been made for this farm by Oregon State University through Lane County Agricultural Service in Eugene. The ph of the soil samples taken were 5.8, 6.0, 6.1, and 6.2.[3] Chehalis soil is found in the most parts of the farm. Newberg and Camas soils are mainly in the east and the west parts as shown by Figure 35B.

The five fields shown by the land use Figure 35C are to be planted with soil building crops a minimum of one-third of the time by rotating the crops. Fields 2, 3, and 5 are subject to overflow and erosion; therefore, they are

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[1]Oregon 15 Minute Series Topographic Sheet.

[2]United States Department of Agriculture, Linn-Lane Soil Conservation District, Soil Conservation Service in Harrisburg, Oregon.

[3]Oregon State University, Corvallis, Oregon, Agricultural Extension Service, Lane County.

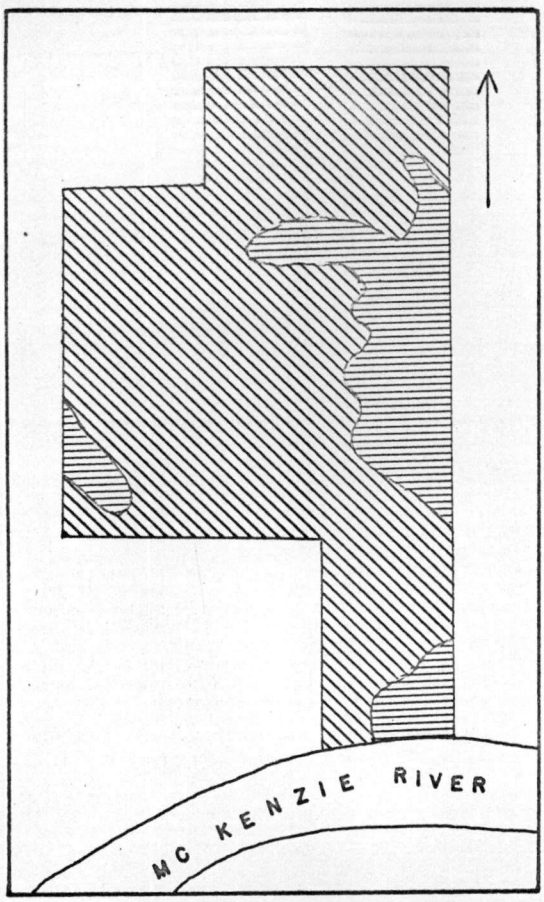

FIGURE 35 A SOIL TEXTURE

OF THE DYKSTERHUIS FARM

MEDIUM
LIGHT

SCALE : 8" = 1 MILE

SOURCE : SOIL CONCERVATION DEPARTMENT

IN HARRISBURG

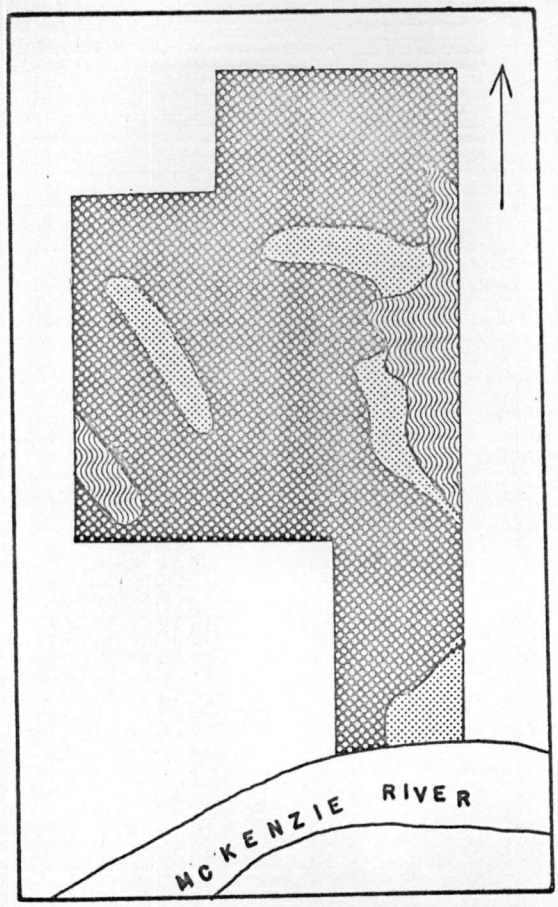

FIGURE 35 B SOILS OF

THE DYKSTERHUIS FARM

CAMAS
CHEHALIS
NEWBERG

SCALE: 8" = 1 MILE

SOURCE : SOIL CONCERVATION DEPARTMENT IN HARRISBURG

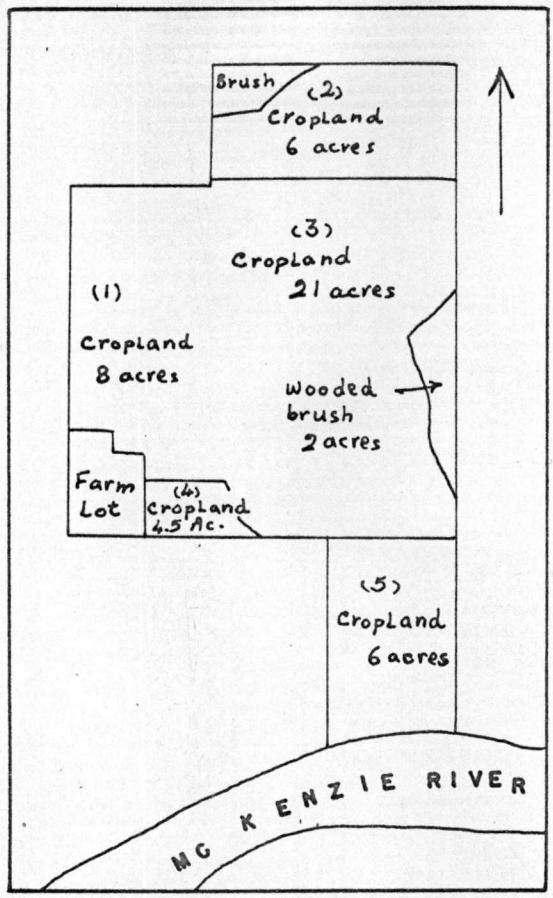

FIGURE 35 C LAND USE

OF THE DYKSTERHUIS FARM

SCALE : 8" = 1 MILE

SOURCE : SOIL CONCERVATION DEPARTMENT

IN HARRISBURG

maintained in cover crops during the winter months and later plowed under during the spring. A water-way construction between fields 1 and 3 was planned. This is to remove the bushes, reshape the existing water-course, and seed the permanent sod. The two acres of wooded brush to the east of the map were recommended to be cleared.[1]

