

Feichtinger

A GEOGRAPHIC STUDY OF THE CITY OF COOS BAY
AND ITS HINTERLAND

by
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A THESIS

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
THE SITUATION OF THE CITY OF COOS BAY AND ITS HINTERLAND	
Location Relative to Other Cities	5
The Tributary Area which Focuses on The City of Coos Bay	10
Size of Units	11
Relief and Configuration	12
The Bedrock Underlying the Area	21
Relationship of Streams and Other Water Bodies	23
Located within the North Pacific Coast Belt of Mediterranean Climate	27
Acidic and Sandy Soils are Predominant	36
Douglas Firs Form the Primary Vegetative Cover	42
Minerals are of Very Minor Importance	43
CULTURAL ASPECTS OF THE AREA STUDIED	
Characteristics of the Population	53
General distribution	53
Important rural concentrations and types of occupance	54

	<u>Page</u>
Education	97
Employment is concentrated within three fields	98
Lumber-forestry Operations Focusing on the City of Coos Bay	102
Trade Points up the Central Characteristics of the City of Coos Bay	127
General picture of retail-wholesale trade	127
Operating characteristics of retail food stores	141
Light and power of the present and future	142
Transportation Media are Varied	144
Airway and highway travel - extremes of coverage	144
Existing rail facilities consist of one line to Eugene	150
Use and development of waterways a controversial issue	154
Development of a Fish Industry in the Future is Questionable	178
Commercial Water Supply - A Problem Which Might Well Hinder All Future Economic Development	185
SUMMARY	191
BIBLIOGRAPHY	197

INTRODUCTION

The city of Coos Bay is a sea port located on the upper reaches of Coos Bay, mid-way on the Pacific Coast of the State of Oregon. With a valuable virgin timber supply which stretches east of it across the Coast Range to the vicinity of Roseburg, and with a thriving, though small, dairy industry which focuses on the city, the people of the city have attempted to rival Portland and Astoria as sea ports. And, to live up to their self-imposed title of "the largest lumber port in the world".

A certain civic pride, and pride in achievement, are commendable and accepted in our modern society, but it is also possible to strain the limits of propriety. There is a desirability in "bigness" where size lends itself more effectively to efficient operation. But, the writer does not believe that extensive development is to be overly-encouraged where it is primarily dependent upon a single crop or industry. A false sense of security through large size alone is as much a psychological booby-trap as is an overly pessimistic attitude. Both, or either, can lead to a misplaced reliance on emotional rather than factual data.

The inhabitants of the city of Coos Bay believe that industry of western Oregon will channel to Coos Bay

ports as their logical point of egress; that trade will flow westward rather than first to the north and Portland, before being loaded on shipboard; that some trade will come from the vicinity of Bend and Klamath Falls instead of traveling directly by rail to the mid-western and eastern markets. Wishful thinking enhances the dream, but factual research helps to clear away the shreds of fuzzy thinking and bring to light the actual conditions which should be evaluated.

A complete study of the city of Coos Bay is automatically a like work on Coos County. It is impossible to obtain many statistics which pertain primarily to the city of Coos Bay. As will be brought out in the paper, the city of Coos Bay ^{the core of} is/Coos County. Within four square miles surrounding the city can be found the heart of all economic activity in Coos County. Where statements have been made which are pertinent to Coos County, the writer is certain that the reader will read into them the portion which pertains solely to the city of Coos Bay and its hinterland.

Of men it can sometimes be truthfully said that, "he who is afraid of doing too much always does too little". And, it is possible that the leaders of the city of Coos Bay were of a like belief when planning for their city's growth and development. Though plans are good, they are

only as satisfactory as the basic material on which they are promulgated:

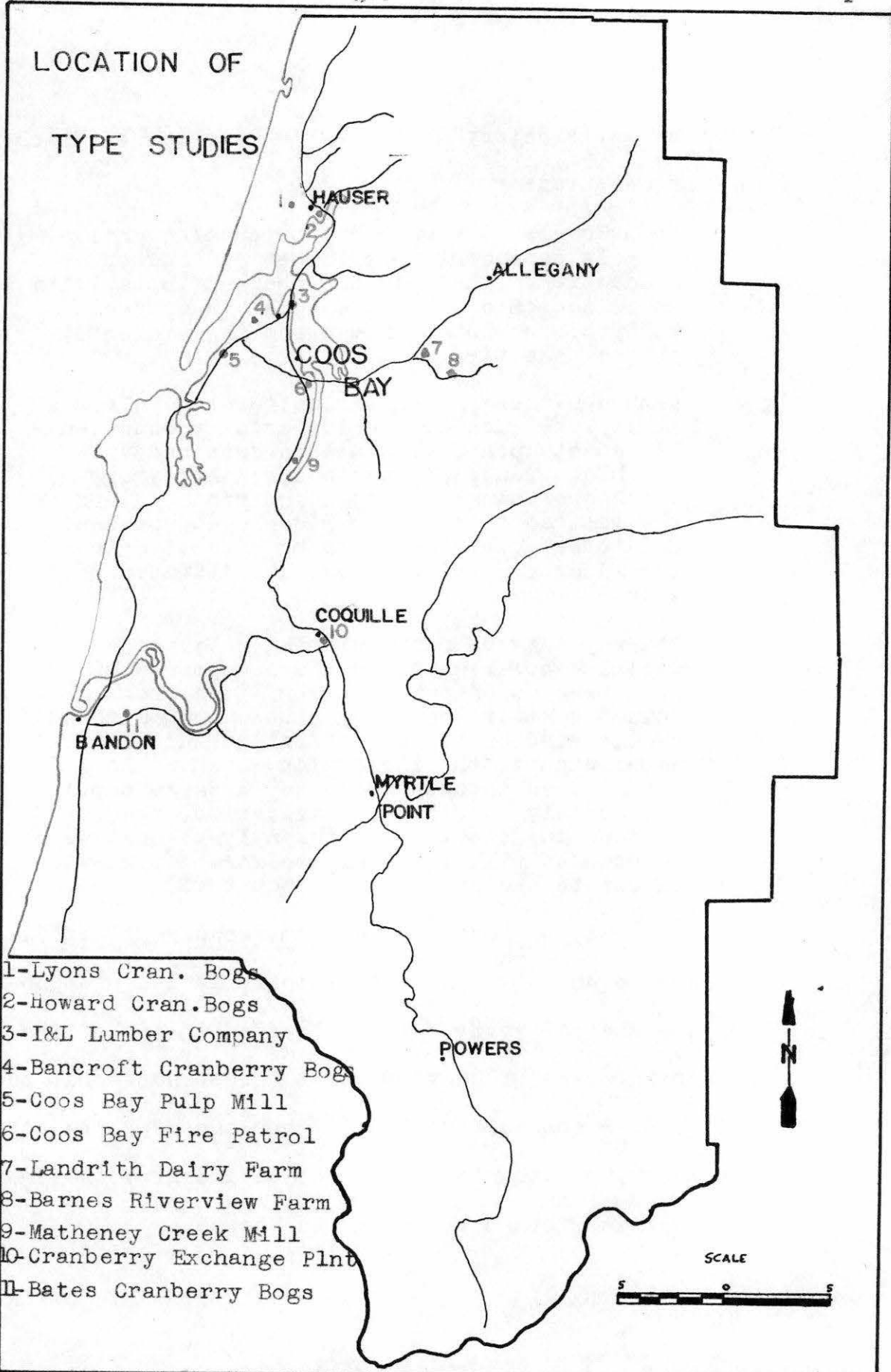
Coos County is a one-crop production unit, largely dependent upon lumber and lumber production. There is an inherent instability in an economic structure which is at the mercy of the whims of man and the elements, at the same time.

Although there is an agricultural development, it is like much of the lumbering production--dependent upon California markets and vulnerable. The small scale specialty crops which are being developed and produced are too limited in the number employed, present and foreseeable future, to be effective in providing a more permanent and diffused economic base.

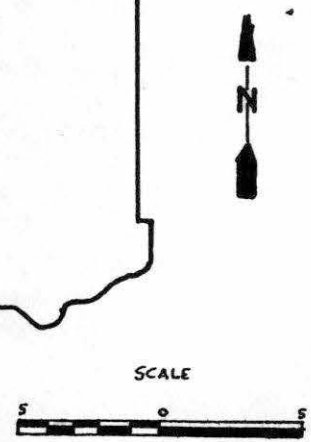
Mid-way between relinquishing a limited-facility power unit and the acceptance of an extension of public power lines from Columbia River producing sites, and, without a completed system of sufficient industrial water supply, the industries which could and should come into the Coos Bay area to supply desperately needed diversification, are reluctant to do so. The presently-planned developments will lead only to more dependence on the telescoping lumber industry.

The city of Coos Bay has some wonderful natural resources on which to maintain itself, at its present size, for a number of years. It is located in one of the few remaining areas of heavy Douglas fir stands. But the writer does not believe that it has the capacity, or the necessity, of becoming the giant of industry and commerce which it is mistakenly trying to become.

LOCATION OF TYPE STUDIES



- 1-Lyons Cran. Bogs
- 2-Howard Cran. Bogs
- 3-I&L Lumber Company
- 4-Bancroft Cranberry Bogs
- 5-Coos Bay Pulp Mill
- 6-Coos Bay Fire Patrol
- 7-Landrith Dairy Farm
- 8-Barnes Riverview Farm
- 9-Matheney Creek Mill
- 10-Cranberry Exchange Plant
- 11-Bates Cranberry Bogs



THE SITUATION OF THE CITY OF COOS BAY
AND ITS HINTERLAND

Location Relative to Other Cities

The city of Coos Bay, formerly called Marshfield, is located at $43^{\circ} 23'$ North and $124^{\circ} 13'$ West. It is on the upper portion of Coos Bay and is built on the lowest of three terraces. The Coos River enters the Bay immediately to the east of the city, and along with the many streams and inlets helps to maintain the channel. The city stretches in a north-south direction on the terrace, and rises up the lower slopes of another to the west. Beyond the city, to the north and south, there is an encircling cordon of hills and terraces which combine to give to the city of Coos Bay the appearance of being the depressed center of a saucer, with the lip rising on all sides.

At the head of the Bay, and actually fronted by Isthmus Slough, the city is five and one-fourth airline miles from the Pacific Ocean, and is thirteen miles from the sea by the all-water route. In a position somewhat equi-distant from thriving main ports to the north and south,

<u>North</u>	<u>Statute miles</u> ¹		<u>South</u>
Astoria	230	207	Eureka
Portland	329	454	San Francisco

Coos Bay has played the role of an intermediate stopping point for sea carriers. Ample evidence of the secondary role is found in the number of one-half load ships which have made this port answer only a portion of their loading demands.

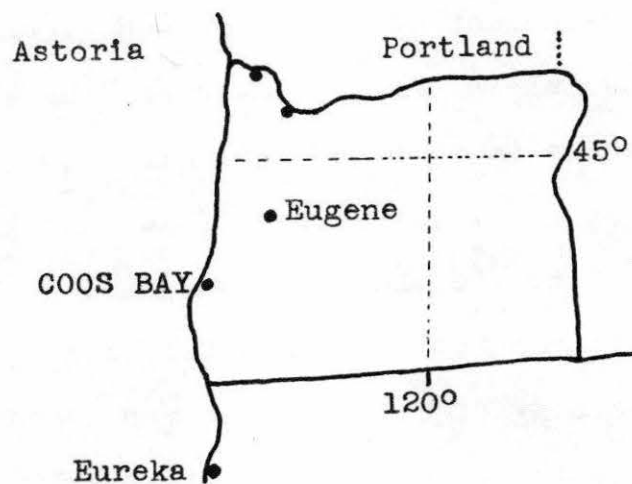


Figure 2 ²

¹Senate Document, p. 12. (3) (See page 197-8)

²Goode's Atlas, p. 58. (6)

KEY TO AERIAL PHOTO

- 1 - City of Coos Bay
- 2 - City of North Bend
- 3 - Coos River
- 4 - Main channel of harbor
- 5 - Kentuck Slough
- 6 - Isthmus Slough
- 7 - Irwin-Lyons Lumber Company mill
- 8 - Sand dunes and spit
- 9 - North Bend Airport
- 10 - Post office
- 11 - Mountain States Power Company plant
- 12 - Railroad station
- 13 - Switch yards
- 14 - U. S. 101, south to Coquille
- 15 - Schools (elementary, junior, high)
- 16 - Oyster bed plantings
- 17 - Coos Bay Creamery Co-operative
- 18 - Charles Feller, Salmon Factor
- 19 - Hospital
- 20 - I.O.O.F. Cemetery
- 21 - U. S. 101 and Highway Bridge
- 22 - Southern Pacific Railroad Bridge
- 23 - Road to Empire and Coastal areas

Photograph by Brown's Studio,
North Bend, Oregon - former-
ly Ace Aerial Photo Service.



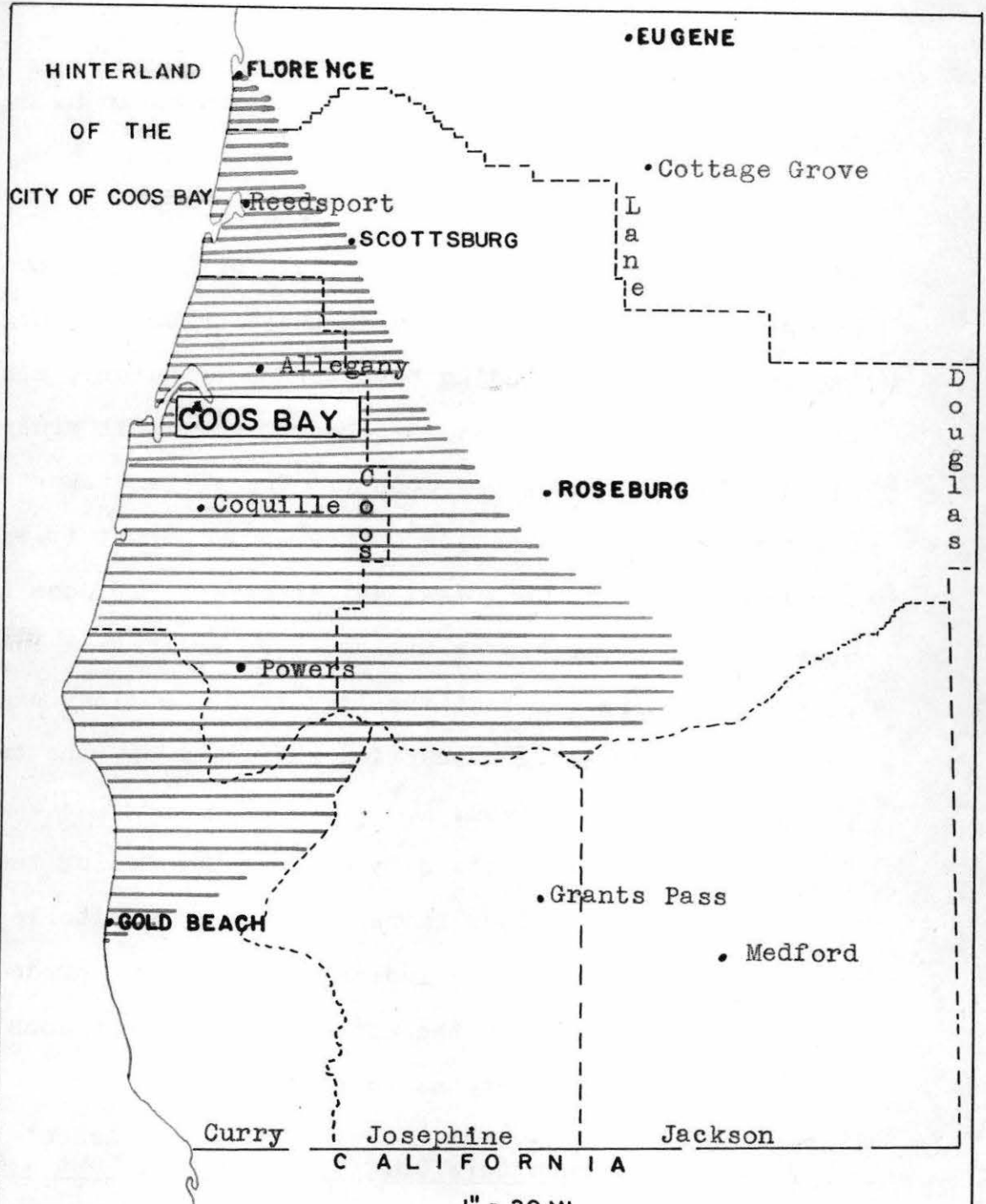


Figure 4. Limits of the hinterland were based on reports of merchants, the timber shed, and the milk shed. The southern boundary was tied in with terrain features, and ran in between two sets of peaks on the border between Curry and Josephine Counties

The Tributary Area which Focuses on the City of Coos Bay

In the U. S. Army Engineer report found in U. S. Senate Document #253 on improvements for the Coos Bay harbor facilities, the tributary area of Coos Bay has been extended to include the southern half of Douglas County, lying south of but not including the city of Roseburg. The total tract, including that termed tributary, consists of 4,000 square miles, as compared to the 1,611 square miles which comprise Coos County. The writer takes exception to this delineation on the grounds that it was fabricated to gain Congressional approval. It does not appear likely that timber will by-pass so large a lumber city as Roseburg, or that the loggers of Coos Bay can compete with Roseburg production and still pay the transportation costs involved.

Retail stores in the city of Coos Bay follow the same general limitations in regard to the territories they serve. The listing below indicates the extent of deliveries, and assumedly the effective limits of Coos Bay storekeepers as it pertains to retail sales:

<u>Coos Bay</u> <u>Times</u>	<u>Gevurtz</u> <u>Furniture Co.</u>	<u>Penney's</u>	<u>Associated</u> <u>Gas & Oil</u>
Reedsport	Florence	Florence	Florence
Coquille	Scottsburg	Allegany	Powers
Myrtle Point	Gold Beach	Myrtle Point	Remote
Bandon	Coast Range	Gold Beach	Gold Beach

With the addition of the milk shed and timber shed, the writer believes the tributary area is more apt to be as shown by the area inclosed within the cross-lined area on Figure 4.

Size of Units

The city of Coos Bay is located at the head of the Bay, covers approximately two square miles, and has a 1940 population of 5,259 people. The neighboring city of North Bend, immediately adjoining to the north, has a population of 4,262, according to the 1940 census, and covers four square miles. The combined population of the two cities is one-third the entire population found within Coos County.³

Coos County contains 1,611 square miles within its delineated boundaries, or one-sixtieth of the 96,000 square miles within the state of Oregon.⁴ The city of Coos Bay, by virtue of its position and the varied activities which are found and occur within its boundaries, controls at least seventy-five percent of the County's economic effort.

³Census Report, 1940. (14)

⁴Oregon Blue Book, 1947-8, p. 255. (5)

Relief and Configuration

Coos Bay, with its numerous tributary rivers and streams, has the appearance of a wind-beaten tree found on the headlands to the north. The Bay is representative of the main trunk, while the streams which trend towards the crest of the Coast Range fifty miles to the east are like the irregular scraggs - remnants of the formerly healthy branches of the tree. These tributary streams which have worked back into the higher elevations near the crest have given the initial cuts for the construction of the few roads leading into the foothills to the east.

The only relatively level land found in the tributary area and in the city of Coos Bay is that which occurs on the old river and marine terraces. The level land is especially noticeable along the stream and river beds up to the limit of tidal effect. For the County as a whole, upwards of seventy percent of the entire area is in slope land. All land in slope, regardless of relief, is hereafter referred to as "slope land".

Evidences of the slope land which is so prevalent around Coos Bay are easily seen in the background of Figures 5 and 6. All agricultural activity is centered in these level "sleeves and pockets". "Sleeve" is the name applied to the developed land which stretches as a thin streamer back from the edge of the stream, or

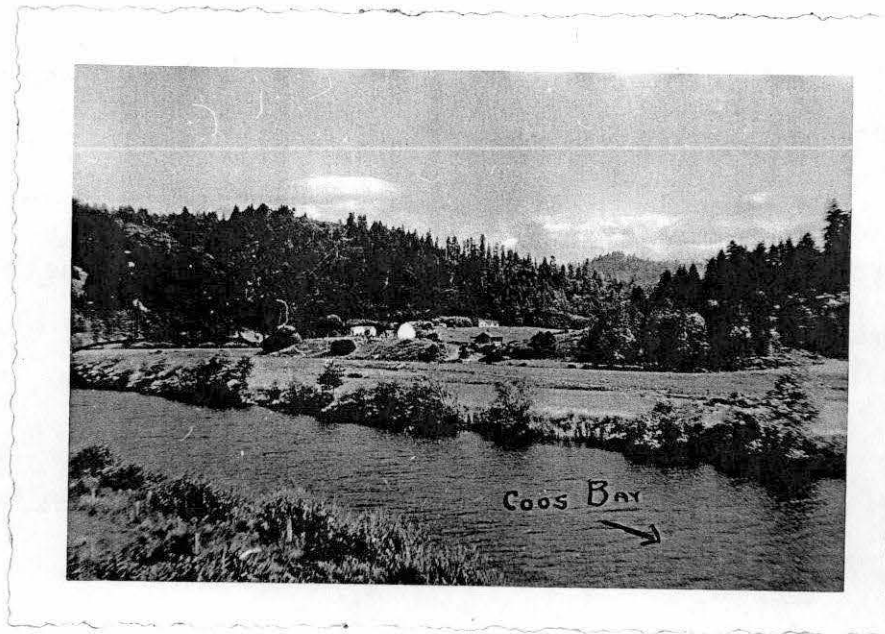


Figure 5. Picture was taken three-fourths of a mile due east from Glasgow Point, on Kentuck Slough, indicative of the terrain found throughout much of this region.

- 1) present floodplain, or lower terrace, usually devoted to pasture
- 2) middle terrace, location of buildings
- 3) upper terrace, home of owner.

The lower terrace is used for grazing. Buildings are not constructed, primarily because of the yearly inundations which are so common, usually about the middle part of January.

The middle terrace is the most limited in area and is devoted to the farm buildings. In rare instances the owner's home will be found here also. The mid-terrace is usually the limit of practical irrigation activities.

The upper terrace is used as a pasture for the dry herd, and for the home of the owner. These pasture areas are too far from river water, and the water strata are too deep for economic wells to be used for efficient irrigation. There is enough water via wells to supply household needs.

parallels the stream and the higher areas beyond it.
"Pocket" is the name applied to those areas which are
found on the interior benches, or along the river banks
where an irregular terrace has been constructed by a
meandering stream.