Mr. J. Dyksterhuis sells to Albany Stokeley-Van Camp Cash Cannery. He has 30 acres of bush beans, and 12 acres of strawberries. The yields are 2 to 4 tons per acre of the bush beans, and 4 to 5 tons per acre of strawberries. After harvesting, he trucks the crop to the cannery in Albany. They pay him $5 per ton for the transportation of the strawberries, but nothing for the beans. The contract between this cannery and the growers fixes the price, which is $140 per ton for beans no. 1, and $67 for no. 4.[2]

West of Eugene, two fruit growers were visited. Their orchards are on Bailey Hill and bordered from the north by Bailey Hill Road. Warren Street is to the east, and Louis Lane is to the west. These orchards are found on the Eugene Quadrangle in Section 3 of Township 17 South, Range 4 West. The elevation is between 450 and 580 feet, with a moderate slope in the northwestern portion and a gentle slope in the

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[1]United States Department of Agriculture, Linn-Lane Soil Conservation District, Soil Conservation Service in Harrisburg, Oregon.

[2]Interview with Mr. J. Dyksterhuis, a fruit and vegetable grower.

southeastern portion.[1] The soil is Melbourne reddish-brown clay loam.[2] The ph of the samples taken were 6.6 and 6.4.[3]

Mr. C. Maughan's orchard is seven acres. Two and a half acres are planted with 100 Red Tart Montmorency cherry trees which are twelve years old. He has 4.5 acres of Royal Anne Sweet Cherries[4], which are much older and were planted without regular spacing. The slope is about 5% in the area where the sweet cherries stand, and about 8% where the Red Tart cherry orchard is found.[5]

Irrigation is not necessary, as the rainfall is adequate. Good drainage is provided by the slope of the hillside. Mr. C. Maughan does not use any cover crop. The different operations done through the whole season are: disking, fertilizing, and spraying. He uses ammonium phosphate sulphate 16-20-0 before it rains. For insect control he sprays with D.D.T.