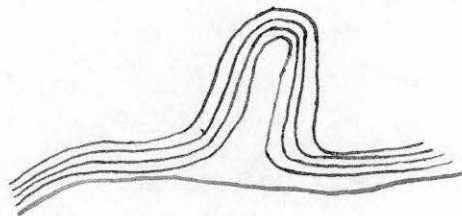
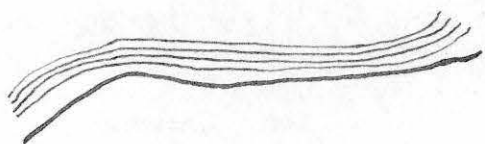
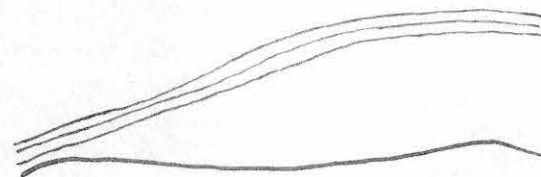
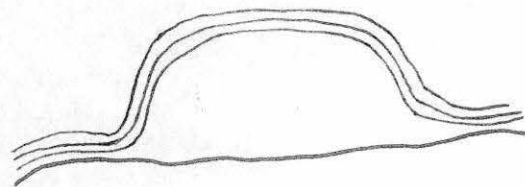
SleevePocket

Figure 6

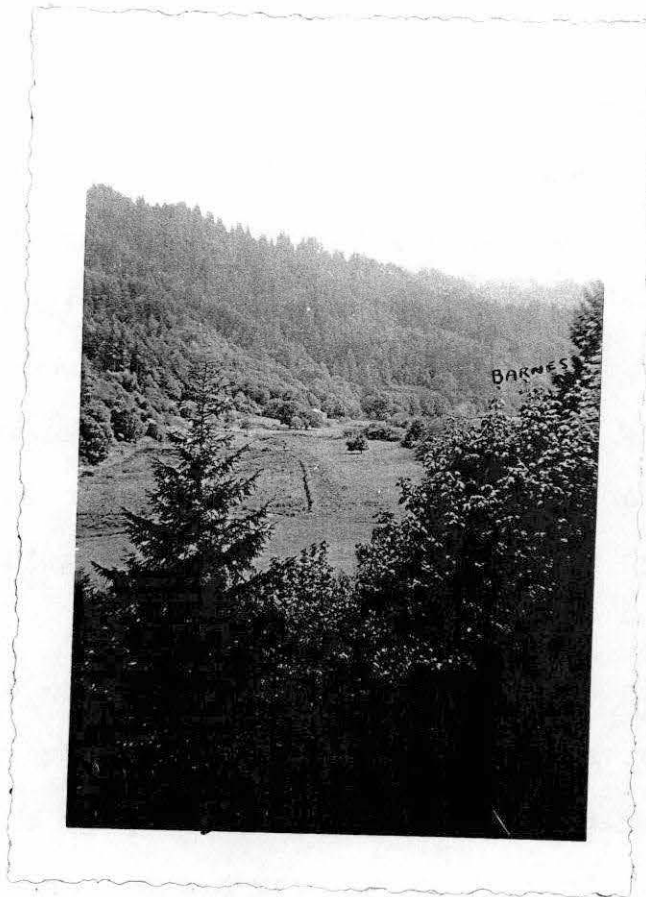


Figure 7. South Fork of the Coos immediately northeast of the Barnes Farm, fourteen miles east of Coos Bay.

South Fork is in the foreground, to the north of the terrace seen in the center of the photograph. A large prototype of what is called a "sleeve" or "pocket".

The extensive terraces of the Barnes Farm are one-half mile downstream, but slope land has reduced dairying to a low point here. The terraces are larger downstream, and progressively smaller upstream. Also, the terraces are more scattered farther upstream. This is close to the limit of efficient and economic dairy operations.

Some owners have cleared slope land and upland, and inner bench areas, and planted the area for pasture.

To the southeast of Elliott State Forest, along the eastern border of Coos County, the land is in slope up to eighty degrees. The terrain is so rough that trucks on logging operations are unable to make way under their own power and are "winched" up to higher levels by donkey engines where they can find easier going on the old terraces.⁵

In the immediate vicinity of the city of Coos Bay, the terrain is generally flat and covered with tidal flats and marshes - the photograph on page 17 shows the location of these typical poor-harbor formations. At low tide, in the vicinity of Joe Ney Slough, it is possible to walk across the channel without fear of deep water. Part of the city of Coos Bay is built atop the lowest marine terrace (500' high, grading to sea level at the North Bend airport), while farther to the east there is a pronounced line of terraces which parallel the shore line and occur at approximately seven hundred and one thousand feet, from seashore to a point seven miles inland.

⁵Personal communication from County Forester Office, Coquille.
(16)



Figure 8. View from the north end of the highway bridge passing over the neck of Coos Bay, looking towards the west and the North Bend airport. Notice the marsh in the immediate foreground which is prevalent throughout the entire Bay area.

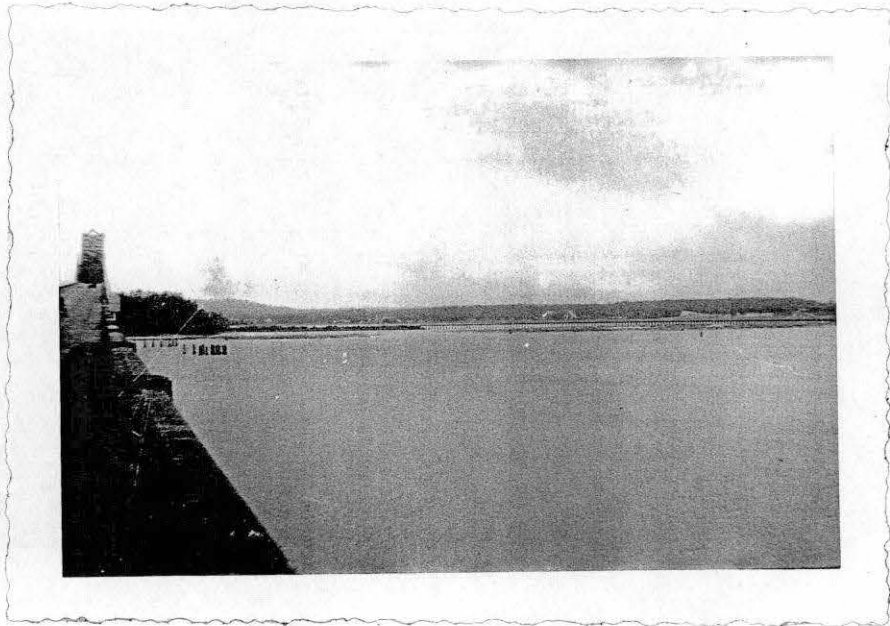


Figure 9. View from the north end approach to the highway bridge over the neck of Coos Bay, looking more directly down the Bay entrance. Notice the tidal flats around the base of the railway bridge in the background, the same type as found farther up the Bay.

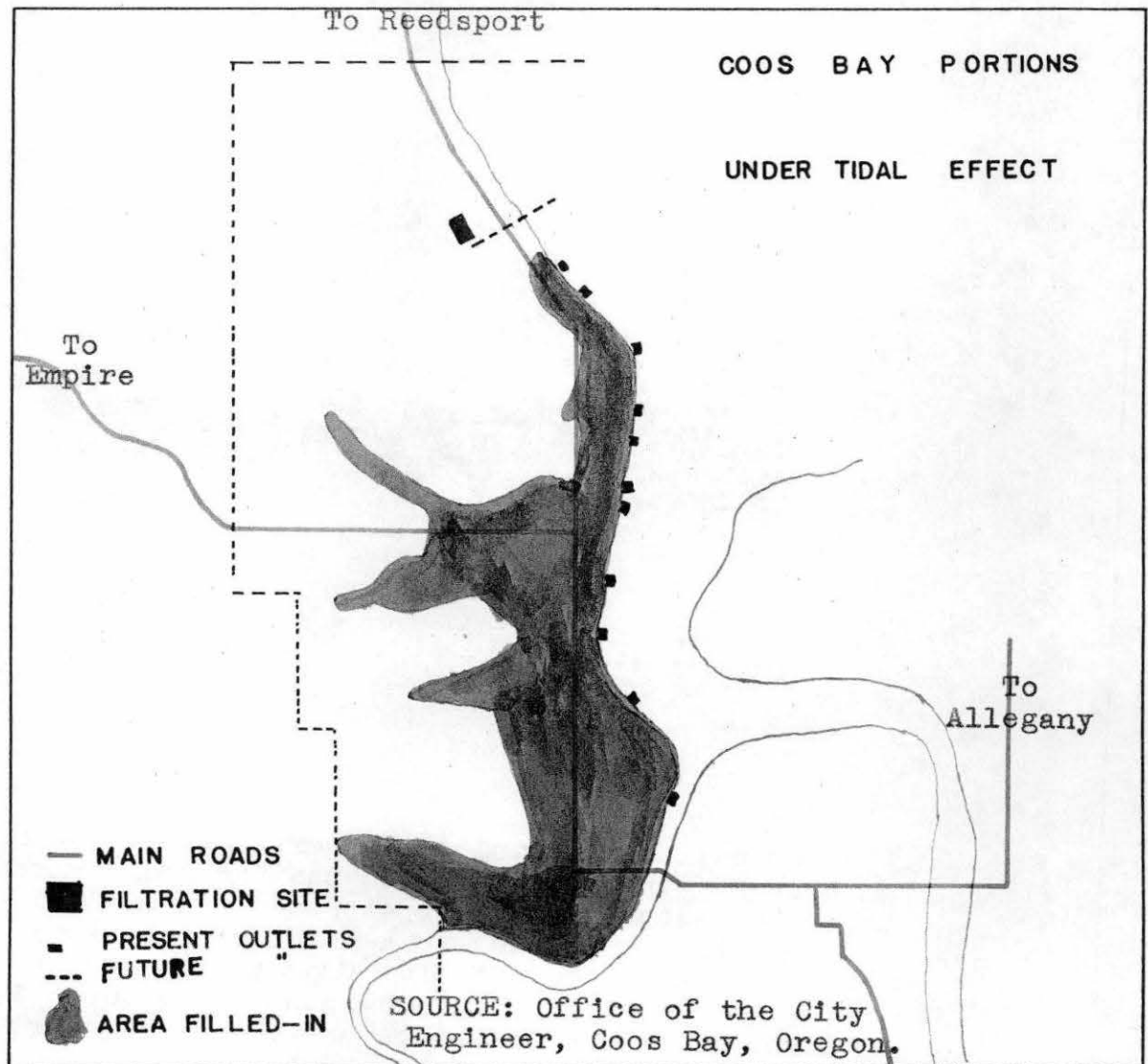


Figure 10. The portion of the city which is colored brown has been filled in with dredgings taken from the Bay proper, and is generally considered to be under tidal effect. The pincer-arm just south of the road to Empire, is the site of an old slough now replaced by a large pipe or conduit to continue necessary drainage.

Present sewage outlets empty directly into the Bay, to the disadvantage of the city. The new filtration plant is planned for initial operation by 1951 to meet State of Oregon requirements.



Figure 11. The sand dunes west of the town of Hauser. The footprints in the foreground lead to the plank road built atop the dunes. The road, in turn, leads to a point of intersection with a straight line from the powerhouse to the lone tree in the foreground, from where it turns right and continues on to the cranberry bogs in the center of the dune.

The forward dunes are moving constantly to the south (left in the picture), while the dunes in the rear are fixed. The drainage line in far left center, just beyond the leading edge of the dune, continues on to a marsh area where it joins other streams. The combined waters then join and continue on to become the creek which waters the Howard Cranberry Bogs.

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The Bedrock Underlying the Area

Numerous terraces composed of sandstone and shale, with some outcroppings of lava, occur parallel to the coast. Dikes/^{and sandstone formations} along the coast form the headlands and outcrops which present a more resistant front to the wearing action of the sea. Blue Mountain, six miles to the southeast of the city of Coos Bay, is the largest basaltic formation in the near-region. Smaller outcrops are aligned with Blue Mountain to the north and south, and form a reasonably straight, although disconnected, line which parallels the coast line.⁶

Both moving and fixed sand dunes occur in the general vicinity of Hauser. The moving dunes have been trending to the south and help to form the spit which occurs on the ocean side of Coos Bay. Additional dunes occur slightly east of Bandon, along the Coquille River, but the concentrations are very minor when compared to the deposits between Coos Bay and Hauser.

Apart from the river beds and the land immediately adjacent to it, the tributary area is largely composed of sandstone,⁷ or clay loam.⁸ Silt loam, sandy loam, and

⁶Geologic Map Insert, Coos Bay Quadrangle. (9)

⁷Ibid.

⁸Soil Survey Map. (8)

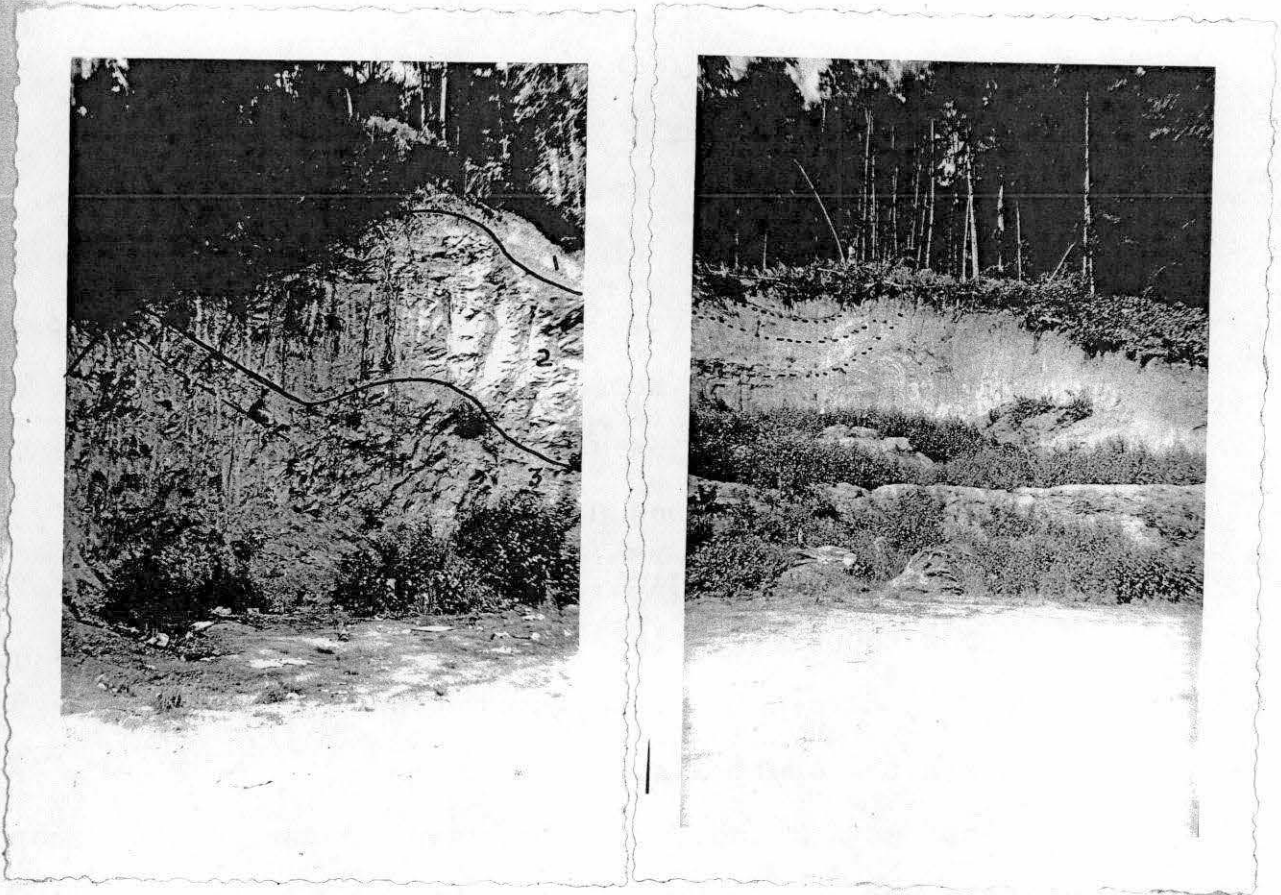


Figure 12. Road cuts in the vicinity of Eastside which indicate the general profile of the local soils.

The Soil Survey of 1909 classifies this area as Coquille Silt Loam, and indicates two horizons within three feet of the top. The pictures show at least three horizons within three feet, and evidences of an unconformity (4) to the far left.

The picture on the right is in the same position. Slumping has obliterated much of the long profile, but some of the strata can be seen on the left. There are numerous evidences of this same type of development wherever a road-cut has been made.

other alluvium compose the terraces which are so predominantly present along the rivers and sloughs.

Hard rock is scarce - the outcrops occur only at scattered points. The only close-in deposit is that which lies just twenty yards to the east of the Enegren Ferry site at the confluence of the Coos and Millicoma Rivers. A borrow-pit was being developed to supply rock for the road project across the river. The outcrop in line with Blue Mountain was mentioned earlier. It extends to the north side of the Coos River and continues northeast along Mart Davis Creek - sufficient to supply highway demands for a long period at present rates of exploitation.⁹ There are no other noticeable outcrops, but it is assumed they must be present along the Millicoma River to supply the demands of the Weyerhaeuser development upstream from Allegany.

Relationship of Streams and Other Local Water Bodies

The South Fork of the Coos River and the Millicoma River combine to form the Coos River and are the only major streams within twenty miles of Coos Bay - and tributary to it. The streams combine at a point four miles upstream from the southeast end of the Bay. A number of sloughs,

⁹Geologic Map, Coos Bay Quadrangle. (9)

now called inlets for want of a more genteel term, are important to the extent of tidal effect for the purpose of transportation, i.e., floating log-booms to the mill sites.

The Coquille and Rogue Rivers are to the south and east of Coos Bay. Both rivers are of potential importance to the city of Coos Bay as possible sites for the supply of commercial water to meet ever-increasing demands. Different from the Coos River, the Coquille and Rogue have extensive drainage basins and can supply almost limitless quantities of water.

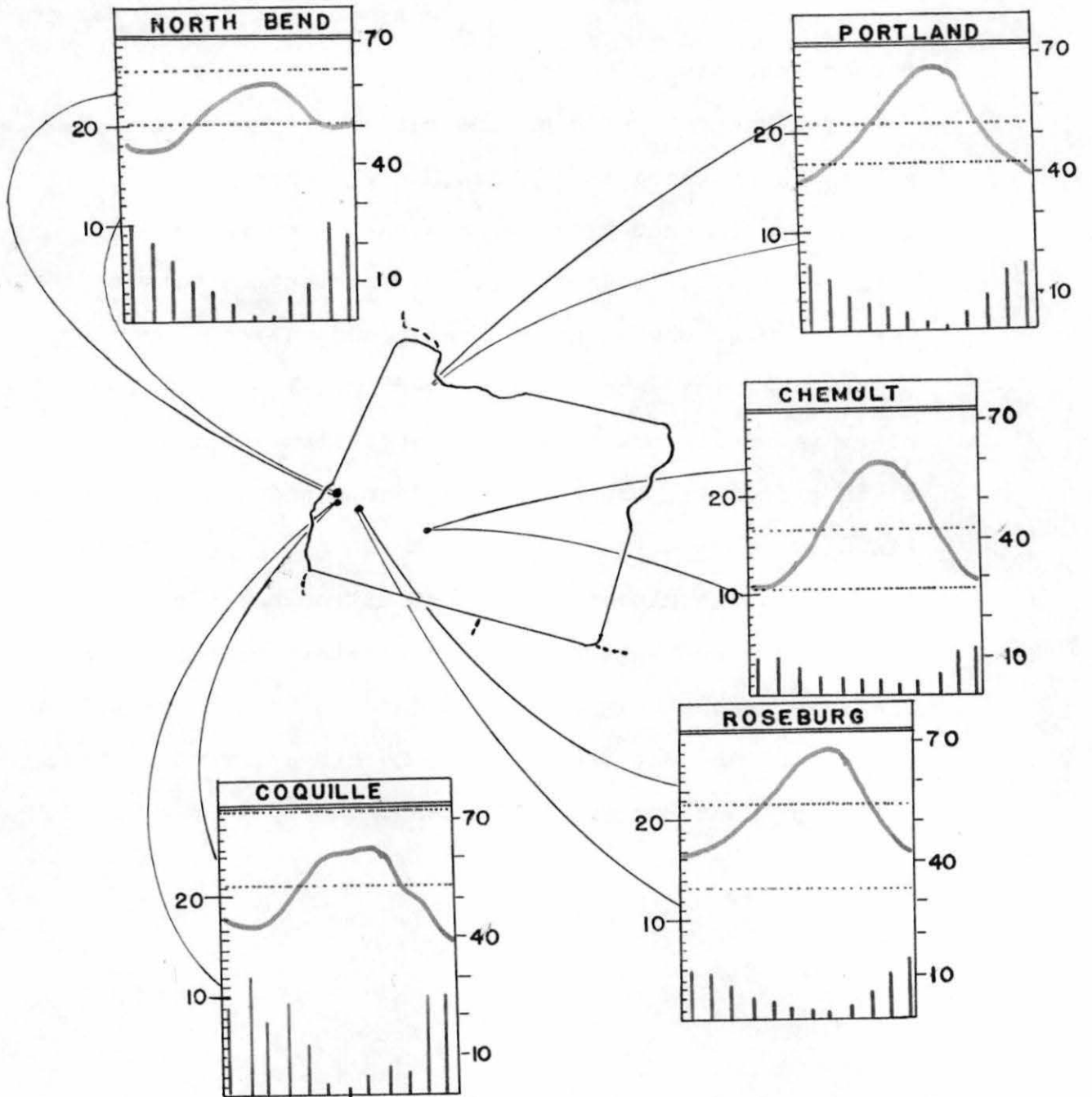
Fourteen miles to the north of Coos Bay, converging on the town of Lakeside, are the two Tenmile Lakes. These two lakes are the only large, stationary bodies of water which are found here in addition to Coos Bay. The sloped land to the east of Coos Bay strongly precludes the possibility of finding large bodies of water there, while the Pacific Ocean is firmly entrenched to the west.

A number of dune lakes, with connected marsh lands, are located in the sand dunes to the west of Haynes Slough, and in the outer portions of the Bay area. Dune lakes in the vicinity of Hauser, Empire and Bandon, have been drained and converted into cranberry bogs. If there is sufficient water in the impounded lakes, it is used to supply the existing cranberry bogs. Between the towns of North Bend and Empire, two dune lakes have been impounded

and tapped to furnish the water supply for Empire. Marching sand dunes have created the same condition of cut-off streams all along the coast.

The Pacific Ocean on the western outlets has made available to the city of Coos Bay the cheapest methods of transportation and given it access to the markets of the world. Existing channel depths restrict the size of the vessels which can be accommodated and only the smaller coastwise ships make regular loading-calls. A strong tide, heavy rainfall, and heavily cut-over land in a drainage basin primarily composed of sand and sandstone have combined to produce the tidal marsh and flats so noticeable throughout the harbor area. Deposition has continued to the point where navigation is definitely hindered, and the sole usable channel is confined to the inner-western portion of the Bay paralleling the direct front of the cities of Coos Bay and North Bend.

COMPARATIVE CLIMATIC CHARTS



SOURCE: U S Weather Reports,
Summary for 1948.

Figure 13

Located within the North Pacific Coast Belt
of Mediterranean Climate

Comparative Weather Statistics

Annual Average

	<u>Rainfall</u>	<u>Temperature</u>	<u>Elevation</u>
North Bend	64.13"	51.9°	19'
Coquille	72.48	52.0	61
Roseburg	32.9	53.4	479
Chemult	27.16	41.4	4758
Portland	42.10	53.2	170
Los Angeles	15.2	62.4	293
San Francisco	22.0	55.0	301

SOURCE: Weather Reports, Yearly
Consolidation for Oregon;
1948, Washington, D. C.
U S Dept of Commerce.