The yield of the Red Tart cherry is 4.4 tons per acre. For the Royal Anne Sweet cherry it is 5.7 tons per acre.

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[1]Oregon 15 Minute Series Topographic Sheet.

[2]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925, (U. S. Government Printing Office, 1930).

[3]Soil test done by the author.

[4]Interview with Mr. C. Maughan, a fruit grower.

[5]Derived from the elevation figures on the Oregon 15 Minute Series Topographic Sheet and my field observations.

During the harvest season of the sweet cherries he hires twenty pickers for six days; for the sour cherries, twenty-two pickers are needed for five days. He pays the picker 4¢ per pound for the sweet cherries, and 1.5¢ for the sour cherries.[1]

Mr. E. I. Pitkin is a close neighbor to Mr. C. Maughan. Three acres of the Royal Anne Sweet cherries, and 3.5 acres of the Italian prunes form the orchard of Mr. Pitkin. The prune trees are about fifty years old.[2] Each is spaced twenty-two feet from the other, while for the cherry trees it is twenty feet. For most of the orchard the slope is 5% with a small portion of the prune grove having about 6.2% in slope.[3]

He uses rye grass or vetch or Crimson clover as a cover crop. The other operations done are fertilizing in February, turning the cover crop under in April, disking in June and spraying the orchard. The yield is 7 tons per acre of the sweet cherries and between 5 and 6 tons of the prunes. Applying a cover crop contributes to this high yield.

During the harvest season twelve pickers work for a week. The crop is trucked to the cannery twice a day. From these 6.5 acres he gets $1,000 in some years, while in some others he may have a loss from $25 to $500. Tariff exemption on

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[1]Interview with Mr. C. Maughan, a fruit grower.

[2]Interview with Mr. E. I. Pitkin, a fruit grower.

[3]Derived from the elevation figures on the Oregon 15 Minute Series Topographic Sheet and field observations.

imported prunes from France and Italy caused a serious competition to the local production. The market for Oregon cherries in the East Coast faces a price competition with those from Michigan and New York, since the latter do not have the high shipment costs.[1]

Mr. T. Chase and his son-in-law Mr. L. Whiteaker share in planting two farms, one in Eugene and the other to the southeast of Springfield. The Eugene farm is located to the north of the Willamette River and to the southeast of Dedrick Slough. It is found in the Eugene Quadrangle, Section 29 of Township 17 South and Range 3 West. The elevation is about 415 feet.[2] The surface of the field is almost flat. The soil in the northern part of the field is Chehalis silty clay loam. Close to the river in the souther part of the field, the percentage of the fine sand particles increases, and Chehalis sandy loam soil is found.[3]

On this field they grow 42 acres of Pole Snap beans and 1.5 acres of Marion Blackberries. The yield is from 8 to 10 tons per acre for the beans, and 5 tons per acre for the Marion Blackberry.[4] The Eugene-Springfield Highway,[5]

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[1]Interview with Mr. E. I. Pitkin, a fruit grower and Manager of the Eugene Fruit Growers' Association.

[2]Oregon 15 Minute Series Topographic Sheet.

[3]United States Department of Agriculture, Bureau of Chemistry and Soil in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925, (U. S. Government Printing Office, 1930).

[4]Interview with Mr. T. Chase and Mr. L. Whiteaker, fruit and vegetable growers.

[5]Information from Highway Department Engineers in Eugene.

under construction, or the Q Street Extension, as it is being called by the people, passes through the southern part of the field. It has changed the cultural landscape, as well as reduced the area of the fine sandy loam soil by taking 17 acres off this field.[1]

Their other farm to the southeast of Springfield is bordered by Jasper Road and Southern Pacific Railroad from the north and the east. The Middle Fork Willamette River is to the south. A power line crosses the field and forms a part of its cultural landscape. This farm is in the Marcola Quadrangle, Section 4 of Township 17 South and Range 2 West. The elevation is between 485 and 490 feet.[2]

The higher elevation of the field close to the road forms a part of the river terrace. The lower elevation shown by the air photograph Figure 36 marks an old channel that ran through the field. The river, meandering in this area, explains the differences in the soil texture within the field. The ph of the soil is 7.[3] Close to the terrace the soil is Newberg fine sandy loam, while close to the river it is Chehalis fine sandy loam.[4] The percentage of the sand

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[1]Interview with Mr. L. Whiteaker.

[2]Oregon 15 Minute Series Topographic Sheet.

[3]Soil test done by the author.

[4]United States Department of Agriculture, Bureau of Chemistry and Soils in Cooperation with the Oregon Agricultural Experiment Station, Soil Survey of the Eugene Area, Oregon, Number 33 Series 1925 (U. S. Government Printing Office, 1930).

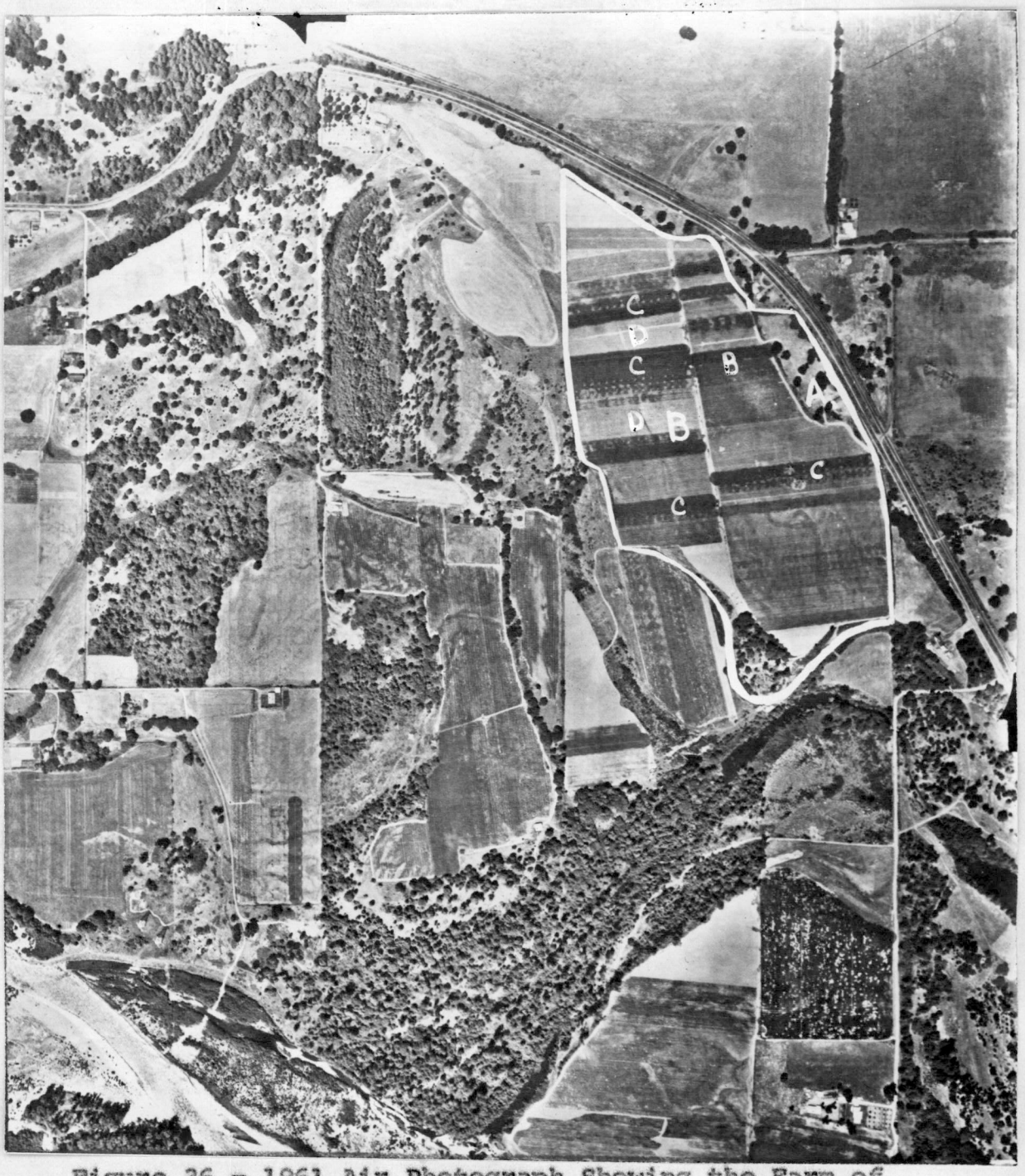

Figure 36 - 1961 Air Photograph Showing the Farm of Mr. T. Chase on Jasper Road Southeast of Springfield. (Scale 6.6 inches = one mile) A. Homestead; B. Bush Snap Beans 19 acres; C. Pole Snap Beans 20 acres; D. Table Beets 20 acres.

increases in the southern part of the field, which is close to the sand bars along the river. Mr. T. Chase mentioned that he planted beans on the porous sandy soil, but the plants died. Therefore, this sandy area was left as wasteland.

The cropland consists of twenty acres of table beets, 20 acres of pole snap beans, and 19 acres of bush snap beans. In 1961 they had 40 acres of yellow wax beans. The Eugene Fruit Growers' Association did not process wax beans for the year 1962, as they produced more than the demand in the previous year. For a cover crop the farmer uses rye grass or legumes such as vetch.

The water is pumped from the river to the sprinkler system for irrigation. The yield of the table beets is 20 tons per acre. For the pole snap beans, it is between 8 and 10 tons per acre. The yield of the bush snap beans is between 4 and 6 tons, and of the yellow wax beans is between 3.5 and 4 tons.[1]

Southeast of Goshen and northeast of Pleasant Hill is Mr. R. Stafford's farm. It is to the west of the Coast Fork Willamette River, and to the north of Highway US 58. This farm is found on the Lowell Quadrangle Section 19 of Township 18 South, and Range 2 West. The elevation is between 439