The city of Coos Bay is on the wet side of the Cs (Mediterranean) climate - Figures 13 and 14. Less than one-half inch of rain falls during each of the months of July and August, but winter months from November to February vary from 8.89 inches in February to 10.9 inches in January. Cooler and wetter than Los Angeles, the city of Coos Bay is most nearly like Portland except that there is one-third more rain at Coos Bay. The climatic chart of the city of Coos Bay is most nearly like the chart for Palermo, Italy - classified as the "true C_x" by Köppen.

A more refined examination of the city of Coos Bay would permit Csb classification since there are no months with temperatures over 71.6°, and over five months with temperatures above 50°F. There is insufficient data to determine whether or not the n' is applicable (Csbn') - infrequent fog; summer temperatures under 75.2°F.

Forty-six percent of the yearly rainfall comes during the months of December, January, and February. Sixty percent of the total rainfall comes between November and February. The combination of extended periods of rainfall, and up to 214 days of the year free from fear of frost makes crop failures rare.

Data and characteristics of type-streams. Streams of the area are seldom dry at any time during the year, the amount of water found in them being dependent upon the

size of the stream, its length, and the amount of rainfall during the past year. The "seasonality of flow" of the streams in the Coos Bay region is amply indicated by that of the Umpqua River. If the figures are not exact as to amount, they are definitely true as to periodic characteristics. In the Umpqua River, the peak run-off comes at the same time as the season of greatest rainfall. Where there is a double maximum flow of run-off water, the second one comes at the time of snowfield melt in the mountains. Since there is no double maximum in the Umpqua River it is reasonably assumed that Coos Bay rivers and streams do not rise back in snowsheds.

In common with other West Coast streams, there is a very low run-off during the months of July, August and September; another indication of the climatic characteristics which work clearly with dependence upon snowshed melting. Figures 15 and 16 indicate the stream flow of two streams in the same general section of the continent, but in two entirely different climatic types with resultant varied stream flows.

Variations in stream flow from year to year have greater significance relative to the development of irrigation than does seasonal variation. The streams around Coos Bay have less variation than do streams to the south in the drier portions of the Cs climatic belt. Generally,

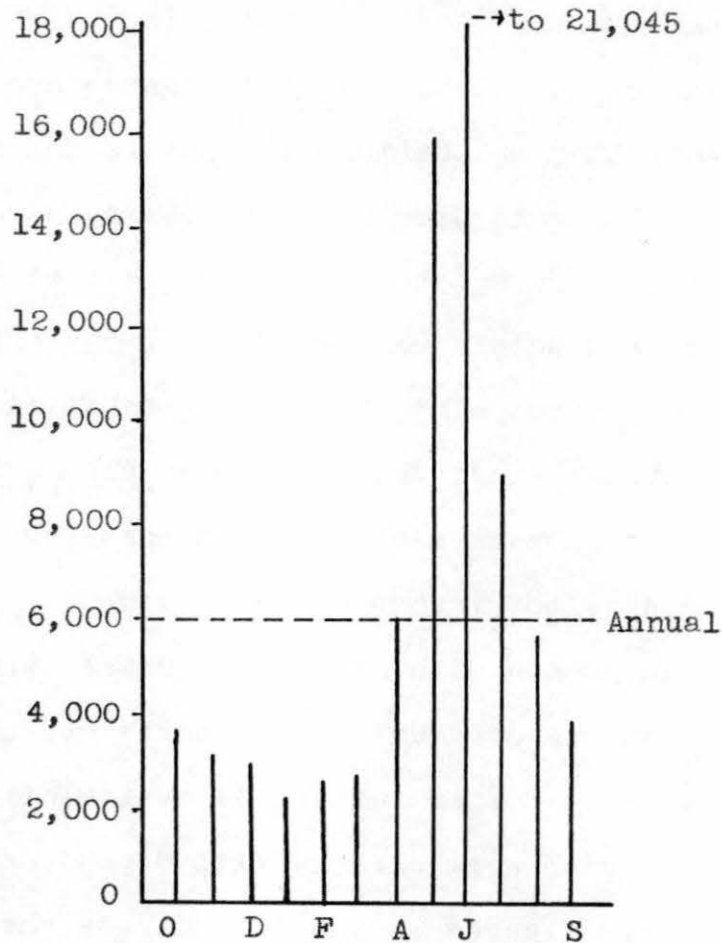
Flow of the Snake River

Figure 15. Median monthly and annual flow in terms of cubic feet per second for the Snake River.

Periods are for ten or more years October thru September, inclusive (water years). Notice the exact opposite period of maximum run-off as compared to the Umpqua River, a result of the inland position and location of the head in a snow field.

SOURCE: Irrigation Agriculture in the West; 1948, Washington. USDap. 25

Flow of the Umpqua River

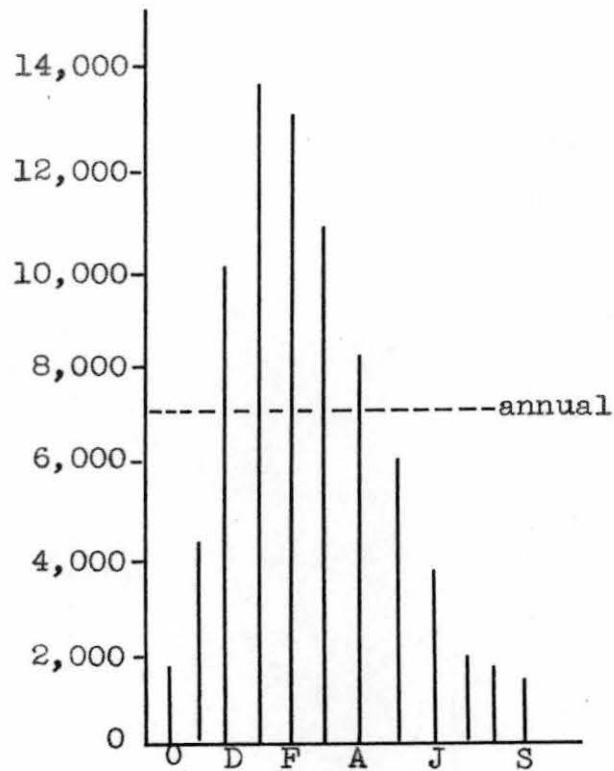


Figure 16. Median monthly and annual flow in terms of cubic feet per second, for the Umpqua River.

Flow characteristics are the same as those for all rivers in the Cs climatic group, with the heaviest run-off in the Coos Bay region occurring during the month of January. Observe that even though the Snake and Umpqua Rivers have different profiles, there is only 1,000 cubic feet difference in the yearly total.

SOURCE: Irrigation Agriculture in the West; 1948, Washington. USDA. p. 25.

Variation in San Joaquin River Flow

Acre feet
(Millions)

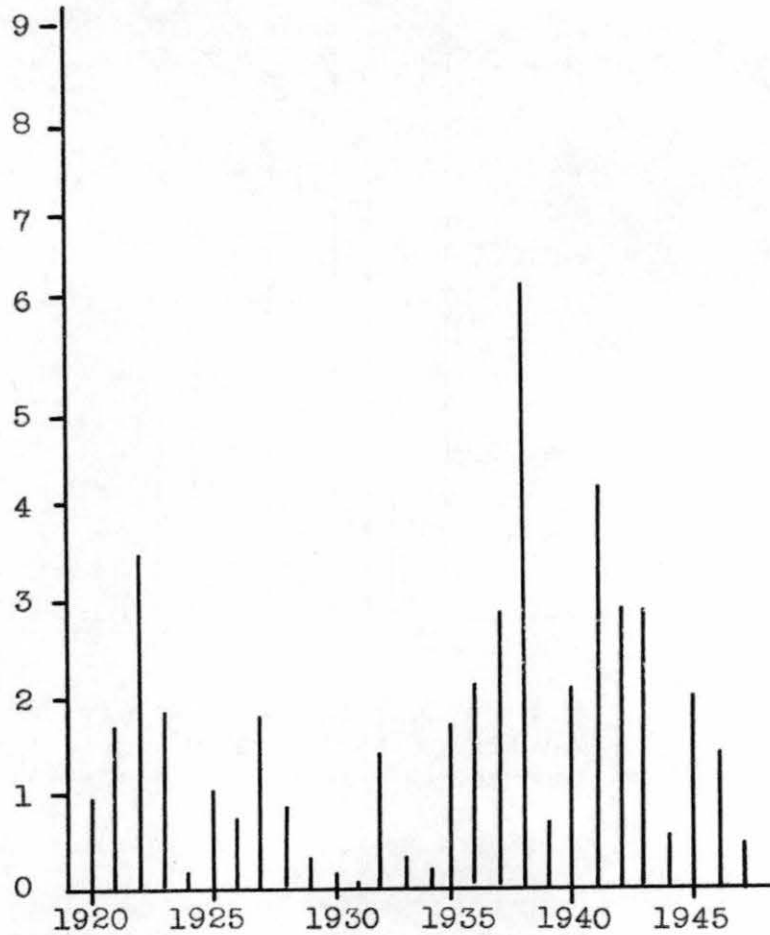


Figure 17. Annual variation in stream flow for the San Joaquin River. Water years are computed as ending 30 September 1920-47. The chart is exemplary of the flow experienced by rivers on the dry side of Cs climatic groups.

SOURCE: Irrigation Agriculture
in the West; 1948. Washington.
USDA. p. 27.

Variation in Umpqua River flow

Acre feet
(Millions)

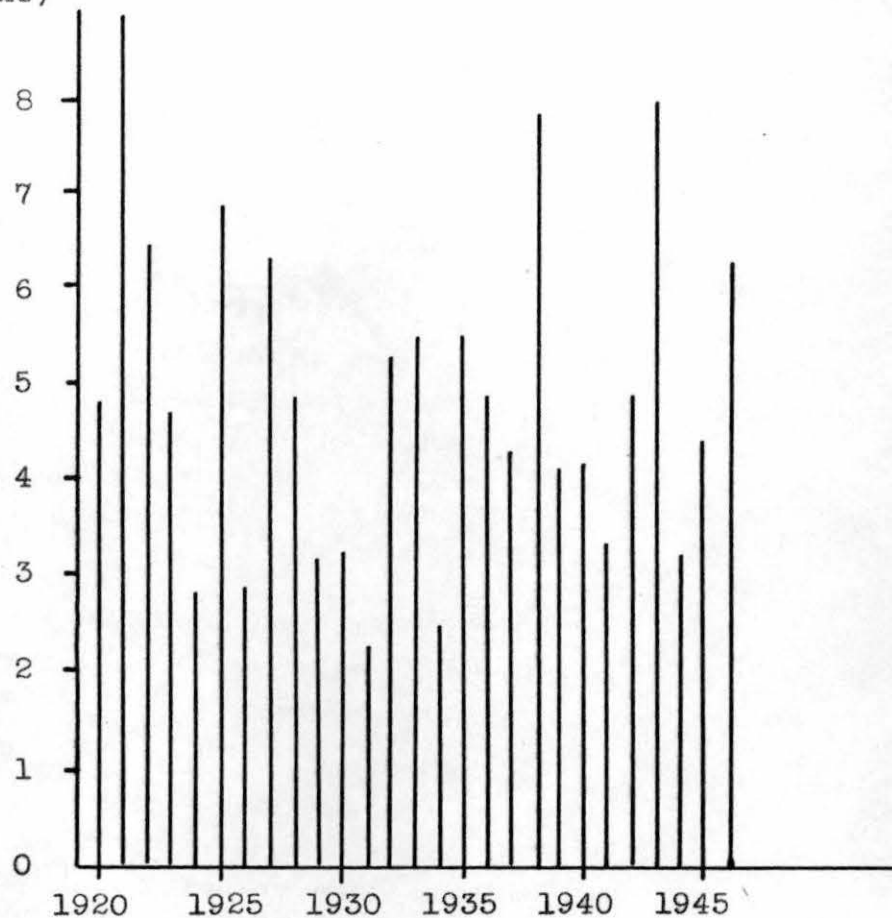
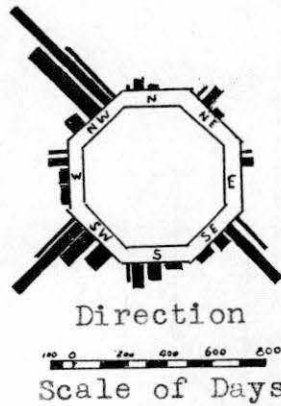


Figure 18. Annual variation in stream flow for the Umpqua River. Water years are computed as ending 30 September 1920-47. Since the North Bend climatic chart is the same as the ideal Cs chart indicated by Koppen, the Umpqua River can be assumed to be the same as the general type found in wet sides of Cs. There is no information available for the Coos River, so this chart must be accepted as indicative of the same flow for that river.

Coos Bay Entrance - Wind Data



5 to 10 miles	shown thus	—
10 to 20 miles	" "	▬
20 to 30 miles	" "	▬▬
30 or more "	" "	▬▬▬

Velocity per hour

Figure 19. Mean velocity and duration of prevailing winds at the Entrance of Coos Bay, Oregon for a 10-year period.

Duration in days is shown by the length of the lines. Velocity in miles per hour is shown by the width of the lines.

SOURCE: Senate Document No 253
79th Congress; 1946, Wash DC.
US Printing Office. Insert.

The streams heading in the mountains have a more regular flow than do streams heading in the Plains. The Umpqua and the San Joaquin rivers are in a north-south position from one another. Comparison of figures 17 and 18 point up the irregularity of stream flow which occurs in the less-humid portions of Cs climate and in those streams which head in the Plains. At the same time, there is ample evidence of the more dependable stream flow, at a high level, of streams found in the more humid portions of the Cs belt - applicable to the cities of Coos Bay and North Bend.

Winds are especially steady and monotonous, Figure 19, and the overcast seems to be almost continuous in the vicinity of the coastal line. At the city of Coos Bay, just a few miles inland, the winds are much slower and the clear days are definitely more numerous. During the month of July there is a very striking break between the overcast and the clear area, which parallels the coast line and hangs over the land area for a short distance; the phenomena is easily seen when a person travels from the city of Coos Bay towards Charleston and Empire. Figure 19 shows the wind velocity and characteristics as compiled over a ten-year period at the entrance to Coos Bay.

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Acidic and Sandy Soils are Predominant

Except for a small area in the vicinity of Broadbent near Myrtle Point, the soils of Coos County are generally acid. Tests which have been made on soil samples taken from many sections of the county indicate that two tons of lime are necessary to neutralize the acidity and encourage maximum crop growth. For many years an average of from 250 to 300 tons of lime was used annually in this county. This amount increased gradually to a peak of around 1,500 tons in the late 1930's. The lime used at that time came from local shell deposits and application was stimulated by AAA payments.

During the past two years the supply has not been adequate to meet the demand for applications of lime which were planned through the agricultural conservation sign-up. It is expected that larger amounts will be available from existing sources during 1947, especially following the month of May. The cost of this material sacked, on board cars at receiving points in this county will be around \$10.00 per ton. Bulk lime is available at prices ranging from \$2.00 to \$3.00 lower.

Shell deposits in Coos County and at the mouth of the Coquille River have been the source of several hundred tons of lime during years past. There is still a large amount of this material which could be used to advantage with proper handling methods and machinery.¹⁰

The soil survey of 1909 (Figure 20) is the only one made for Coos County. Although additional and corrective surveys have been made for Willamette Valley Soil Conservation areas by the Federal Soil Service and the Experiment-Agricultural Station at Corvallis, nothing more has been

¹⁰Planning Conference Report, p. 14. (1)

SOILS
OF
COOS COUNTY

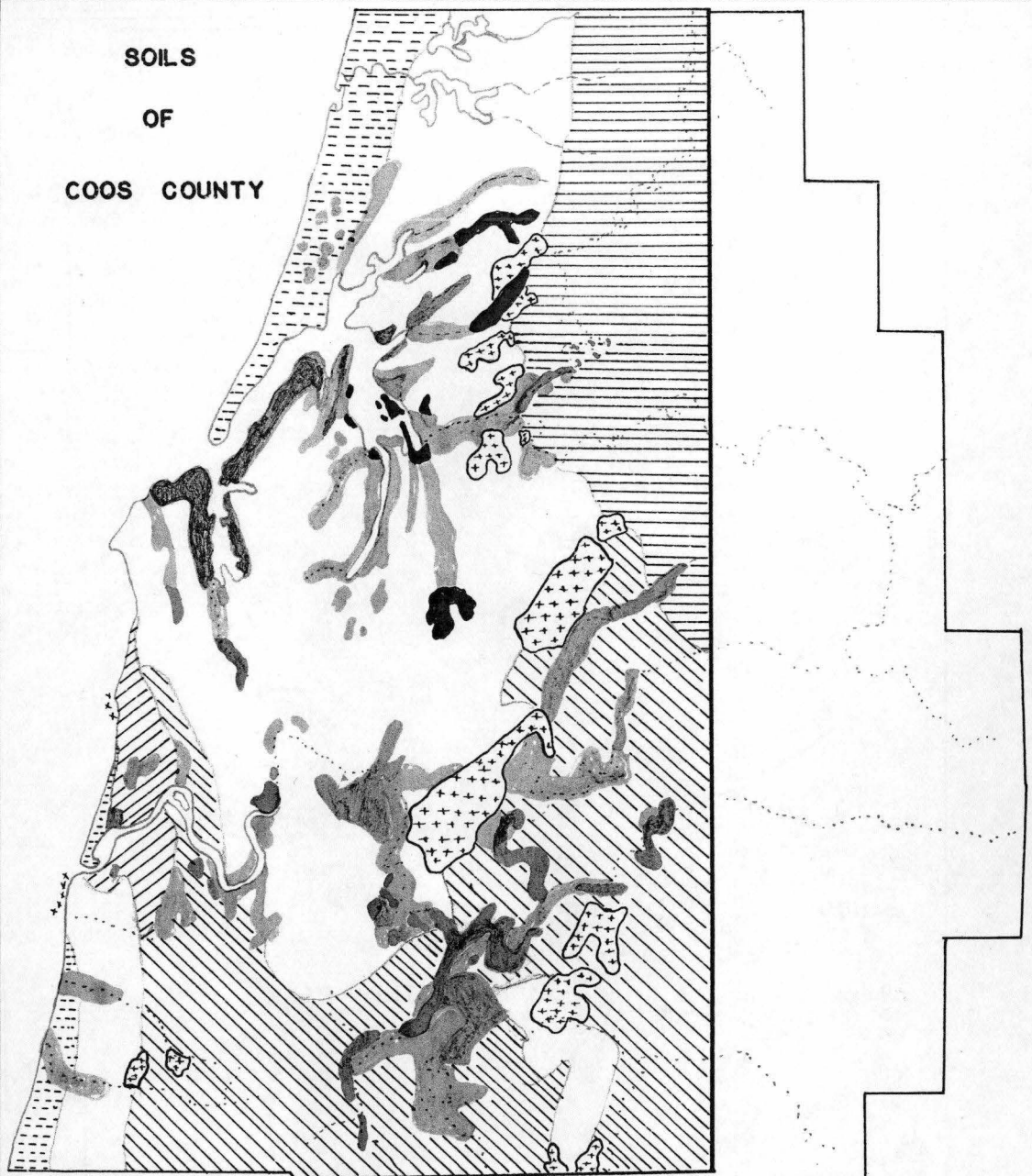
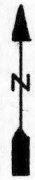
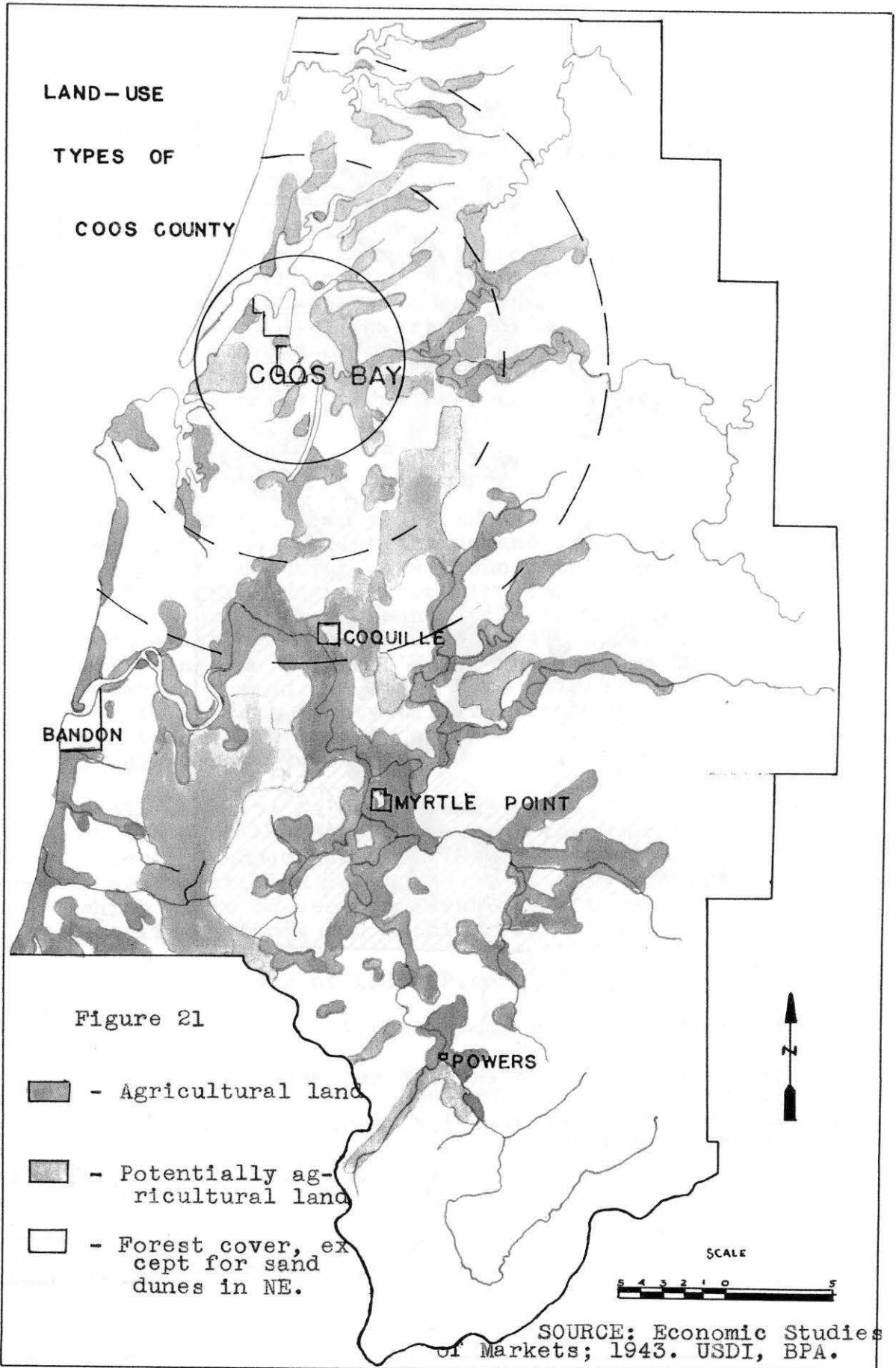


Figure 20. Basic study of 1909 with modifications and additions from the study of Allen and Baldwin. The explanation of the color symbols is found in Figure 22.



SCALE





Figures 20 and 21 indicate the areas of agricultural activity and the types of soil found in each one. The location of farms is closely aligned with streams and rivers and does not extend to the far eastern border of the County - in itself an indication of the terrain.