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[1]Interview with Mr. T. Chase, a truck farmer and a grower on the Board of Directors of the Eugene Fruit Growers' Association.

and 441 feet, with the general trend of the slope being towards the north.[1]

Map Figure 37 shows that Chehalis and Camas are the dominant soils in the field. Newberg soil is found in small areas in the southwestern and in the eastern parts. The texture of the soil is clay loam, except close to the river where sandy loam is found.[2] The ph of the soil is 6.4.[3] This field was surveyed by the Upper Willamette Soil Conservation District, Soil Conservation Service in Eugene.

Mr. R. Stafford has 40 acres of sweet corn, 20 acres of carrots, and 15 acres of pole beans. His father was a member of the Eugene Fruit Growers' Association. Since Mr. R. Stafford inherited the land he has sold to the Dole Corporation in Salem. He uses barley or rye grass or clover as a cover crop. The yield is 7 tons per acre of the sweet corn, 25 tons of the carrots, and 13.5 tons of the beans. These crops are trucked to Glenwood, between Eugene and Springfield, where it is received by the Dole Cannery agent.[4]

In summary, the crops grown within the canneryshed discussed are: pole snap beans, bush snap beans, table beets,

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[1]Oregon 15 Minute Series Topographic Sheet.

[2]United States Department of Agriculture, Upper Willamette Soil Conservation District, Soil Conservation Service in Eugene, Oregon.

[3]Soil test done by the author.

[4]Interview with Mr. R. Stafford, a truck farmer.