A close examination of the Millicoma River, particularly that portion just downriver from the town of Allegany, shows the existence of the terrace formations first on one and then the other side of the river. The terraces are much more pronounced along the course of the Coquille River and its numerous tributaries, and are over one mile wide in and around Coquille.














Both along the Coos River, and also along the Coquille River, there is a definite pattern of deposition. The sandy and fine sandy loams are upstream, and the clays are downstream. Although the composition and types of clays and loams are different, their occurrence and relativeness to one another is the same.

The silt loam is widespread but occurs most frequently at the mouth of streams and somewhat back of the other loams at the confluence of the various branches. Where there are type-depositions in areas not now covered by the river, it must be assumed that in most instances it indicates the former channel of the rivers, or the location of intermittent streams.

Figure 22 indicates the composition of soils found in and around Coos Bay. The three-foot profiles are not of too much value since they employ a method of description variant from that in use today. The only value of the profiles is to give a general idea of the composition, not of the amount of any type of soil or its occurrence in any portion of the earth sample.

The concentric circles are used to indicate the distances from the city of Coos Bay in multiples of five miles.

SOILS MAP KEY

-  Csl: Coquille silt loam
-  RC: Riverton clay loam
-  Eu: Umpqua; dark shale
-  D: Sand dunes
-  Cs: Coquille sandy loam
-  Es: Empire fine sandy loam
-  Ef: Empire fine sand
-  TM: Tidal Marsh
-  Al: Arago clay loam
-  Et: Tyee sandstone
-  Cf: Coquille Fine sandy loam
-  P: Peat
-  Ev: Volcanic series

KEY: Sil - Silt loam
 Cl - Clay loam
 Fsl - Fine sandy loam
 Sl - Sandy loam
 Sic - Silty clay
 C - Clay
 S - Sand
 Fs - Fine Sand

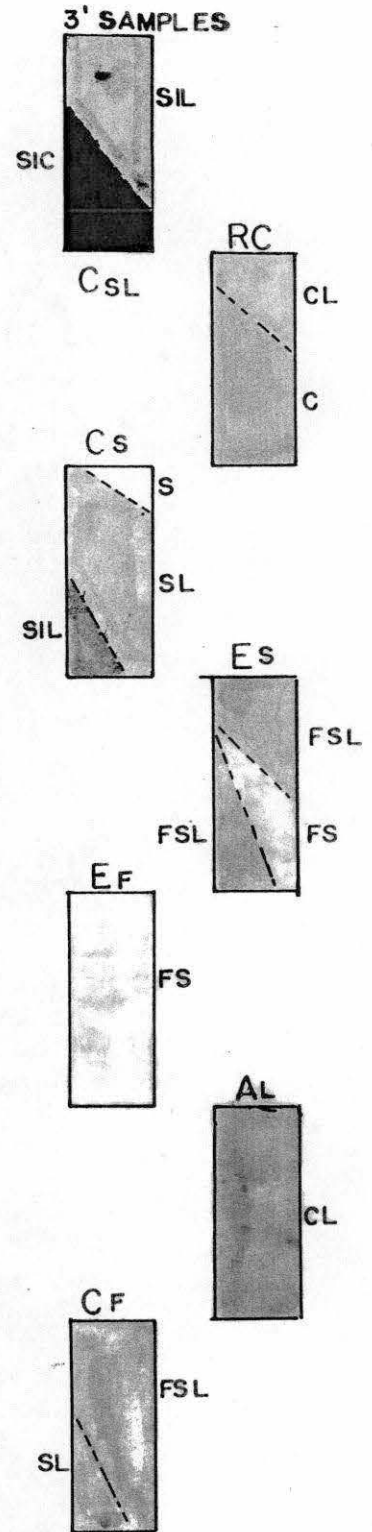


Figure 22

done for Coos County farms. Special tests have been made by the Corvallis laboratories, but these were made primarily to answer questions of individuals and not intended to re-classify the County. An attempt is now being made to establish a local Soil Conservation unit such as is found in the neighboring counties.

Figures 20 and 21 graphically tell the complete story of agricultural land in Coos County. Obviously, the soil profiles are not the most up-to-date, nor is the classification the same as that used in the more recent studies. While much work can be done in soil classification, it is obvious that any changes to be made in Coos County will be largely confined to the deposits immediately adjacent to and surrounding the rivers and streams.

Both of the studies used to make the soils map indicated the presence of extensive sand and sandstone deposits. Check tests made on field trips bore out these earlier more detailed studies, and it was deemed unnecessary to make further investigations. Deposits of alluvium along the river banks are the site of agricultural developments. Yearly floodings around the middle of January replenish the alluvial deposits which are so vital in the development of dairying here. A study of both maps (pages 37 and 38) will show the very close correlation which exists between the developed and potential agricultural land, and

the river-bordered alluvial deposits.

Douglas Firs Form the Primary Vegetative Cover

Douglas fir is the dominant tree type found in the Coos Bay region, as it is in the greater part of western Oregon. Heavy cutting within twenty miles of the city of Coos Bay has largely denuded much of the land close-in, and brought with it additional problems. In the Pony Creek area, cutting over of the land with resultant decrease in the number of Douglas fir has permitted the alder to seed and grow profusely. Elsewhere the replacement-growth has been shrub, weed, and bushes.

Spruce is the most prominent type of growth to the north of the city of Coos Bay, in the vicinity of Lake Tahkenitch. Tremendous stands of spruce in the area now classed as County Forest were completely cleaned off the land during World War I (Figure 54). The highest yields per acre, four to five million board feet,¹¹ were found on these present County Forest lands - the largest stands per acre anywhere in the County. As a result of very poor management over a period of years the land has been taken over by the County and placed on a sustained yield basis. Private enterprise has refused to plan for the

¹¹Personal Communication from County Forester Office, Coquille. (16)

future and use to best advantage this land which has the finest natural conditions for production of a new record crop of spruce logs.¹²

The County Forest and the land paralleling the Seven Devil's Road are now covered with a dense brush growth intermixed with young fir and ferns. Stumps are all that remain of once great stands of trees. Sheep have been introduced to aid in halting the spread of undesirable growth and the re-growth of spruce. A trip down the Seven Devil's Road would give the interested observer a good picture of future Oregon if indiscriminate clear-cutting for present-profit is continued without considering the ultimate result.

Minerals are of Very Minor Importance

There are 100,000,000 tons of coal in the Coos Bay district.¹³ The coal has a low heating value and has a higher cost per BTU than competitive coals from other sources.¹⁴ Suggestions have been made to raise the BTU rating through some process of beneficiation, but since the cost of the process would increase the cost of mining it is difficult to see how it could make any appreciable

¹²Ibid.

¹³Allen and Baldwin, p. 142. (9)

¹⁴Ibid., p. 147.

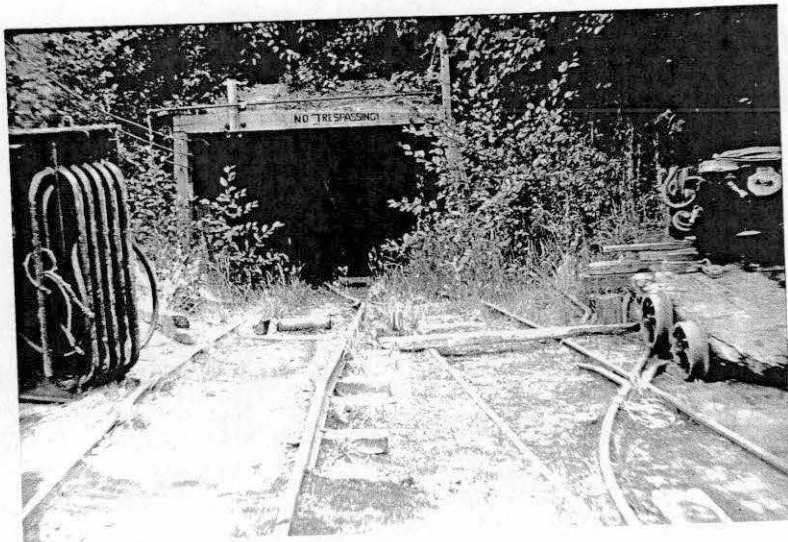


Figure 23. Entrance to the Southport Mine five miles south of the city of Coos Bay. Non-use is indicated by the weed growth to either side of the immediate entrance. Equipment discarded at the entrance indicates some mechanization.

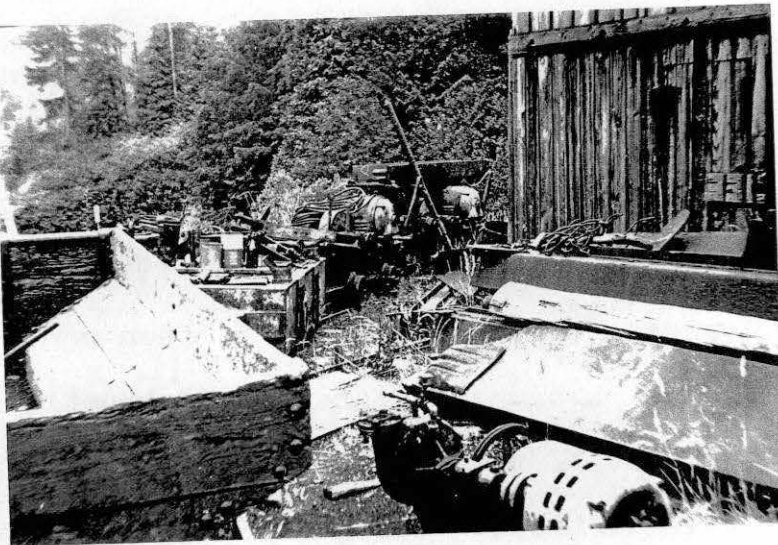


Figure 24. Main track leading from mine to tipple. Cutting machinery is sufficient only for a small mine with low production. Cars are very old, of wood construction, and capacity appears to be somewhat under one ton of unsorted coal.

difference in the value of the coal on a competitive basis.

All of the coals sampled in the Coos Bay vicinity have been of sub-bituminous or lignitic rank,¹⁵ and have had a heating value of under 13,000 BTU. The coals cannot be stored for any length of time since they will weather and degrade in size; they are strongly slacking and will not withstand storage during dry weather unless the loss of moisture can be prevented.¹⁶ The result is a creation of excessive amounts of fine material which decreases the value of the coal for some uses.¹⁷ None of the coals has coking properties, but all have a relatively high moisture content. With beneficiation the coals might compete with low-quality output from some other western mines, but they certainly cannot hope to compete with the high-quality output of our eastern mines.

The importance of coal in the Coos Bay regions seems to be entirely in the past. Coal was first mined in 1854, and hit its peak in 1905 when 112,000 tons were taken out; in 1944 production had dropped to 8,000 tons. The market, up to 1905, was primarily concentrated in California where the rapid influx of settlers helped to develop pictures of untold wealth in the eyes of Oregon miners.

¹⁵Ibid., p. 57

¹⁷Ibid., p. 58.

¹⁶Ibid., p. 61

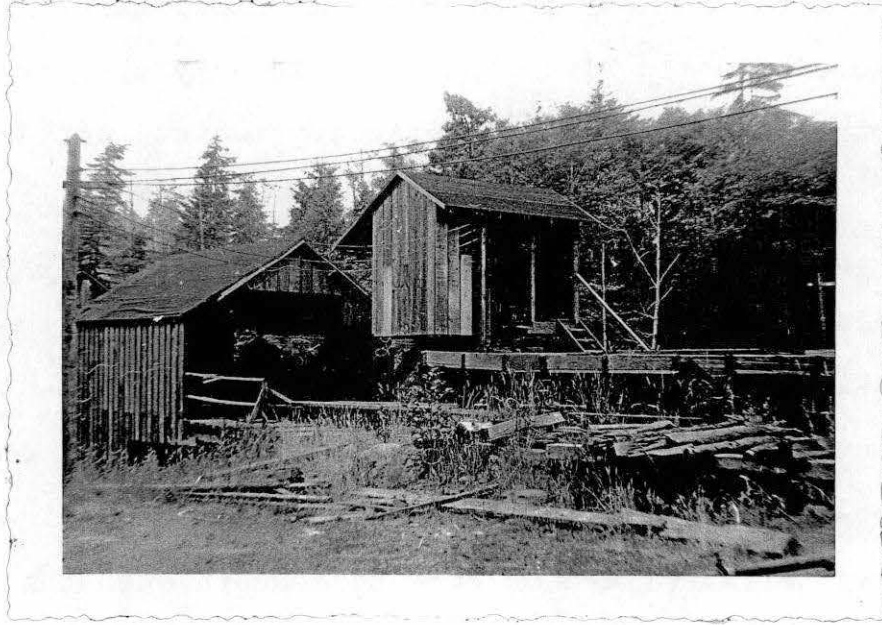


Figure 25. Southport tippel, with one car up-ended for unloading. The shed to the right (center of picture) houses the winch and drum used to haul cars to the surface and mine entrance. The remainder of the tippel and sorting sheds are below this point so that gravity methods are used. There is a road about fifty feet below the level of the entrance which is used to load trucks, and also as an approach to other shafts.

Poor merchandising methods, low standards of quality, and the discovery of oil combined to throttle the market after 1905 and production has declined more rapidly than it originally developed.

A short flurry in activity developed during World War II when a threatened fuel shortage on the West Coast helped to develop interest in the further development of local mines. After the war the activity decreased and whatever hopes the owners might have had were wiped out with the introduction of Butane heating gas, low-cost electric stoves, and increased supplies of fuel oil. The extension of BPA power lines, and with it more low-cost electric power, should diminish any future hopes for the use of coal as a cooking agent. The Southport mine was the only one in operation in 1949, and it closed down in July of that year; the equipment was put up for sale by auction.

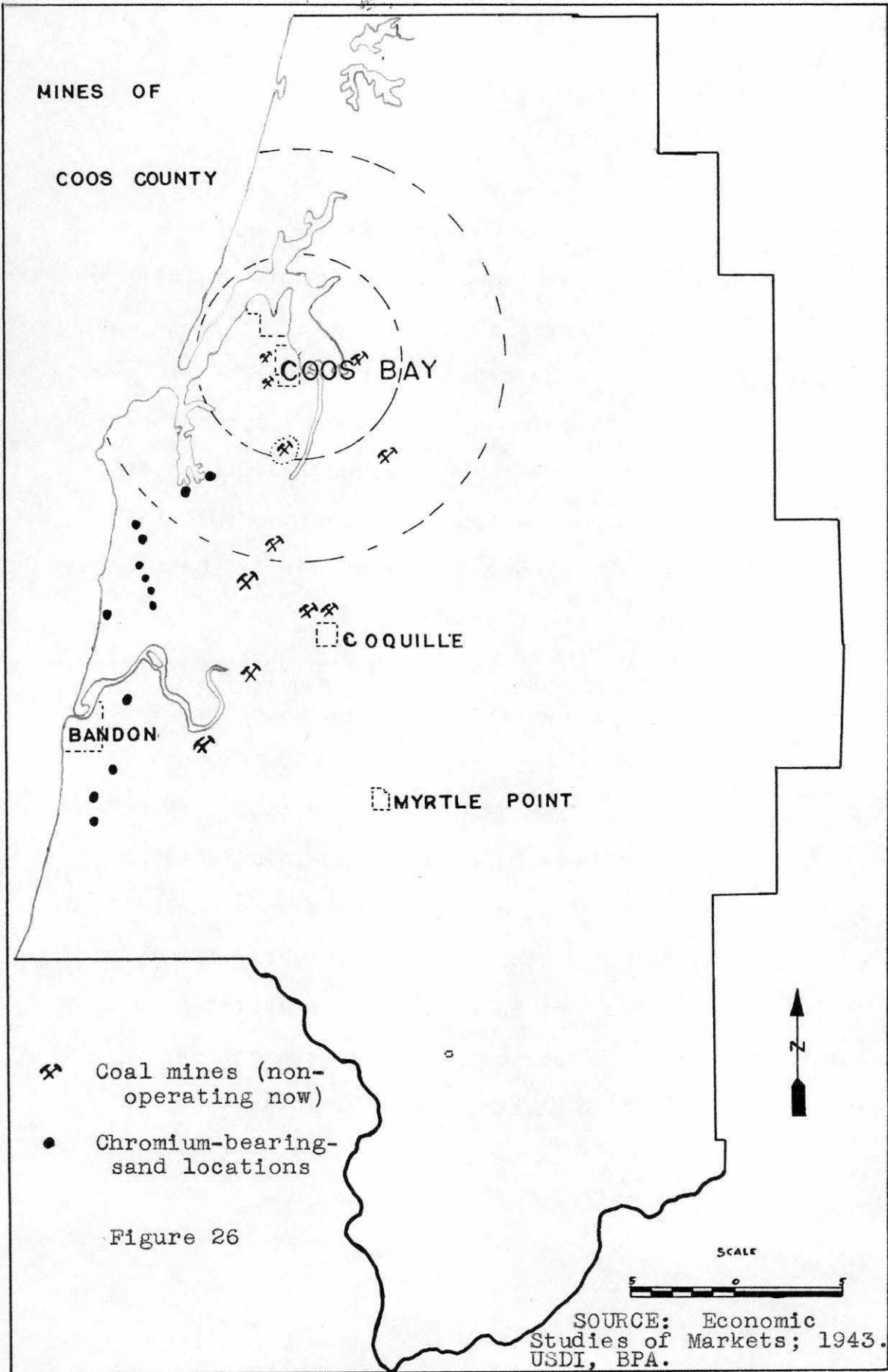
Chrome mines are located along the Seven Devil's Road and the coast. Production is the same as that of the coal mines - marginal in character. The mines are operated only during periods of high prices, war scares, short supply, or artificial governmental support. The minerals would be economically exploitable if there were sufficient by-products and joint-products to aid in

cutting the mining cost of the primary ore.¹⁸ Supplies of the ore are nowhere in sufficient quantity and quality, nor are labor and costs of supplies low enough, to warrant competition with the areas of more and better extensive deposits.

¹⁸Oregon Business Review, July, 1946. (15)

Coos Bay is the center of coal mining activity in the region. The area of development parallels closely the arteries of travel between the main population concentrations. The two large circles are placed at five mile intervals to show that the greatest development has been close to the city.

The Southport Mine, encircled, was the only mine which remained in operation up to and through World War II. There are no active mines in Coos County now, and nothing to indicate a resumption of activity in the foreseeable future. The chrome mines have been inactive for a long period, although the processing plants are still intact.



CULTURAL ASPECTS OF THE AREA STUDIED

Characteristics of the Population

General distribution of the people

The six square mile belt immediately surrounding the city of Coos Bay holds 19,334 people, or approximately sixty percent of the 32,466 people in the whole of Coos County. Two townships, Coos Bay and the one to the south, hold a total of 16,234 people, or fifty percent of the entire population (Figure 27). As a whole, Coos County contains one-sixtieth of the State's area, and has three percent of the population.

The city of Coos Bay is the hub of County-wide operations:

1. North Bend and the city of Coos Bay combined have forty percent of the stores and handle fifty-seven percent of the sales in the County.
2. The largest planing and saw mills, with the greatest output, are found within the city or a few miles from it.
3. More than one-half of the potential coal wealth is within ten miles of the city of

Figure 27 is intended to present the picture of population distribution in Coos County. There is a definite correlation between road patterns, location of streams, and populations. The data was obtained from an earlier Bonneville Power Administration County Study, since Census Reports were inadequate for the computation of square mile densities.

Observation will indicate two great clusters, around Coos Bay-North Bend and also at Coquille-Bandon-Myrtle Point. Separating these two, and running from southwest to northeast, is a band of relatively sparse population which continues on to join the thinly-settled rim which borders the western and southern limits of the County.

POPULATION

DISTRIBUTION -

1940

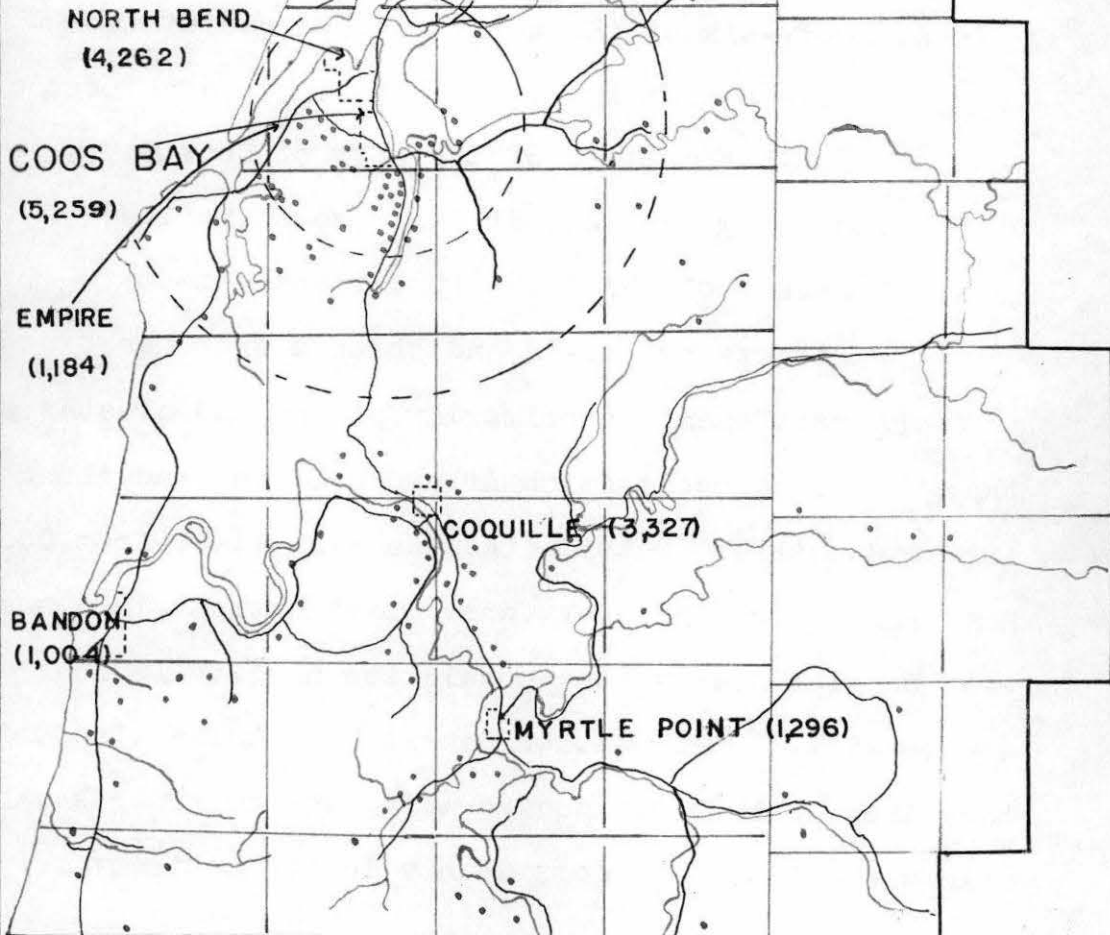
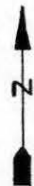


Figure 27

- Designates 100 people
- Rivers of Coos County
- Main roads of County

SOURCE: Economic Studies of Markets; 1943. USDI, BPA.



SCALE



Coos Bay.

4. The only airline stop in Coos County is made at the North Bend-Coos Bay airport.
5. Forty-six of the total one hundred sixteen mills operating within the County are found within ten miles of the city of Coos Bay, but they turn out at least seventy-five percent of the total lumber and forest products processed and shipped from here.