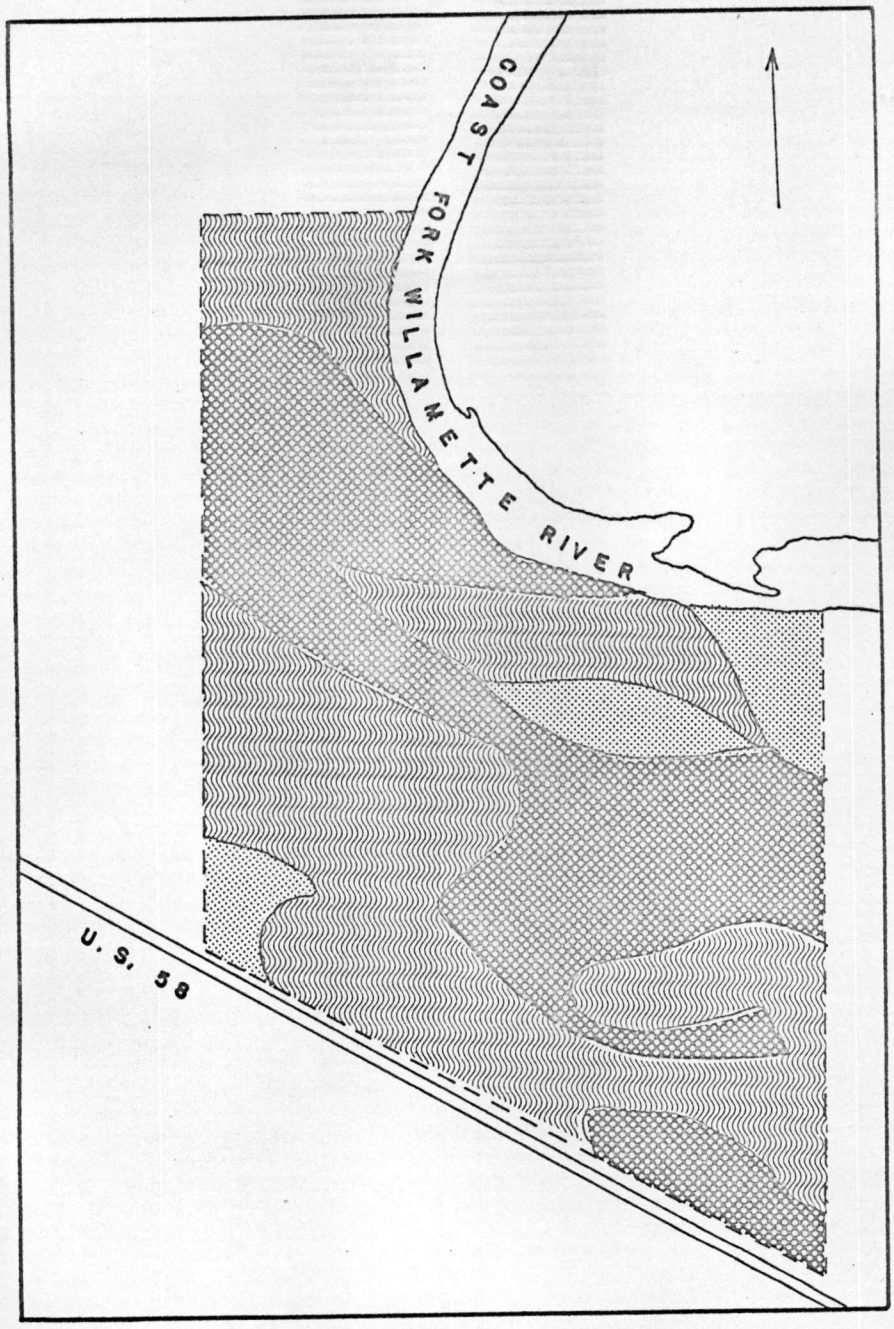

FIGURE 37

SOILS OF THE STAFFORD FARM

PLEASANT HILL

CAMAS
GHEHALIS
NEWBERG

SCALE. 8" = 1 MILE

SOURCE: SOIL CONSERVATION DEPARTMENT IN EUGENE

carrots, and sweet corn. The fruit crops are the Royal Anne cherry, sour cherries, strawberries, and Marion blackberries. The study of the agricultural techniques in regards to the crops or the farms differ to a certain extent from one farmer to the other. The absence of a crop rotation or a cover crop accounts for the differences found between the yield of the same crops grown on the same soil. Long personal experience in farming was another reason for obtaining higher yield.

CHAPTER V

CONCLUSIONS

The following conclusions can be drawn from this study:

1. The canning industry started in France and in Britain almost simultaneously, but has attained its highest development in the United States.

2. The fruit and vegetable canning industry is a small town industry in which the individual plant is small and often specialized.

3. The economic results of canning have been the stabilization of price and the broadening of the market for these crops.

4. Seasonality of employment in this industry is greater than in any other industry in the United States. Product diversification and early crop growing are attempts to lengthen the canning season.