The settlement is primarily string and cluster with the greatest concentration around Coos Bay and along U. S. 101 to Coquille. Outside the ten mile limit from Coos Bay, and in the tributary area which extends into southwest Douglas County, the population density is four per square mile.¹⁹ Population density for the entire tributary area is 10.5 per square mile, and 20.2 per square mile when limited to Coos County in its entirety.

Important rural concentrations and types of occupance

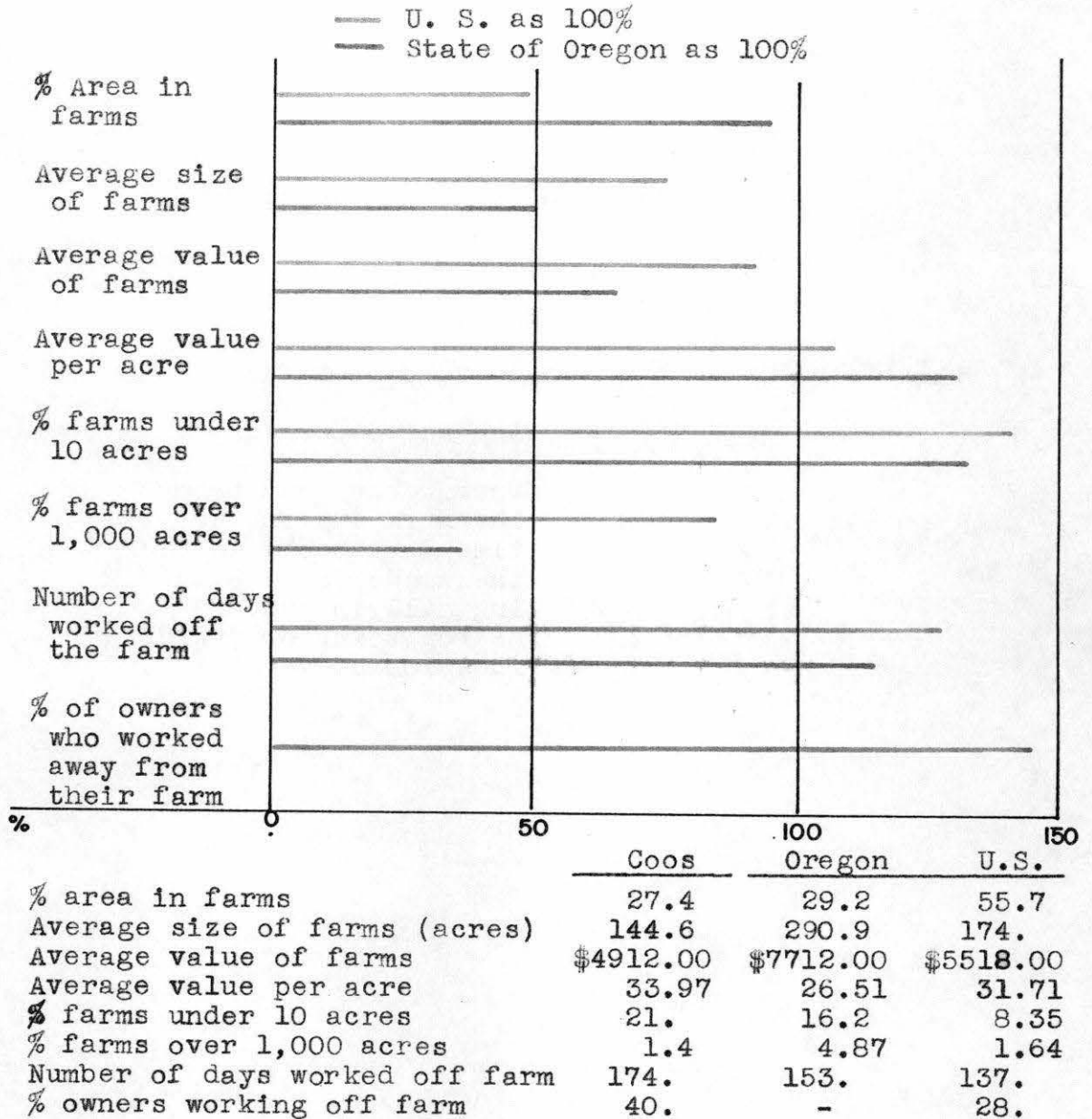
Dairy Farms

Forty percent of the 1,752 farms in Coos County are part-time farms²⁰ which supply partial needs of 745 families with a return of less than \$600 per year. Coos County has

¹⁹ Senate Document, p. 8. (3)

²⁰ Planning Committee Report, p. 5. (1)

Relative Value of Coos County Farms



Example: (7) Days worked off farm. The 174 days average of the Coos County owners is 27% greater than the U. S. average and 14% greater than the State of Oregon average.

(1) the 27.4% of the area in Coos County in farms, is 49% of the total U. S. average, but 94% of the State of Oregon average.

The typical Coos County farm:

Small size

Low value per farm

High value per acre

Owner works away from
the farm 40% of the
time - probably in
the woods, or a plan-
ing mill in one of
nearby towns or field
locations.

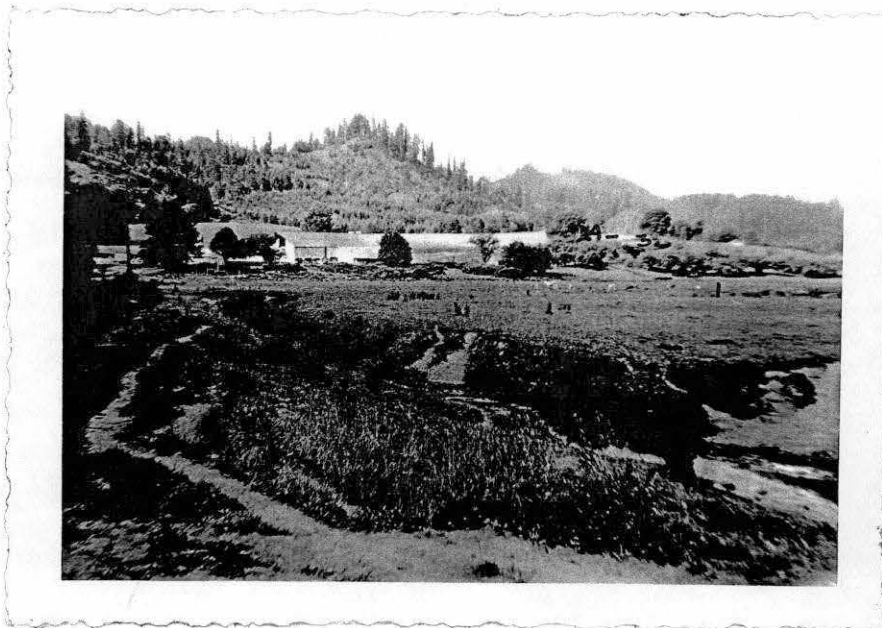


Figure 29. A view of the Riverview Farm illustrating the layer-type of occupation found so widespread in Coos County, particularly in the hinterland of the city of Coos Bay.

The numbers on the right-hand margin indicate the various layers noticeable here. The fence line in the mid-center of the photograph is parallel with the main road.

The owners house, on the upper terrace, can be seen just above the slope of the hill to the far right.

three percent of the total number of farms in the State of Oregon, but supplies only one and six tenths of the entire farm income from within the State. Oregon derives only 14 percent of its farm income from dairy products, but Coos County depends upon dairying for 71.5 percent of its entire agricultural income.²¹ Coos County is relatively unimportant as an agricultural center, but has depended upon dairying activities for its farm income - and, with its constant demand, has had less fluctuation than the areas with more general type of farms.²²

The type studies to follow are indicative of the occupance found in the various valleys which lead back from the city of Coos Bay. Dairy farms are located along the rivers and the market roads. The buildings are usually placed along the roads while the grazing lands extend from roads to the lower foothills to the rear. Along the South Fork of the Coos River and the Millicoma River the farms are located on the floodplains built up by numerous river inundations, and on the terraces built by meanders and uplifts.

A slightly different type of occupance is found on the north side of the main Coos River, downstream from the

²¹U. S. Census Report, Agric., 1945. (14)

²²Agriculture in Oregon, pp. 10 and 11. (2)



Figure 30. One of the "sleeve and pocket" pastures below the confluence of the South Fork and the Millicoma Rivers, looking to the North.

Carrying capacity at the Barnes Farm is two cows per acre, three per acre at the Landrith Farm, and slightly higher here - capacity increases as the farm is located closer to Coos Bay. Statements as to capacity are given only for a few selected farms, and do not cover all farms for the region.

The main-traveled road up the Coos River is on the near-side of the river, in the immediate foreground. There is no road on the north side, opposite, of the river.

junction of the two previously mentioned rivers. These farms do not have the benefit of relatively extensive terraces, but must be content with stub valleys running short distances back into the foothills along the river's edge. In some instances these pastures will be nothing but twenty-five foot strips paralleling the river and are like the "sleeves and pockets" previously explained.

Herds of cattle ranging from eight to twenty head are run on these limited pastures. A short, semi-improved road leads back for about one mile from the ferry and close to the river, but there is no real outlet except across the river by private boat for all these people living more than one mile from the ferry. Until March of 1949, the people were served by a privately-operated mail-milk packet which ran up the Coos River to Allegany. Since that service has been discontinued everybody below the confluence has had to depend upon private transportation.

The difficulties of bringing in supplies makes it understandable that these small farmers use only horse and wagon power, quite a difference from the heavy mechanization which exists farther upstream. Some attempts at consolidation of a number of the small farms into one large farm have been made, but the greater number of farms are operated by individual owners for the benefit of their own families.

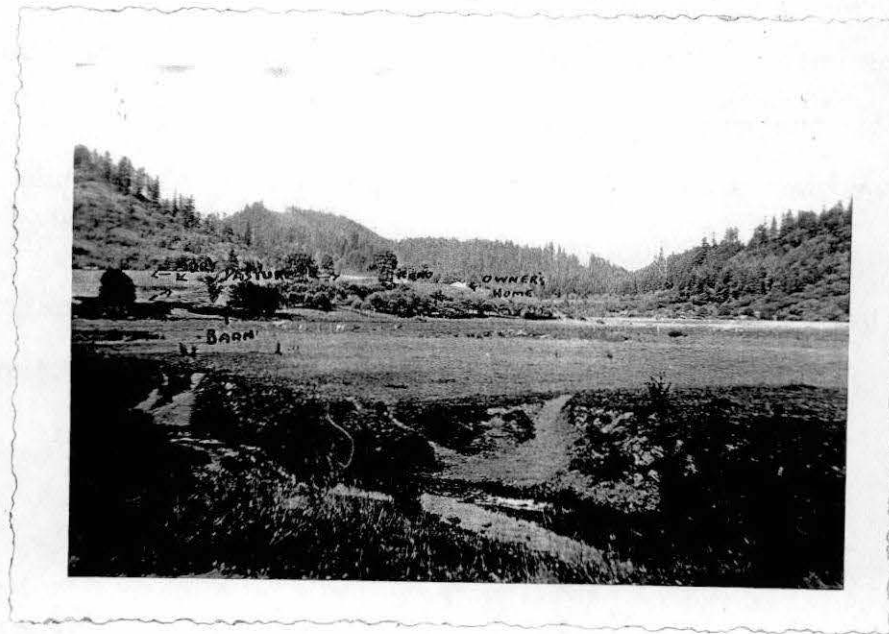


Figure 31. A view of the Riverview Farm.

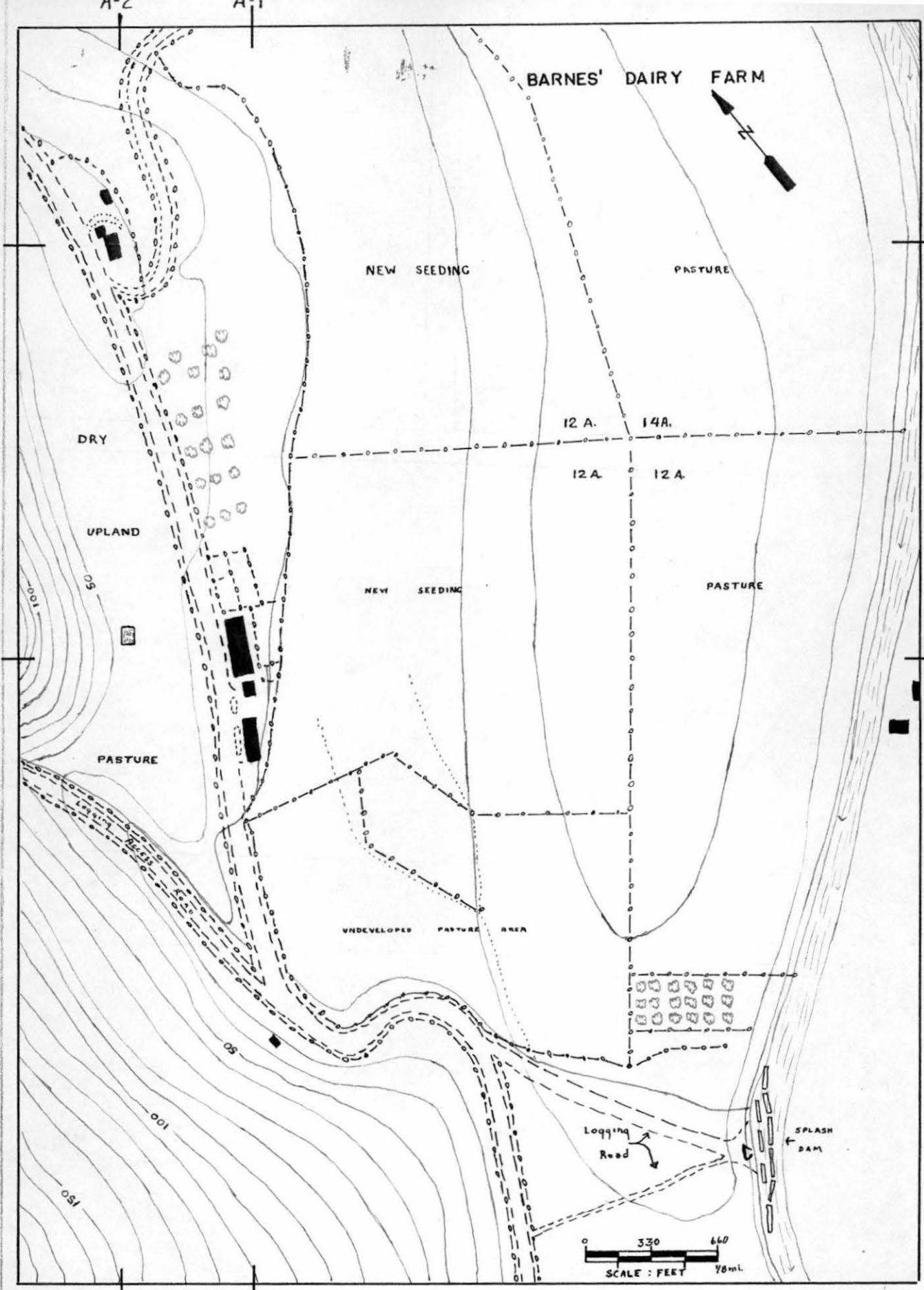
The Barnes Riverview Farm - a type study

The Riverview Farm is located twelve miles from the city of Coos Bay on the South Fork of the Coos River in the cup of the big bend of the river, and is exemplary of the large, independent producer of dairy products. The main portion of the farm is just to the west of the third bight of the meander upstream from the confluence, and is situated on one of the larger terraces found along the river. Average production of the farm is 1,248 quarts of unpasteurized milk taken from 104 cows in the milk herd, daily.

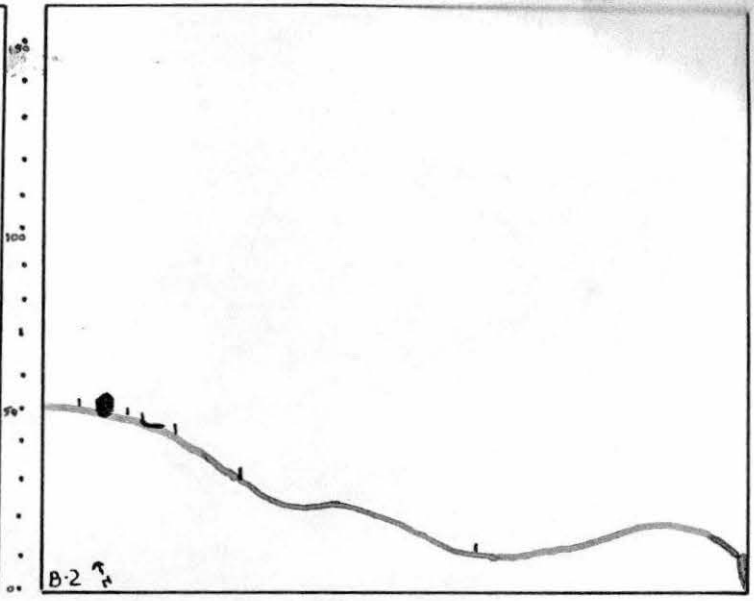
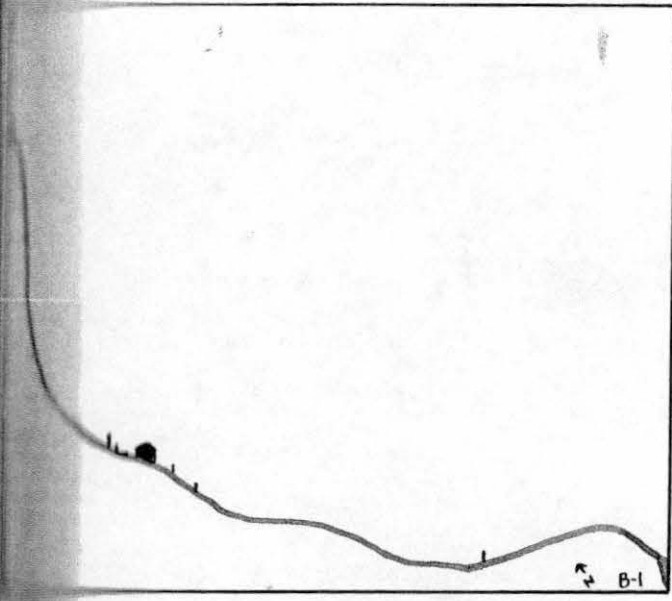
Occupance is of the typical layer pattern on terraces:

- Upper - living quarters
- Middle - work buildings
- Lower - grazing area

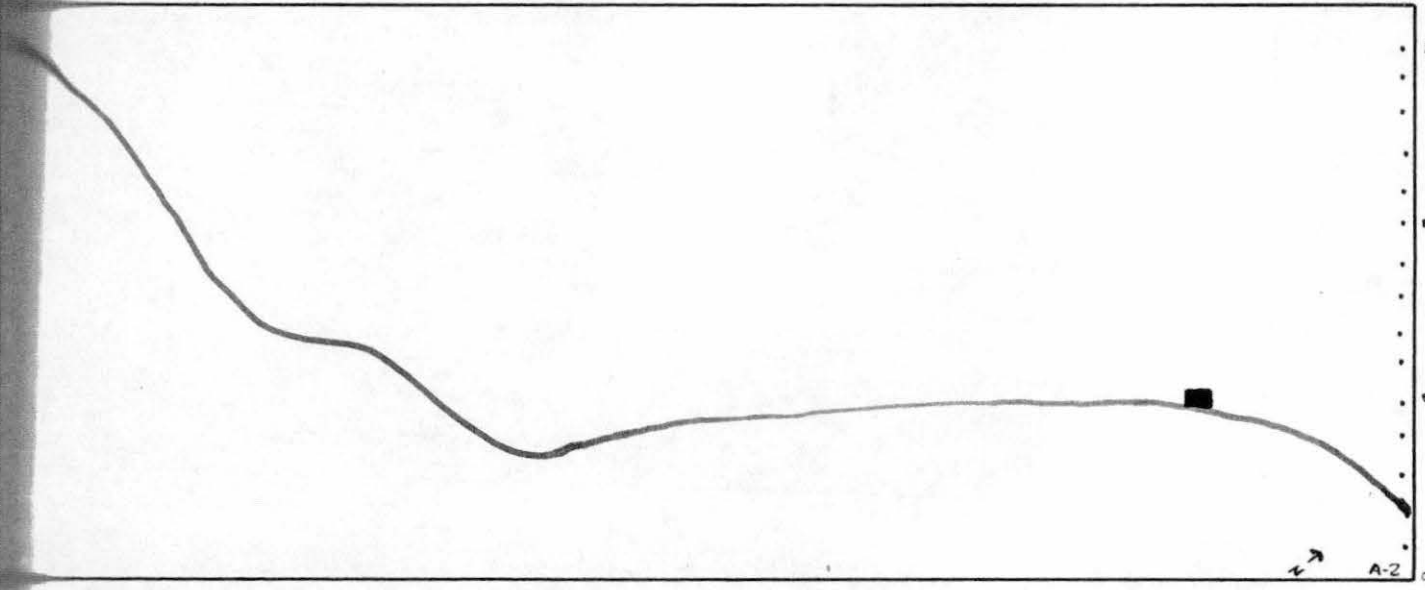
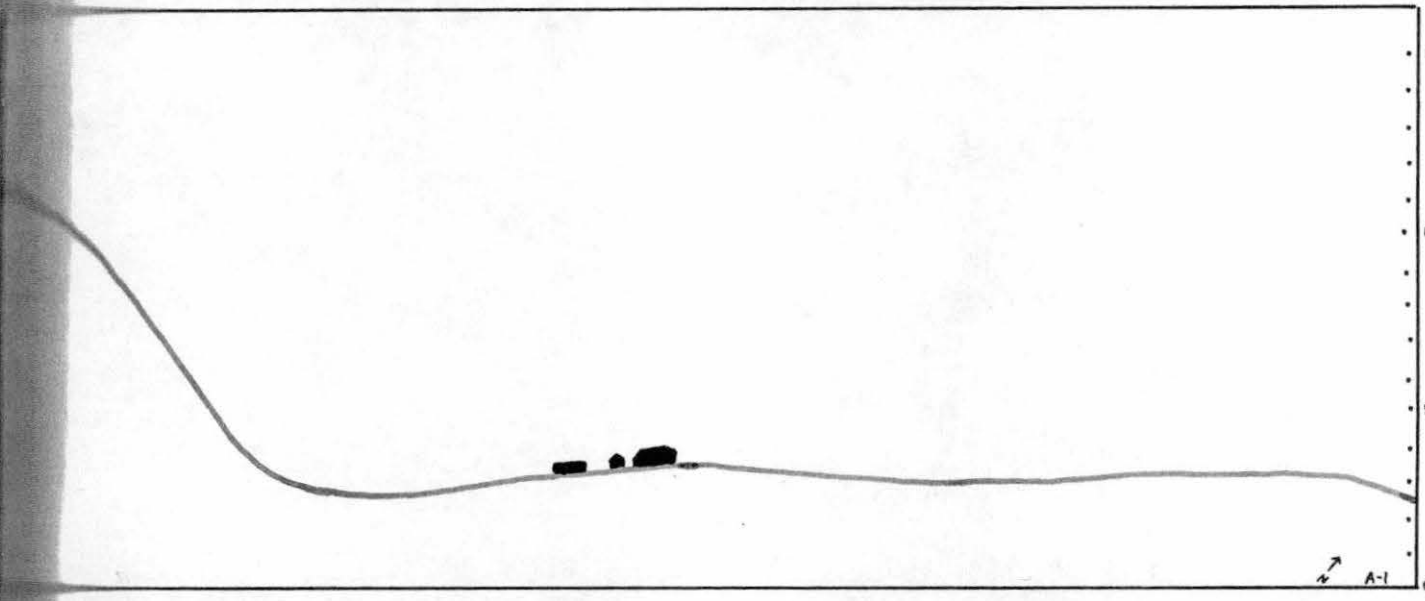
The upper level across the road from the owner's home is used for grazing of the dry-herd (composed of dry cows, heifers and young bulls). The slope land at the southern end above the main work buildings is also used for graze, even though slope here is about 45°. The noticeable levee along the river bank is the result of continuous and regular floodings in the late winter and early spring. In 1945 the flood left a covering of silt three feet deep which required a replanting of the cover crop to drive out the weeds and thistles - lita major, clover, and English rye were planted.



3-2



3-1



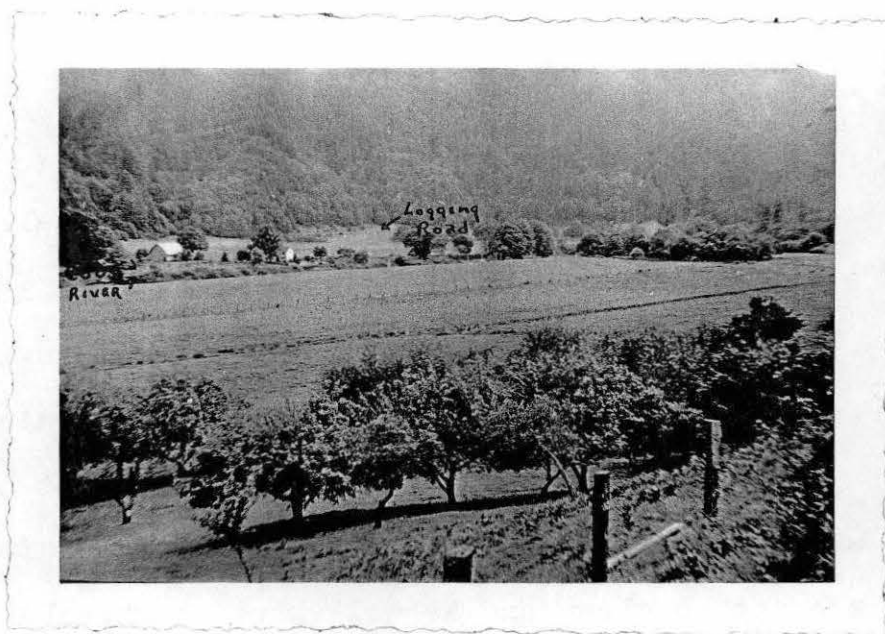


Figure 34. View looking towards the South Fork of the Coos River from a point midway between the house and the farm buildings. The orchard in the foreground, like that in the far right background, is not being cared for. Notice the field-pasture subdivisions; also, the terrace on the far side of the river.

There is no bridge to link up with the logging road across the river. The State refused to build a bridge and the local people cannot afford the type demanded by law. Logs are dumped in a splash dam downstream, and the inhabitants pass across the river on rafts they have tied up along the river bank.

Five graze units compose the main part of the lower terrace development. A twelve, thirteen, and fourteen acre pasture lot are located along the river bank and are now being used regularly for rotation of the herd. Two twelve acre fields, parallel to but in the rear of the river-bordering trio, have been replanted to drive out weeds and thistles and will not be ready until the middle of the winter season of 1949, or spring of 1950.

The middle terrace is the site of the farm buildings and blends into the dominant hills surrounding the farm at a point where the road cuts across in front of the milk shed. While the buildings are large and sufficient, they are not as clean and as well-kept as those of the larger dairies farther downstream.

Pastures are irrigated during the dry summer months, and have been treated in this manner for the past sixteen years. The overhead system of irrigation is used; there are now 125 such units in operation throughout the County. Equipment being used at the Riverview Farms is typical for the entire County, and consists of, (1) pump, set on a home-made raft, with an intake hose dropped off into the river, (2) a set of four-inch pipes, ten-foot lengths, (3) valves and sleeves to join the pipes and to provide connections for the spray attachments, and (4) spray attachments which fit over valve outlets at the point of

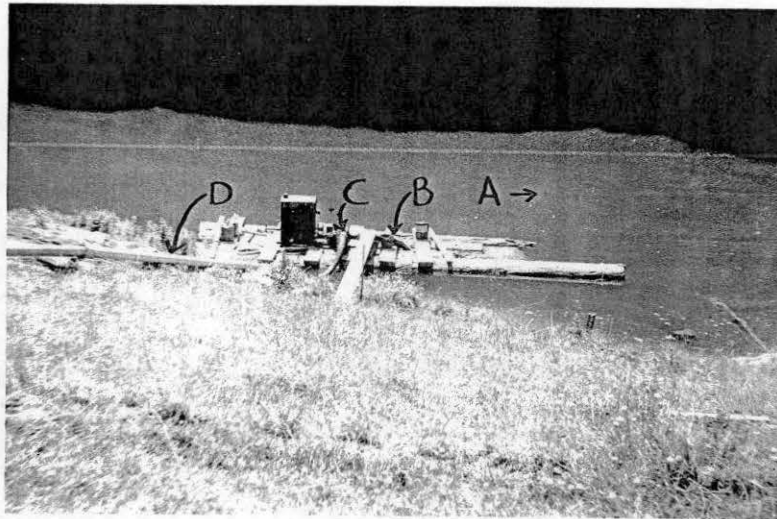


Figure 35. Power unit of the irrigation system.

- A: South Fork of the Coos River. Tidewater limit is one-half mile downstream from here. Tests have shown that salt-water content at this point is negligible - although still present.
- B: Intake hose.
- C: Outlet hose leading to pipes. The hose is dropped off the rear and acts as a power medium, as a rudder also, by being directed from side to side, for ease in movements to other sites.
- D: One section of the pipe being used. Notice that the pipe is supported by additional braces at the point of connection with other sections. The pipe is of aluminum and the entire system is moved and controlled by one man only.
- E: Sleeves of the type used to connect two sections of the ten-foot pipe. A valve would be put on the nipple protruding from the sleeve if a sprinkler were to be attached here.
- F: Sections of pipe. Two per sprinkler unit.
- G: Sprinkler unit. There are sixty sprinklers in a complete irrigation unit. Three lines with twenty sprinklers each are used on this installation and are sufficient to cover the entire pasture area up to the point where the next terrace begins.

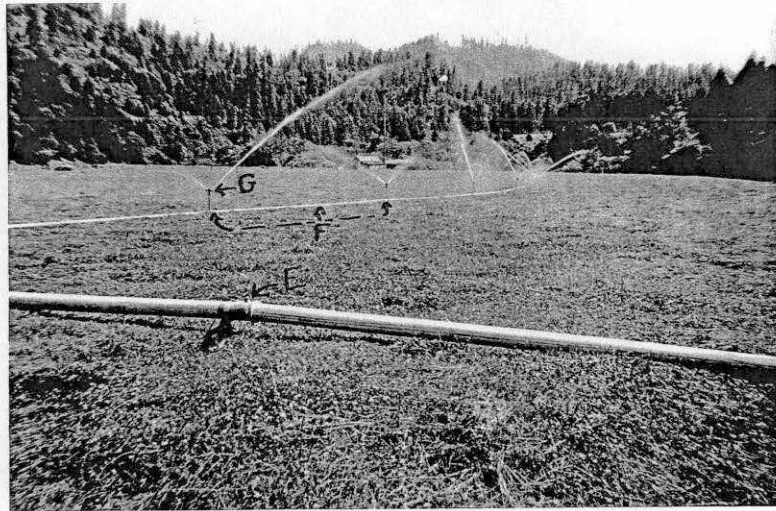


Figure 36. A view of the main line and one of the spray-feeder lines. There are twenty sprinklers on this one unit.

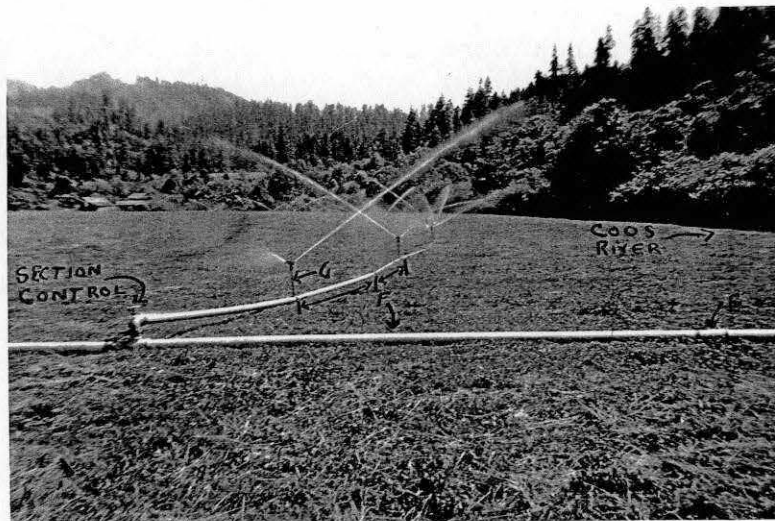


Figure 37. Another view of the juncture point of the main and subsidiary lines, showing the method of taking off from the main.

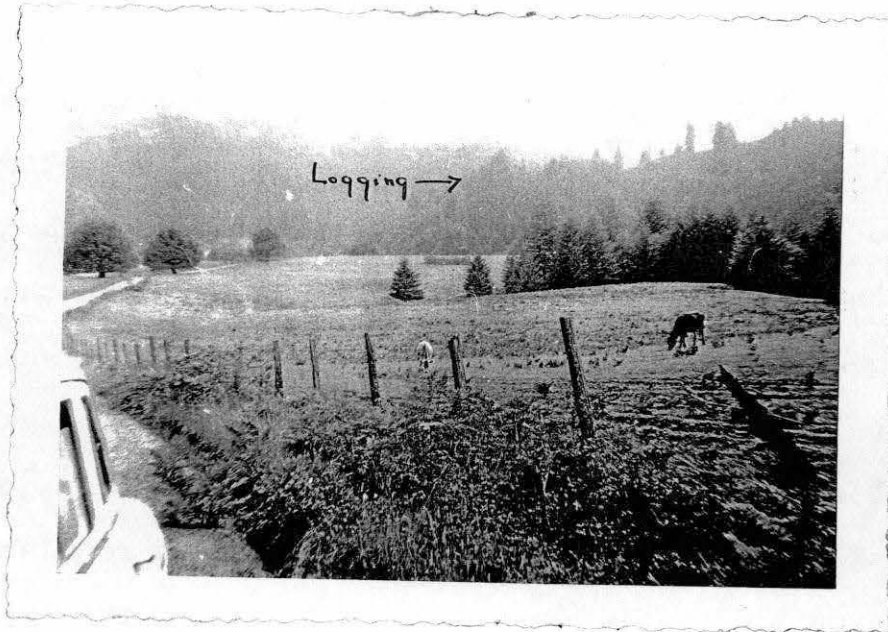


Figure 38. The upper terrace at Riverview Farm. The pasture to the right is the upland or dry pasture maintained for the dry herd. No irrigation is practiced since the distance from the river is too great for economical application.

Additional yearling stock is pastured on the hills in the far background, all sloped land.

The logging operations are being carried on back of the line of trees to the right and rear.

joining two pipes. The spray attachments being used will throw water from twenty to sixty feet, depending on the effectiveness of the spray controlled by the velocity of the wind.

The equipment is run up to eighteen hours a day, every day of the week, when in normal operation. Hours of operation are variable, depending upon the position of the pasture, the frequency of its use, and the available quantity and quality of the water. The upland pasture being used by the dry herd is not being irrigated simply because the distance is too great to do the job economically; all others, however, are watered regularly, the amount depending upon the condition of the browse growth and the number of cattle being carried at the time. Costs for irrigation of each twelve acre field is thirteen dollars a day, not too high a price to pay over a three-month period to guarantee a year-round pasture.

The cows are rotated so that they will be pastured in a field the day after it has been watered. The entire herd of 104 cows will spend two successive days in each of the fields at the main farm. Until the time that the newly seeded pastures are available for use, the herd will spend two days at the farm of the older Mrs. Barnes, one-half mile downstream. Sometime around the first of the year after the new pastures are ready for use, it will

be possible to rotate the herd to give it one day in each field or to increase the number of cows being carried.

The present herd is entirely Jersey in composition. No outside stock is purchased, and current cattle are all the result of continued in-breeding. The young calves are raised at the older Mrs. Barnes' farm, carefully tended, and then taken into the herd when ready. The three bulls are kept at the main farm in a series of pens alongside the large feed barn.

No hay for feed is grown on the farm. Purchases of alfalfa hay and small grains are made in the Klamath Falls area and stocked during the summer months. The family formerly operated a hay farm in Bend but sold it when they couldn't give it the care needed. No additional feed crops, animal or human are grown on the farm; complete reliance is placed on town supplies purchased at regular intervals.

Two milkers, one bottle man, one outside man (irrigation, general handy work, etc.), and two truck drivers comprise the working crew, in addition to the owner. The owner does little work except general supervision of the field operations, and the milk distribution in town. Two single men live in an old house across the road from the barns; the two married men have close-in holdings of their own and return to their own homes at night. The two truck

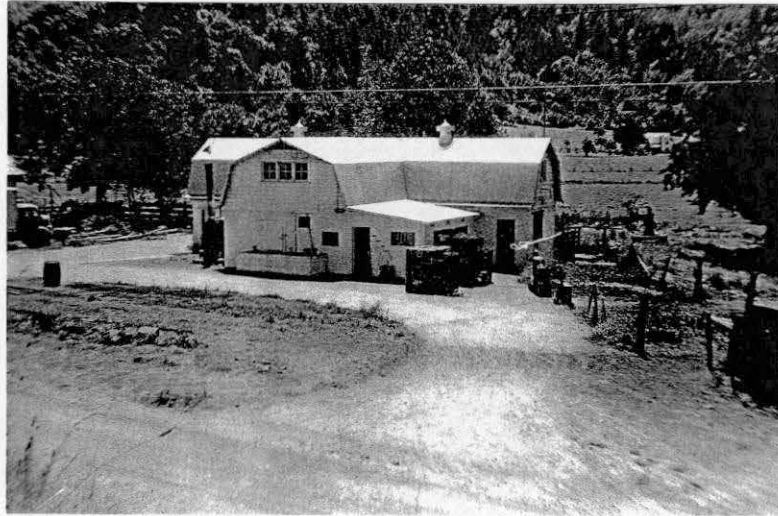


Figure 39. The milk parlor on the farm. The main road passes immediately in front of the parlor. Cases stacked in front of the parlor contain the milk bottles used in the distribution of raw milk. The edge of the terrace can be seen at the middle right, just beyond the tree shadow on the right-hand margin of the photograph.

Cows enter the parlor on the left, are placed in easily operated stalls, and leave on the right after their milk has been taken.

drivers live in the city of Coos Bay and time their arrival and departure to coincide with their milk deliveries and pick-ups and the delivery of supplies.

Milk is not pasteurized, but is sold as raw milk to the local market (Coos Bay, Empire, North Bend) with occasional surpluses sold to the local co-operative in which they take part. Two milk routes were purchased last year to guarantee a market for the farm production, and as a basic unit on which to build for further increases in his herd and output. Since all production is sold as clearly labeled "Raw Milk", the herds are inspected more regularly than others and must show a lower bacteria count than milk which is to be pasteurized. The barn is inspected twice a month, without prior notification; a sample is taken every three weeks to check the bacteria count on the milk - also without prior notice. The entire herd is inspected twice a year for indications of Bang's disease and tuberculosis - additional precautions required where the owner insists on selling raw milk.

Like many other owners in the region, the farm is bordered by a good stand of Douglas firs in the high country to the north. This is the first year, however, that the Barneses have done any cutting in their holdings which extend to the crest of a range of hills about one mile to the north. The timber was contracted to the Coos



Figure 40. A view from the upper terrace level looking down towards the Barnes' main holdings. The home can be seen at the left edge of the large tree in the center of the picture.

The three terraces are indicated by appropriate numbers on the left. Portions of two terraces can be seen on the far right.

Bay Lumber Company which in turn sub-contracted the actual cutting and field work to a local gyppo logger (a small operator). The owners still do not know the total amount of timber on the holding, or the harvest to be expected.

The trees were felled last winter, and are now being hauled by truck from the site to the splash dam - approximately one mile. As soon as enough logs to complete a boom have been dropped into the river, a tug will haul the raft to the Coos Bay Lumber Company holding pond. An average raft will carry from 50,000 to 250,000 board feet of lumber; at the time of the study, only one raft had been sent out. After the logging operations have been completed the bench land will be planted to grasses and used for winter pasture. The owner is not at all interested in growing another crop of timber for some future harvest period.

The Landrith Farm - a type study

The Landrith farm is located at the point of confluence of the South Fork of the Coos River and the Millicomma River, on a finger-like projection which is bordered by both rivers for at least one-half mile. Unlike the Riverview Farm, the production from this farm is sold in its entirety to the Coos River Farmer's Creamery.

The farm is divided by a fence down the center which

The term "splash dam" is used throughout the paper as "log dump" might be used. In the true sense of "splash dam", there is assumed to be an impounding of water and the storage of logs - until they are released for movement to a mill site; whereas a dump is that point where logs are unloaded from trucks and railroad cars, held by a boom, and then hauled to the mill.

During the period of the field work, the writer had opportunity to speak to a number of the field operators. Although the executive group appears to use "dam" with the connotation indicated above, there is a tendency among the actual field workers to use "dam" and "dump" interchangeably. The writer spoke to more field workers than he did to executives; it is for this reason that the term "splash dam" was selected, and was meant to suffice also for "dump".

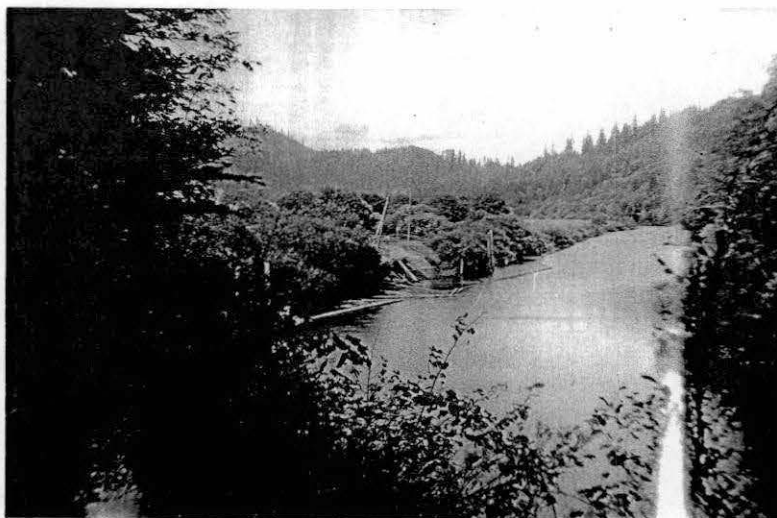


Figure 41. A splash dam on the downstream boundary of the Riverview main farm. The dam is used to hold cut logs until a large enough raft has been constructed to warrant bringing a tug upstream to haul the logs to the mill holding pond.

The poles set up on the right hand side of the river serve a dual purpose: a splash dam site for logs cut in this relatively inaccessible side of the river, and a dock area for the raft used to get back and forth across the river.

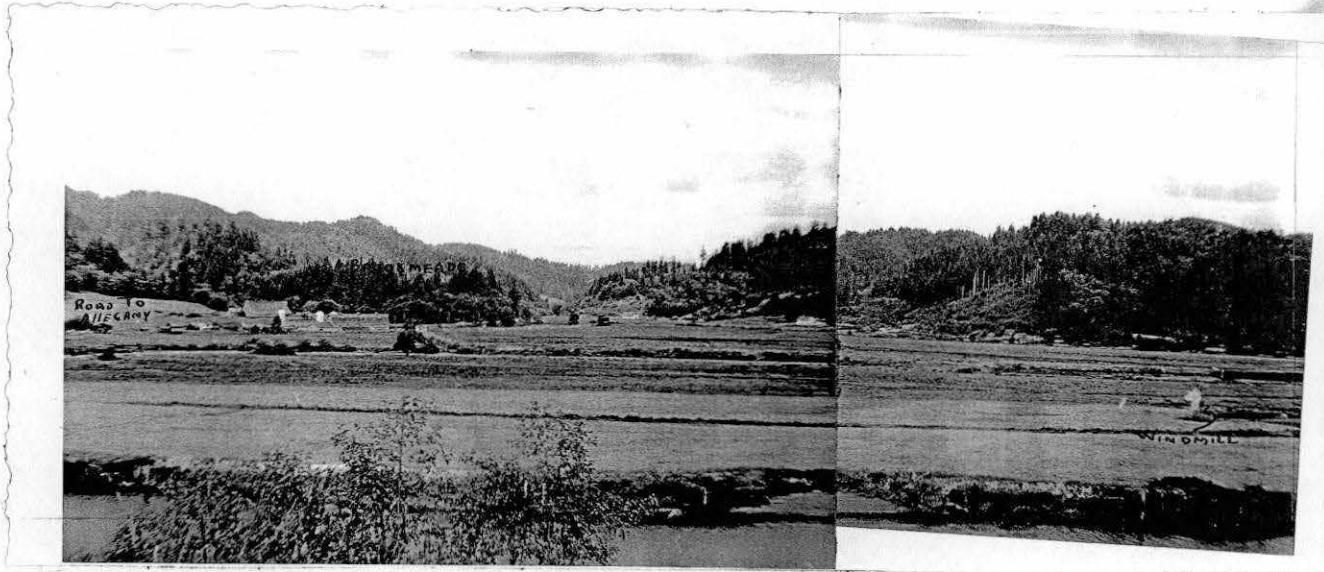
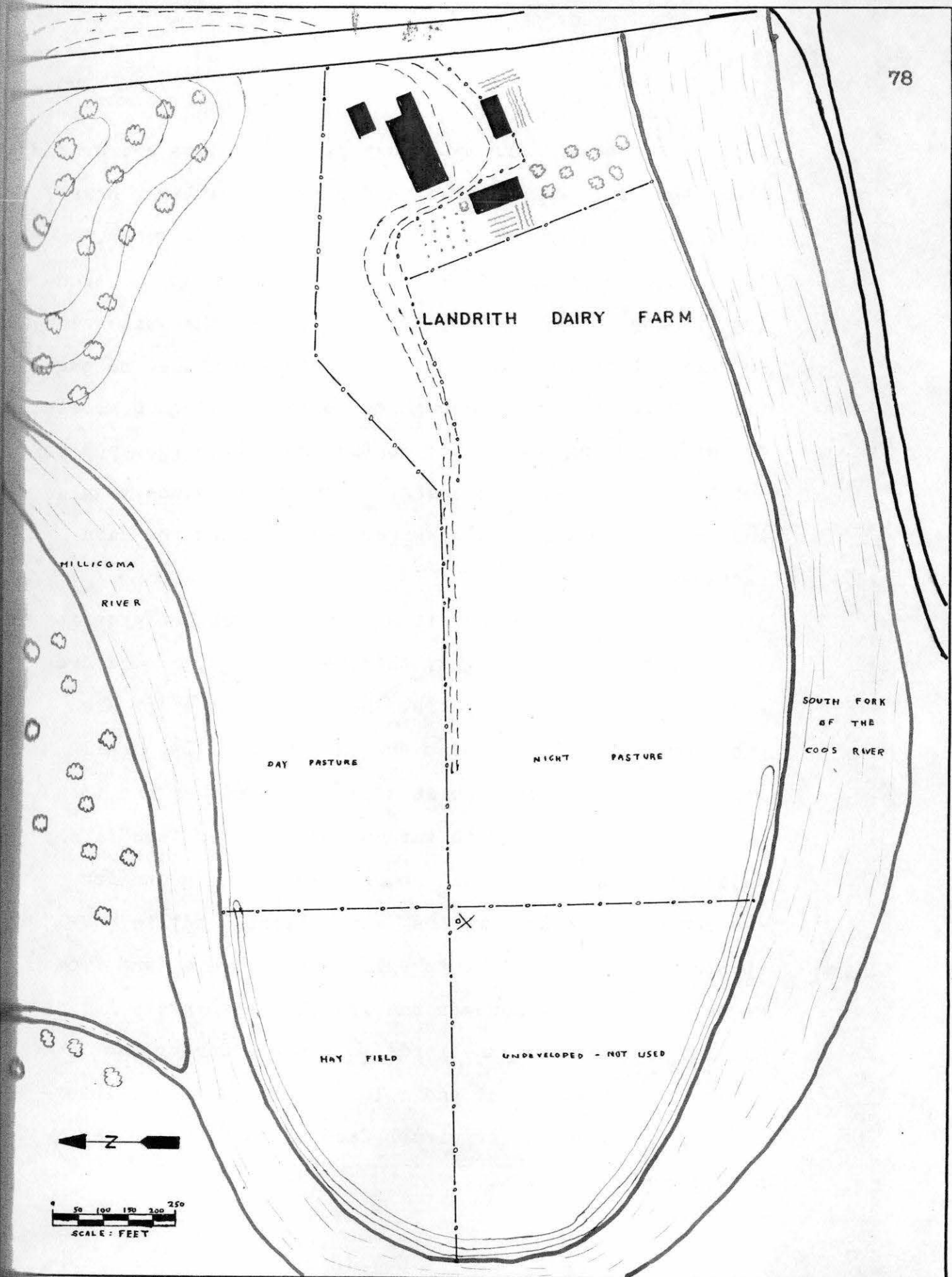


Figure 42. The Landrith farm is in the foreground between the two rivers. The extensive level land here is undoubtedly the result of the confluence of the South Fork and the Millicoma Rivers. Coos Bay is to the left; South Fork of the Coos River is in the immediate foreground; the road to Allegany heads up the valley towards the rear-center of the picture, and passes just to the left of the Brookmeade Dairy buildings.