5. The canning industry has the lowest earnings and the least average annual increase compared with other industries. The degree of seasonality found in this industry, the number of other industries in which workers find employment, and the average hourly wage in the industry are the main factors behind the low level of annual earnings.

6. During the first quarter of this century, the rapid development in the fruit-growing areas of the Pacific Coast transferred the center of production of canned foods from the Atlantic Seaboard to California, Oregon, Washington, and Idaho.

7. The canning industry has faced increasing competition from the freezing industry during the last thirteen year period, so that increasing capital requirements and increasing complexity of technology became the characteristics of the canning industry.

8. The big concentration of these canneries in Oregon is in the Willamette Valley, with Eugene, Portland and Stayton following Salem in the number of employees.

9. The Eugene Fruit Growers' Association is one of the oldest big canneries in the Pacific Northwest. It is distinctive in the cooperative business in that it gives one vote per share. All the members are growers who have contracts with the cannery for delivering a certain amount of crop tonnage, while for most canneries the contract is based upon the crop acreage.

10. The Eugene Fruit Growers' Association hires 1250 employees engaged in two shifts during the canning season and 150 during the winter for their plant in Eugene. For the Junction City plant 300 employees are hired during the canning season and ten during the winter. Women workers exceed the number of men workers during the canning season.

11. The Southern Pacific Railroad line running close to the Willamette River made an ideal location for building the plants either in Eugene or in Junction City. They are located northeast of Junction City and east of Eugene. The prevailing southwest winds minimize the problem of air pollution over Eugene and Junction City.

12. Future expansion is planned for the Junction City plant. Increase in production will be attained through the use of the most efficient equipment.

13. One million gallons per day of polluted water is treated by the city for the amount of $33,000 a year for the Eugene plant and $2,500 for Junction City. Expansion of fifty percent of this amount of water is possible within the present expense rate.

14. The ability of the Eugene Fruit Growers' Association to process most of the crops grown within this area and their constant expansion since 1908 have been the reasons why no other sizeable cannery of this type has attempted to operate in the immediate area.

15. This cannery has a long canning season which starts at the end of April until December. Shipment is carried on the year round.

16. Table beets, sweet corn, green beans and carrots are the main vegetable crops; sour cherries, sweet cherries, pears, and strawberries are the main fruit crops. They are given in the order of the amount processed, although they are

not in the order of acreage within the canneryshed. This is because the yield differs from one crop to the other; in addition some crops are grown for other canneries within this canneryshed.

17. The farms selected for the study of the canneryshed are on the valley land and on the foothill section that have a local relief of 260 feet. They have eight soil types which are preferred for this kind of farming in the Eugene area. These soils are: Chehalis, Newberg, Willamette, Camas, Maytown, Salem, Woodburn, and Melbourne.

18. There are some similarities between the farms that are located in the vicinity of Junction City, Coburg, Eugene, Springfield, Jasper, Goshen and Pleasant Hill, as they are within the Willamette Valley which has a relatively uniform physical environment.

19. The crop yield varies from year to year depending upon both physical and cultural factors affecting the given crop.

20. Agricultural techniques, whether concerned with the crops or the farms, differ to a certain extent from one farmer to another. The absence of a crop rotation or a cover crop accounts for the differences found in the yield of the same crops grown on the same soil and under nearly the same environmental condition. Long personal experience in farming is another reason for obtaining higher yield.