The windmill in the far right-hand corner of the photograph is the only pumping source in the pasture; another mill and well at the living quarters area supplies water for the two families there. The fence dividing the night and day pastures leads back from the windmill site. There is another fence across the width of the pasture area to keep cattle from this field at the tip which is seldom used. The mounds at the point extend back around the curve of the rivers and are the result of dredging and repeated inundations.



LANDRITH DAIRY FARM

HILLIGOMA
RIVER

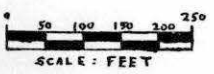
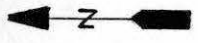
SOUTH FORK
OF THE
COOS RIVER

DAY PASTURE

NIGHT PASTURE

HAY FIELD

UNDEVELOPED - NOT USED



separates the night from the day pasture. Cows are grazed along the Millicoma River side during the daylight hours, and along the South Fork side during the night hours. The change in pasture is made after the morning and evening milkings only. Both pastures are used the year round and are not irrigated. Experience has shown that seepage from the two rivers is enough to permit continuous growth of feed. During the winter months the cattle are kept on subsidiary acreage to the east of the road, since regular inundations from increased river levels flood the main pastures.

At one time the Landriths grew potatoes but gave it up when, because of blight, they couldn't get a good crop a number of successive years. No additional crops are grown on the holdings, with the exception of two small gardens for table vegetables kept by the mother and the hired man's family. Both gardens are located immediately adjacent to the individual homes. No hay is grown for use during wet winter months, since alfalfa hay is purchased as needed from Scots Valley, California, and from Redmond, Oregon. Whenever the locally grown grass hay is too large a crop for the herds to consume during the summer months it is cut and sold as quickly as possible - none of it is saved for winter feed since it is not as nutritious as alfalfa.

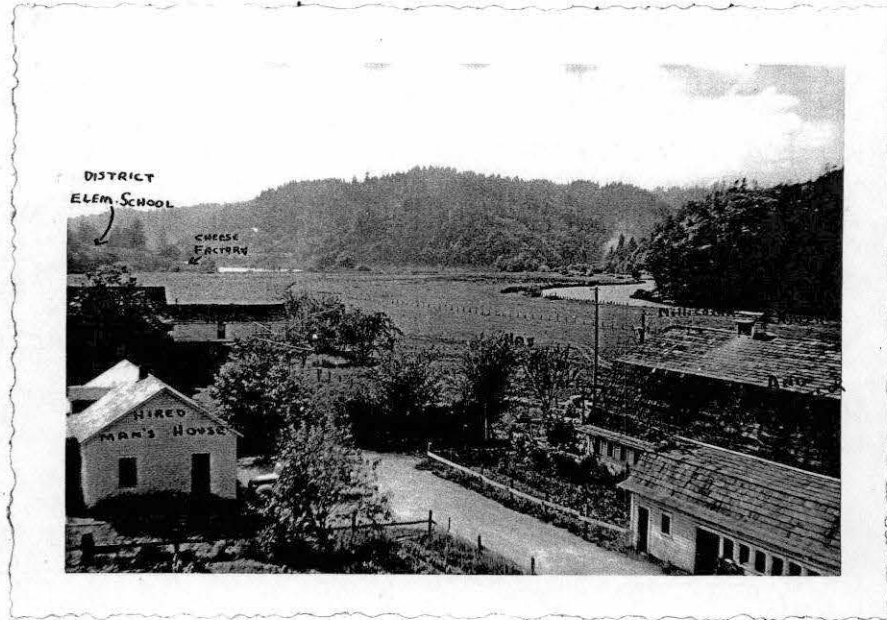


Figure 44. The Landrith farm as seen from the bridge which passes over the east end and separates the main pasture from the subsidiary pasture. The fence line dividing the two pasture areas can be traced from the end of the main barn to the opposite end of the field.

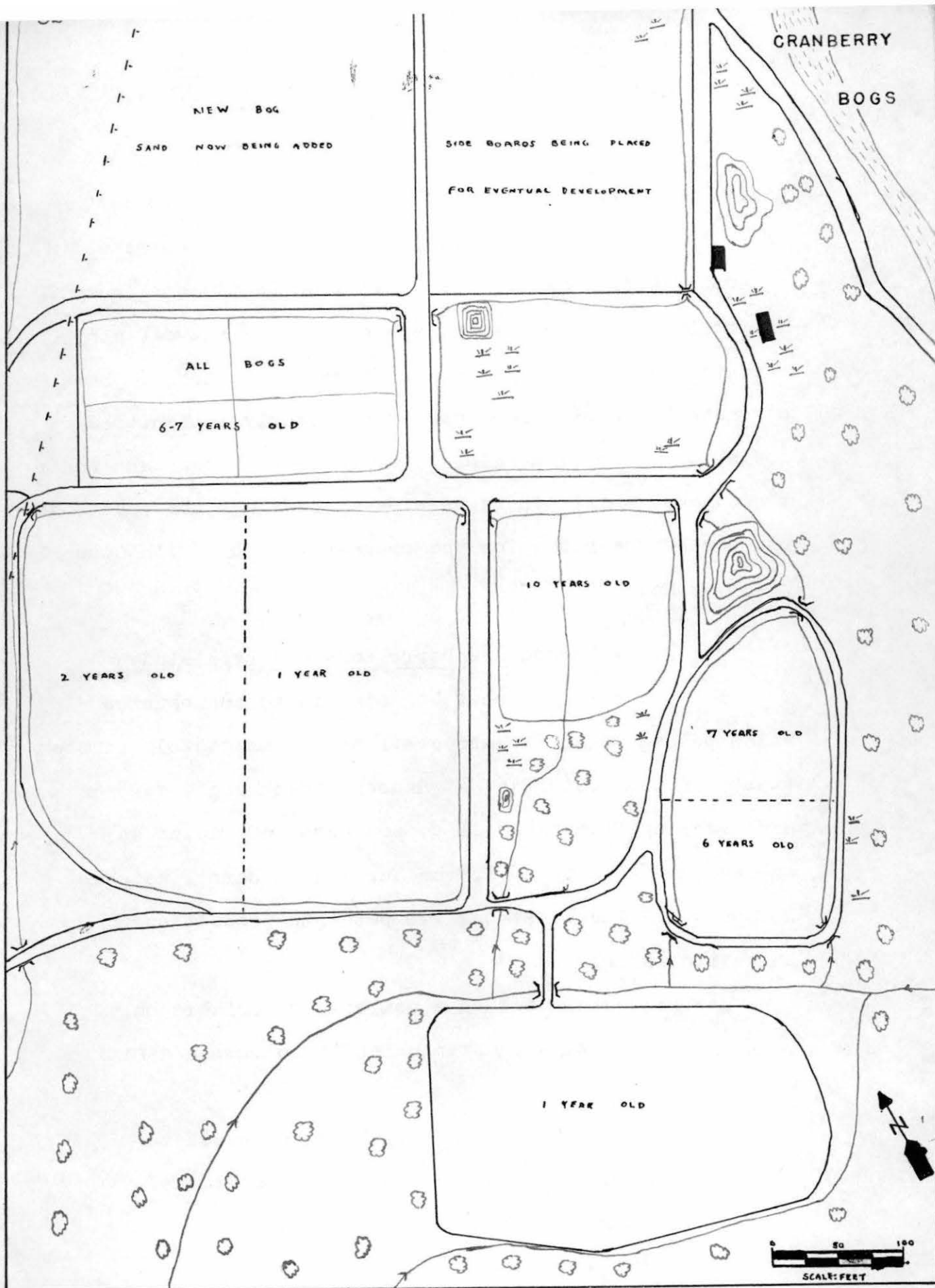
Hay stacked in front of the barn was cut in the field at the tip of the peninsula beyond the windmill, and is being held for eventual sale. The pump which supplies both houses with water is located just to the left of the hired man's house. The milk parlor is at the end of the large barn, under the bridge. All equipment and grounds are very clean and in a good state of repair - different from the buildings of the Riverview Farms.

The eighty-five cows which are milked daily turn out an average of 2,600 pounds of milk. Two hired men and the son of the owner do all the work. The entire production is sold to the Creamery located on the Coos River, upstream from the Enegren ferry site, where it is processed into cheddar cheese. In addition, the son has purchased another dairy farm at Scots Valley and is now stocking it with milch cows. This second farm is run by a tenant farmer, with the son making only periodic inspection trips.

Cranberry Production

General

Cranberries grow best on an acidic soil which gives the berry the tart taste normally associated with it. Because the berries require a highly acidic soil which is best found in peat bogs, cranberry production is limited to those bogs here in Coos County. Peat is partly decomposed matter with a high carbon content formed in moist regions along the shores of small lakes and small protected bays of large lakes. Continuous building of successive layers or waves toward the center, with mosses taking the place of what was formerly water, helps to decrease the lake until it is obliterated and a swamp or bog floored with a thick accumulation of peat takes its



place. The peaty soil, strongly acid, extends to depths of sixteen feet in some bog areas, and is concentrated in a spotted fashion along the coast line (soil map Figure 20). The moving sand dunes along the coast have cut off many streams and bodies of water and formed dune lakes. Some of these lakes have remained as constantly replenished bodies of water (via rainfall or seepage through and under the dunes), while others have developed into the peat bogs and formed the basis for the present industry - in Coos County since 1896.

The K. J. Howard Cranberry Bogs - a type study

The six acres of peat bog planted to cranberries which belong to Mr. Howard are located immediately in back (west) of the postoffice at Hauser. Each bog covers an area varying from one-half to one acre and yields an average of 125 barrels to the acre (each barrel weighs 96 pounds). The first bog was put into production on this site in 1930.

Developmental work on a new bog is variable only in the initial stages, after which it follows a definite pattern:

1. 'doze off the entire top layer of weeds to a depth of three feet, taking with it the sand and peat which was lying within the

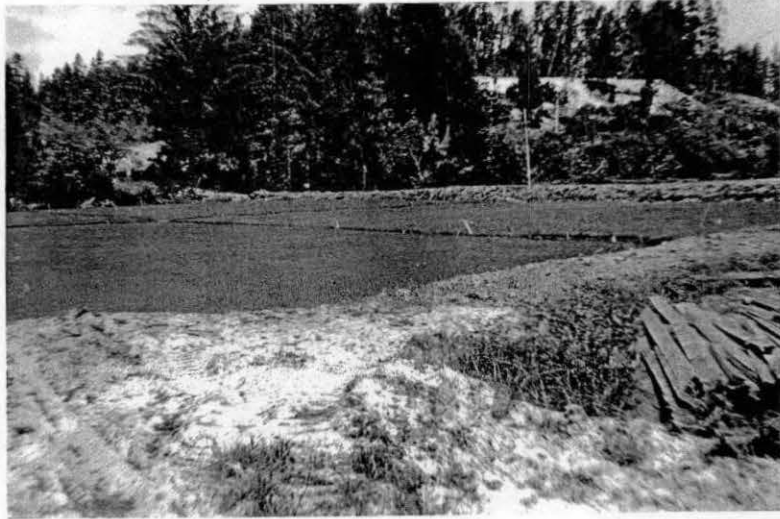


Figure 46. The six-year old field in the K. J. Howard cranberry bog. Roadways and paths have been built up from 'dozings in the initial preparation of the field. Ditches in the center which cross at right angles in the center are used for drainage and irrigation to control the water level. The sand dunes in the rear indicate the proximity of these formations to the west of the main bogs.

top layer,

or

2. clear as many of the weeds as possible by hand or by burning; add Shell-20 or some other oil of the same general type to kill any remaining weeds; then
3. leave the bog to summer fallow regardless of which method was used to clean the top layer,
4. add four inches of clear sand in the late summer or early fall. Clean sand is very important since dirty sand will aid the growth of weeds.
5. plant the runners which are excess plants from existing bogs and will vary from eight to twelve inches in length. Plantings can be either:
 - a. hand-planted: four, eight, or twelve inches apart to prevent too close a growth with resultant hindrance of berry development,
 - or,
 - b. broadcast: runners are then pushed into the ground by use of a dull-edged disc

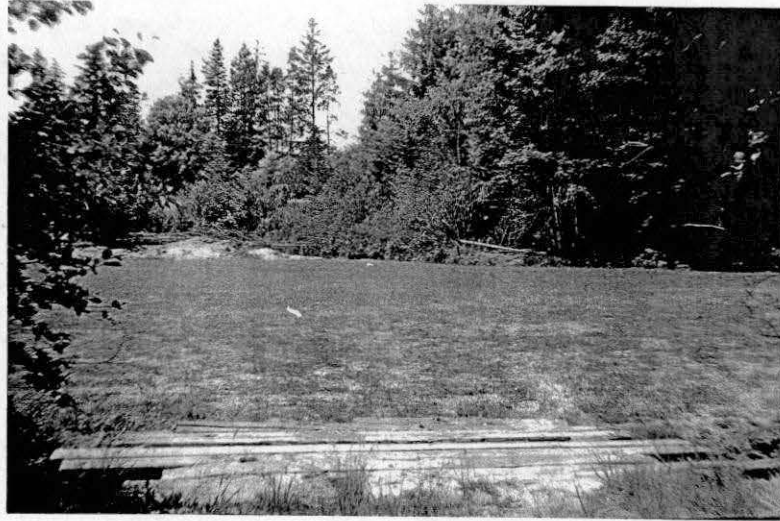


Figure 47. A one-year old cranberry bog. The runners have not grown in completely and have left wide gaps through which the basic sand cover can be seen. Planks in the foreground span the arm of the creek which feeds this portion of the bog area. Another ditch along the opposite side of the bog supplies water to give an equal distribution. Notice the absence of 'dozer deposits on the side, indicating that the newer method of development has been used on this field.

harrow run over the vines. The sand which had been added earlier will now give the runners a chance to anchor themselves, and will retard the growth of weeds.

6. add additional sand every year, or as frequently as needed to:
 - a. help prevent a scum from forming on top
 - b. retain the heat of the sun which during the spring will mean the difference of three to four degrees warmer temperature in the morning hours, sufficient to prevent frost damage
 - c. kill weed growth
 - d. kill insects. Insecticide will do the job too, but if used will cut the berry yield by as much as fifty percent for that season; operators usually write off the bog for the year in which insecticide is used.

At least four years will elapse from the time that the bog is first prepared until the initial crop is harvested. Weed growth and frost are the two dangers from which the owner has to protect his crop. Frost is a periodic occurrence, but the weeds present a continuous problem.

During the four-year preparation period the only pressing problem is that of weeding which must be done at all times if the bog is to have a good crop.

Fertilizer is used sparingly because it will sweeten the ground, and will result in more vine growth with fewer berries. The water table must be kept within twenty inches of the surface of the bog and presents a difficult problem in the summer months. The Howard bogs are favored by having a creek run through its entire length, replenished from dune seepage. Control gates and ditching answer the needs for complete control.

Berries are in full bloom about the fourth of July and the picking starts from the fifteenth of September. The danger of frosts toward the end of October means the picking must be done within one month's time since the berries are no longer as hardy as they were in the spring - they were growing stronger then, while the frosts were fewer.

To use the flooding process of picking which Howard does, it is necessary to have an easy control of plentiful water. Bogs must be small for control of water, and the standing water must be from four to ten inches deep. A paddle wheel is run over the bog to knock the berries loose from the vine. The berries which float to the top of the water are scooped up with a rake or basket and

packed in boxes supplied by the processing plant.

The water method is cheaper and easier, since only five percent of the labor is used which would be employed on dry picking. A disadvantage results since cranberries picked in water will deteriorate more rapidly and must be sold for immediate cold storage or packing; whereas, the hand-picked berry will bring a premium price since it can be dry-stored and sold to the holiday trade in November and December.

An investment of \$2,000 per acre and four years of conditioning and preparatory work are required to bring a bog into production. From the fourth year, and indefinitely, the bogs will produce from 125 to 200 barrels of cranberries per acre every year. Average profit, substantiated by all owners interviewed, indicates a net profit of \$1,000 per acre during producing years.

Mr. Howard does not produce any other vegetable crop for his own use. His wife is postmistress of the town of Hauser and helps to supplement their income, since the income from the bogs is only \$6,000 in a good year. Like the other producers, he makes trips to the Eastern producing areas to learn the newer methods and varieties which have been introduced.



Figure 48. A plank road which leads across the dunes to the stationary dunes in the rear. The road is passable only to jeeps, other heavy duty vehicles, or to passenger cars if driven by a person familiar with the road. The Lyons cranberry bogs are about 100 yards beyond the leading edge of the trees, on the far right hand side of the picture.

The Reuben Lyons bogs - a type study

These bogs have remained in the same family for forty years and were originally planted by the father of the present owner. In addition to the bog, Mr. Lyons maintains a welding and repair shop on U. S. 101 which is the main source of his present income.

The bog is located in the center of the sand dune area at the north end of the Coos Bay spit. Water is supplied through a series of reservoirs in the dunes designed to collect rain water and seepage from dune lakes. A gravity feed system takes the water to all parts of the ten acre bog. The bogs have not been well cared for in the past and there is now a heavy growth of weeds all through it. A small rail system down one side of the bog is used to haul loaded boxes to a storage shed near the house.

At least one hundred people per season are needed to pick the berries by hand. Wages have risen 300 percent, berry prices only a little, and the owner intends to do his own picking over a two month period since he believes that is the only way in which he can make a profit. The work will all have to be done by hand since the fields are too large for adequate control of the water. Also, the price for water-picked berries is too low to satisfy Mr. Lyons.



Figure 49. A view of the Lyons bogs. Large fields are possible here because the berries are hand-picked. Fields have to be small when water is used so that the amount to be added can be easily controlled. These bogs are overgrown with weeds as a result of poor care and their long life of over forty years. Additional cranberries are in bogs between the two lines of trees in the left rear.

Different from the other bog owners, the Lyons family grows its own supply of table vegetables. Beets, cucumbers, peas, onions, garlic, cabbage, cauliflower, beans, carrots, parsnips and tomatoes grow well. The tomatoes are excellent if eaten fresh, but turn a sickly yellow color with little retention of flavor if they are cooked for canning.

The Bancroft bogs - a type study

Located on one of the market roads between Empire and North Bend, the Bancroft bogs show indications of good, all-around planning. The twelve acres of bog now being worked were under three feet of water when operations started in 1934; they were easily drained by pumping. Future plans will include twenty acres of bogs now lying undeveloped, which have a peat bed varying from sixteen to twenty feet deep.

Overhead irrigation methods are used, like that of the Riverview Farm, with water supplied from two wells, and two sumps recently dug. Seepage keeps the water level high. The sprinklers are run from five until nine o'clock every evening, and for two hours in the morning during summer months. The busiest part of the year is from April 15 to August 15 when planting and harvesting of a diversified crop and irrigation problems make for a complete

schedule. Work slows down after the harvesting begins about the middle of August, and little is left to do after September.

Picking is done by a vacuum device built like an oversize, pot-bellied vacuum cleaner with two suction hoses, and run by a twenty-five horsepower motor. Berries are taken up through the suction hoses into the hopper which funnels down to a loading door at the bottom where the berries are loaded into boxes. The machine is operated by four men and will do the work of fifty hand-pickers. Better than hand-pickers, the machine will pick all the berries, sort and throw off the leaves, and then drop the berries into boxes ready to be picked up by field hands. With the machine, it is possible to pick at least one acre a day.

The entire output has been sold to the Cranberry Association for sale as fresh fruit since 1946. Production of 125 to 175 barrels per acre have given a net return of \$1000 per acre at least. Vegetables supply another source of income and are sold to dealers in Portland and San Francisco. In addition to money, the vegetables add value when planted on old bog since they help to kill and drive out "foreign growth" so the bog can be returned to clean cranberry production.

Peat moss from the sumps is ground, packaged in cello-

phane bags, and sold through department store chains to the home owners. Additional amounts are sold to nurseries in Willamette Valley cities. A new addition, nursery stock, is just now being put into operation and is expected to yield new income. The stock is being put in for display along the Empire-North Bend road with the hope of developing a landscaping business. The one hundred chickens which are maintained for the sale of their eggs in the North Bend markets add the latest touch to the most diversified cranberry bogs in Coos County.

Richard Bates Cranberry Bogs - a type study

Like the Howard bogs in physical make-up, the Bates bogs are different in marketing since these berries are all sold in the fresh fruit market. After the berries have been picked by the scoop-method, they are packed in boxes and stored in a shed on the bog area until ready for sale. The risk of home-storage is high and the carrying charges rise quite a bit, but the price for the berries is also much higher when they are sold during the holiday seasons.