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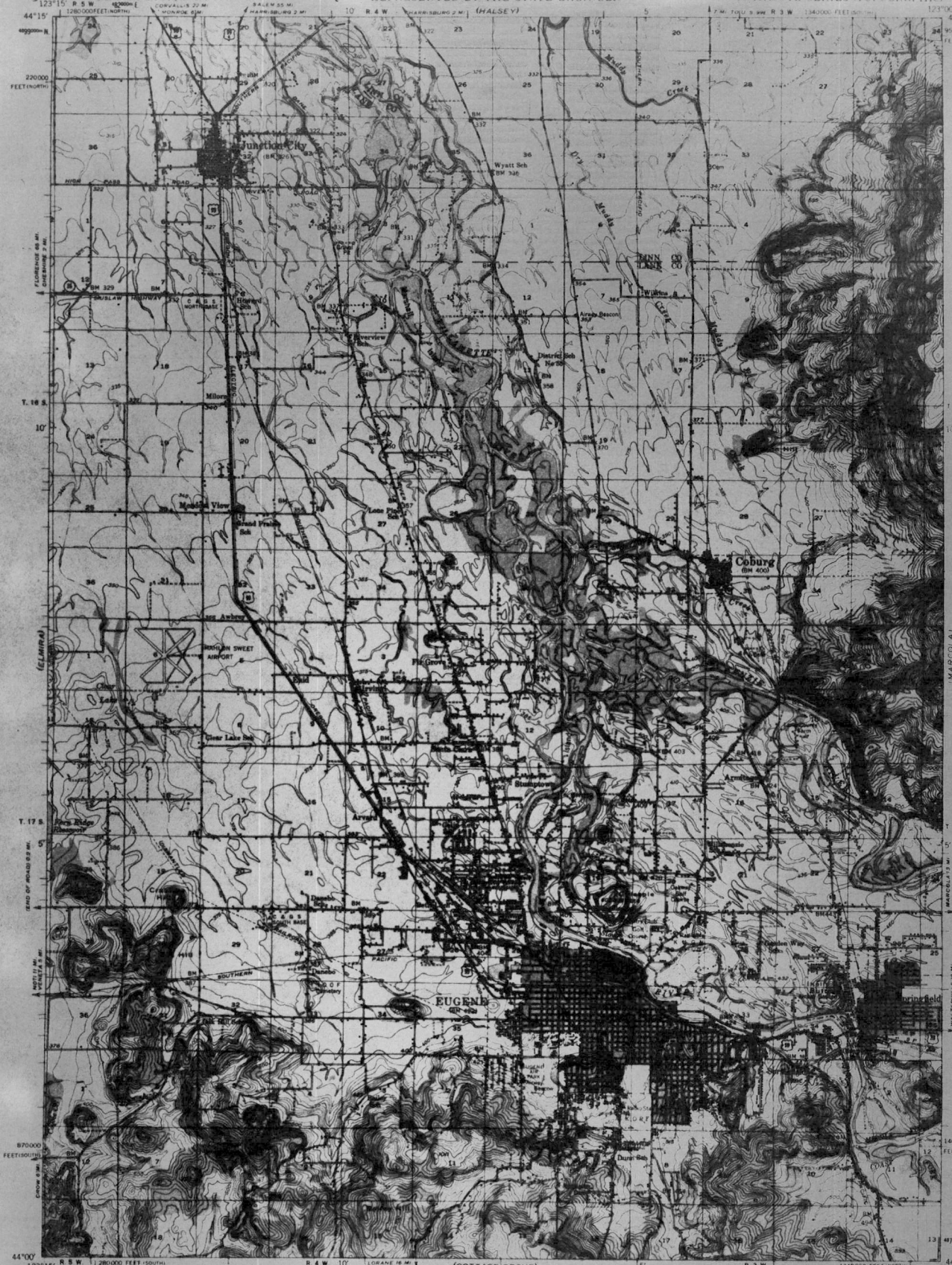
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF OREGON
REPRESENTED BY THE STATE ENGINEER

EUGENE QUADRANGLE
OREGON
15 MINUTE SERIES (TOPOGRAPHIC)



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Control by Corps of Engineers, USGS, and USC&GS

Topography by plane-table methods, 1908

Polyconic projection. 1927 North American datum
10,000-foot grids based on Oregon coordinate system,
North and South zones

Red tint indicates area in which only
landmark buildings are shown

Culture revised in 1946

1000-meter Universal Transverse Mercator grid
ticks, zone 10, shown in blue

APPROXIMATE MEAN
DECLINATION, 1946

SCALE

CONTOUR INTERVAL 5 FEET AND 25 FEET
CHANGING ON THE 450 FOOT CONTOUR
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS	DRY WEATHER ROADS
Heavy-duty	4 LANE 2 LANE Improved dirt
Medium-duty	4 LANE 2 LANE Unimproved dirt
Loose-surface, graded, or narrow hard-surface	

U. S. Route State Route

EUGENE, OREG
N4400—W12300/15
1946

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