Mr. Bates grows the MacDonald variety of cranberry because it has a thinner skin and a better taste than do the heavier-skinned Stankevitch and Boyle varieties. The thin-skinned cranberry can be grown where hand-picking is

used, and the advantage of quality products permits Mr. Bates to sell as much as the fresh fruit market will absorb and still sell the remainder to the processing plants at a premium. With the 1949 harvest season, the processing plants will pay an additional premium for berries of a higher quality.

Education

One-third of the 5,335 children between the ages of nine and nineteen lived in rural school districts, according to the Coos County school census of 1946. The remaining two-thirds were in districts either urban or suburban in character.²³ The median of ten and one-half years of education for the city of Coos Bay is slightly higher than the State average of eight and eight-tenths years, and also for North Bend. Of the 3,425 people who started in first grade, only 1,162 finished eighth grade, while 230 went on to finish college work - 6.7 percent of the original group.

The schools of the city of Coos Bay are concentrated on top a piece of high ground in the southern portion of the city. All three levels are built within the area of one square block, and except for the grammar school are

²³Planning Conference Report, p. 5. (1)

quite new. There is an elementary school in Empire, and another along the Coos River across from the Landrith farm, but the greater number of students come into Coos Bay for the higher grades.

North Bend has its own school system and separate buildings, but lack of funds prevents both systems from developing separate and complete systems. Civic pride prevented the two cities from consolidating completely, but it would seem that rationalization would show that joint-action on school problems would be beneficial to both cities. With a demand for diversification in industry here, some of the problems could be answered by the training of craftsmen in the schools who would be able to answer the call for present-day specialization. Since so few people finish high school, the addition of shop work in the lower grades would help to prepare them for some future openings, but neither city can do it alone.

Employment is Concentrated Within Three Fields

The general picture of labor

Eighty-six percent of the 13,372 people in the Coos County labor force are employed.²⁴ The most important fields of employment are the saw and planing mills, agriculture, and logging - in that order of descending

²⁴Census Report for 1940. (14)

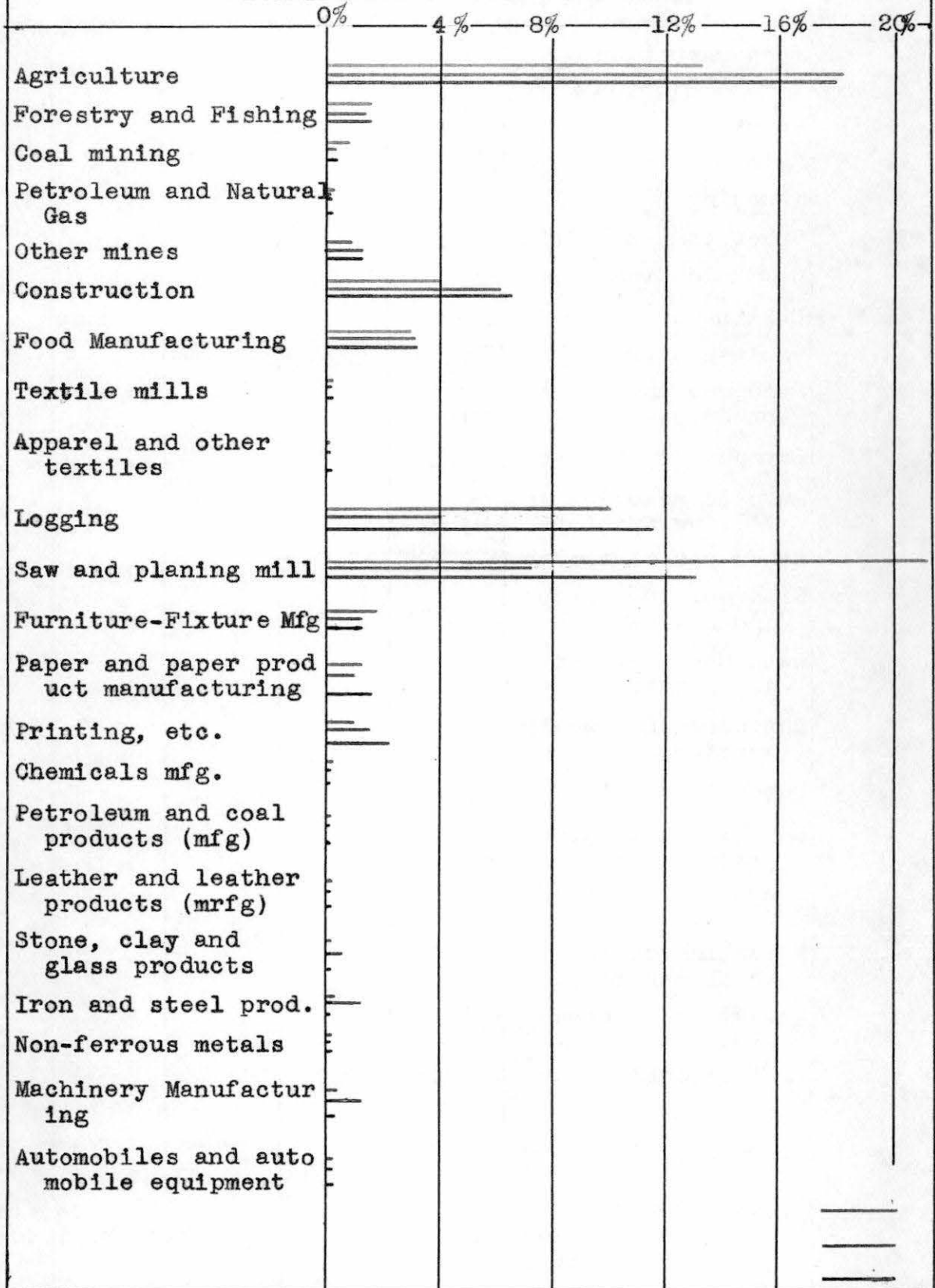
importance. The next group are the retail and wholesale outlets, after which there is no important concentration.

A very noticeable danger is the concentration on lumber and logging operations. There is a decided lack of processing units and the lumber is sent out at an eventual economic loss. Lumber sent out of Coos Bay mills is seldom in a finished manufactured form. The greatest return in value, and the larger number of people employed, occurs in the furniture and planing mills inland. In terms of the total potential of the region, this means that there is an economic loss. If there were furniture factories, planing mills to turn out window frames, etc., and factories to utilize further the waste materials, more of the value of the tree would remain within the County and State, and would provide a more stable base in case of depression or loss of market.

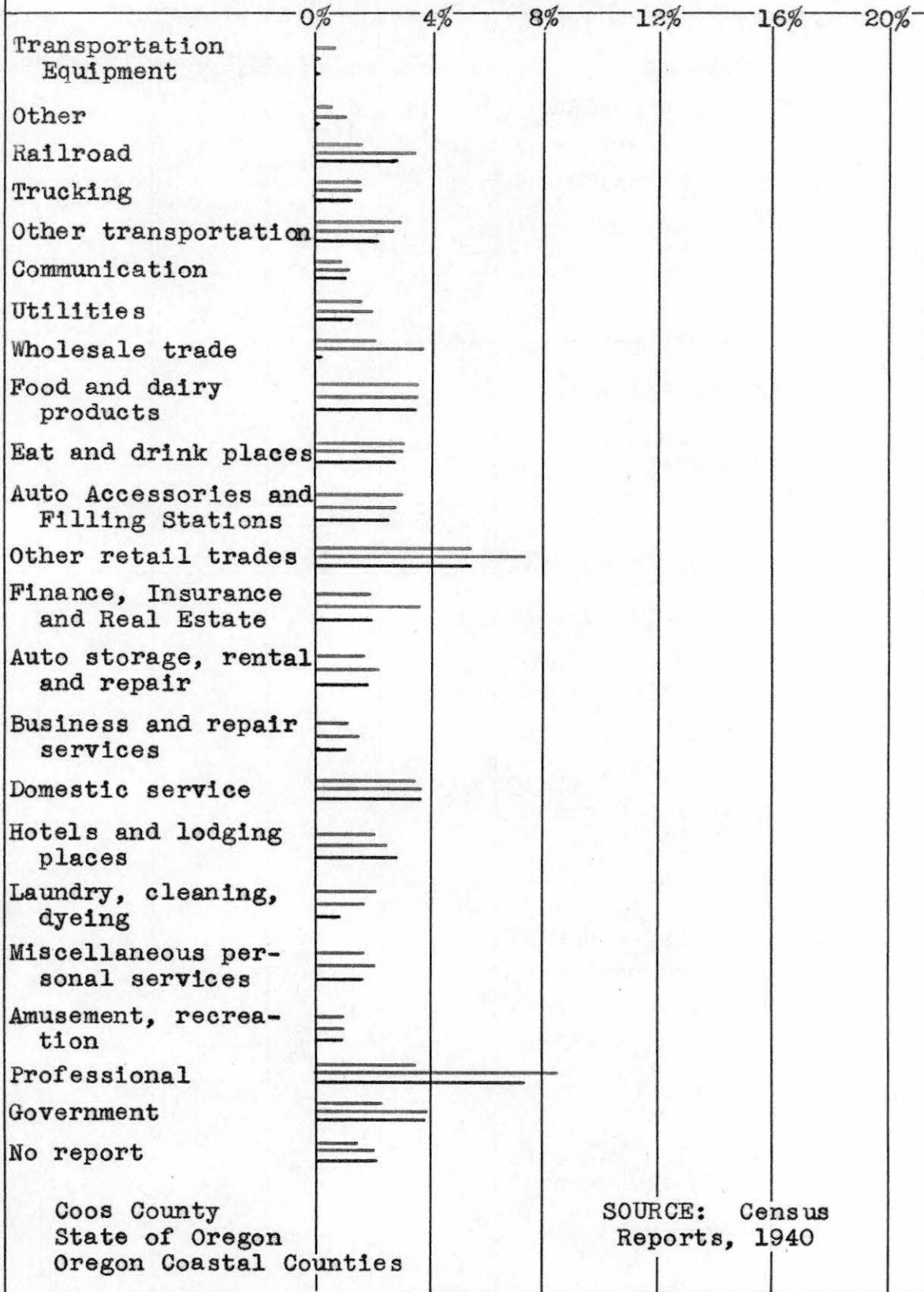
The remoteness of the County is possibly the reason for the higher than average number in the shipping industry, and the lower number of people in the professions. There is a reluctance on the part of doctors, nurses, etc., to locate too far from the hubs of activity. Another factor is the dependence upon one industry which is chaotic in a period of economic doldrums. During the last depression, Washington suffered more than Oregon because there were more mills and a more extensive operation being

conducted in that state. In the past twenty years the lumber industry has moved to the south and is almost entirely in the State of Oregon. Whereas portions of Washington have been forced to diversification, for survival, the same cannot be said for Coos County and an loss of markets will have the same effect as pulling a stopper from the bottom of a full tub of water.

DISTRIBUTION OF COOS COUNTY AND



STATE OF OREGON WORKING POPULATIONS



Coos County
 State of Oregon
 Oregon Coastal Counties

SOURCE: Census Reports, 1940

Lumber-forestry operations focusing on the city of Coos Bay

The over-all picture of logging

Forest ownership in Coos County, and that portion of Douglas County which is indicated as tributary to the city of Coos Bay is:

	Saw tim- ber	Imma- ture timber	Cut-over and burned over	Non com- mer- cial	All forest land Totals
	%	%	%	%	%
Coos County:					
Privately owned	55	62	72	15	60
State and county	4	21	10	18	12
Fed. revest. O and C	29	9	12	7	18
Fed. Nat For, etc.	12	8	6	60	10
Douglas County:					
Privately owned	36	45	44	70	39
State and county	2	5	5	1	2
Fed. revest. O and C	25	16	20	4	23
Fed. Nat For, etc.	37	34	31	25	36
Total:					
Privately owned	41	55	64	69	48
State and county	2	14	8	1	6
Fed. revest. O and C	27	11	15	4	21
Fed. Nat For, etc.	30	20	13	26	25

Figure 51²⁵

The saw-timber volume estimates for Coos County as given in a bookkeeping revision for May, 1948, showed:

²⁵Senate Document, p. 8.

	Billion feet board measure	
	<u>Coos County</u>	<u>State of Oregon</u>
Douglas fir	16.	205.
Sitka spruce	.03)
Western hemlock	.7) 43.
Cedars	.6	6.
Balsam firs	.3	-
Other conifers	.02	16.
Hardwoods	<u>.35</u>	<u>2.</u>
Totals:	18.	321.

Figure 52²⁶

Within the tributary area, the latest inventory showed that there were 47,500,000,000 feet board measure of standing saw timber. The stand was composed as follows:

	<u>Billion feet board measure</u>
Douglas fir	42.0
White and noble fir	1.3
Western hemlock	1.0
Port Orford cedar	.3
Incense cedar	.4
Red cedar	.6
Sugar pine	.5
Other pines	.6
Red alder, maple, and other hardwoods	<u>.8</u>
Total:	47.5

Figure 53²⁷

²⁶ Report, Pac NW R and E Station, 1948. (12)

²⁷ Senate Document, p. 9. (3)

Wagon Road Lands: Land at one time donated by the Federal Government for furthering the construction of a Military Wagon Road to aid commerce and the movement of settlers between Oregon and California. The road was never constructed and the land reverted to Federal control.

O and C Lands: Land donated for the construction of a railroad line between Oregon and California. The original companies did not complete the road, sold out, and turned over the grants to the Southern Pacific Railroad Company. The Federal Government regained possession on the grounds that the transfer was illegal.

Weyerhaeuser: A private land purchase for the purpose of developing a sustained yield program in conjunction with a full-use log-pulp mill in North Bend. Road construction has been undertaken in the timber area, and plans have been made for the mills - but they had not been built at the time of the study.

County Forest: Land which once held the greatest spruce stands in the United States - 4,000,000 to 5,000,000 board feet measure per acre. The trees were cut to supply wood for military airplanes in World War I. Subsequent ruthless logging methods devastated the area. To save the land, the County was given permission to take control and attempt some form of sustained yield. The area cannot be sold or transferred without an assenting county-wide vote.

Elliott State Forest:

National Forests: Siskiyou Forest is that greatest portion which lies in the southern point of the County. The smaller sections of National Forest shown directly north of Siskiyou are portions of the Umpqua National Forest, while the extreme portions of the Siuslaw Forest extend into the northeast sand dune area of Coos County.

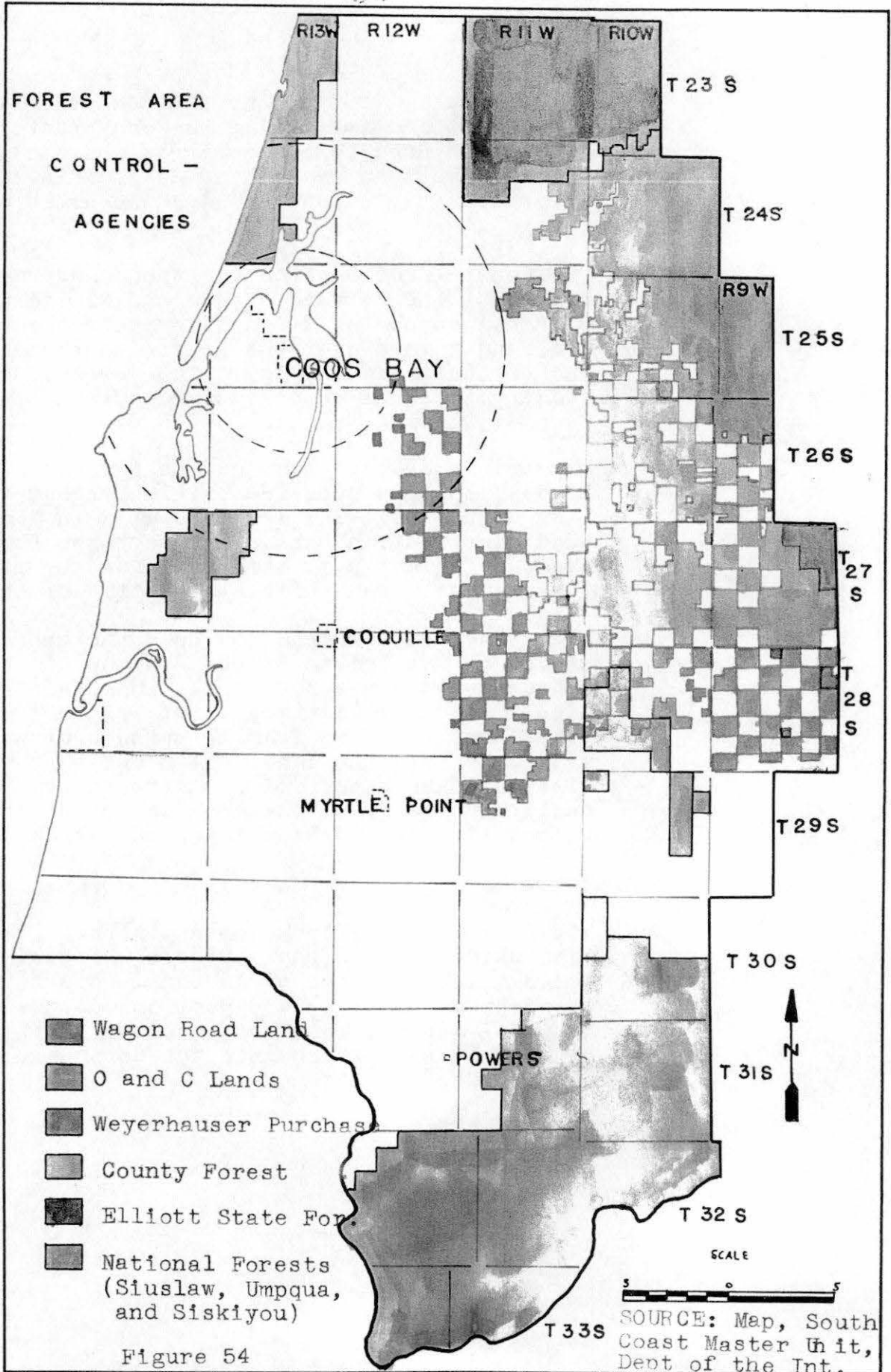


Figure 54

SOURCE: Map, South Coast Master Unit, Dept of the Int.

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Since only thirty-eight percent of the standing timber in the tributary area is found within the limits of Coos County it is apparent that the greater percentage of timber wealth of the city of Coos Bay comes, or will come, from Douglas County.

Ownership of standing timber is divided as follows:

	<u>Coos</u> <u>County</u> %	<u>Douglas</u> <u>County</u> %	<u>Total</u> %
Privately owned	62	35	45
State and county	3	2	2
Fed. reconst. O and C	28	30	30
Fed. Nat For, etc.	7	33	23

Figure 55²⁸

The percentage of state and privately owned timber in Coos County is reverse of what it is in the tributary portion of Douglas County. Compared with the information in the first paragraph of this page, it means that if any good plan of controlled cutting is to be developed in Coos County it will have to be started in the tributary area and gradually worked back to include all the private, over-cut holdings in Coos County. The terrific cutting which has taken place already indicates that private holders are not planning for the next century, but only to the next decade in many instances.

²⁸Senate Document, p. 9. (3)

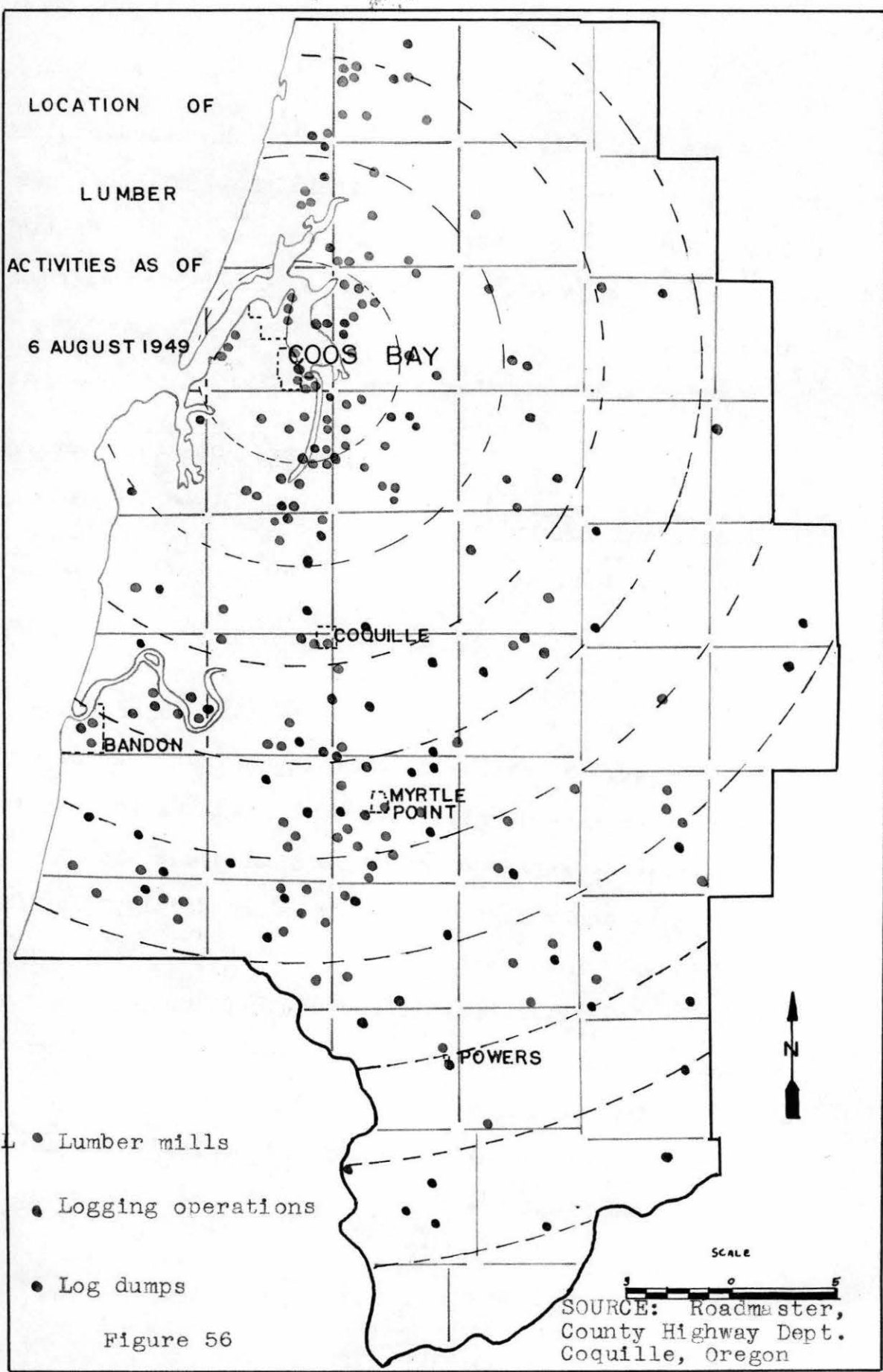


Figure 56

The large mills of the area will remain constant over the years, but the small operator (gyppo) number will vary considerably. Although larger in number, the gyppo is low insofar as output and stability of operations are concerned. The relative insecurity of gyppo operations must also be felt in the cities from which they derive their employees, and adds instability to the general economy. At a moment of time the following mills were operating within Coos County:

<u>Capacity of mills</u>	<u>Number</u>
10,000 to 49,000 bfm	- 54
50,000 to 99,000 bfm	- 5
100,000 to 199,000 bfm	- 9
Over 200,000 bfm	- 4

Figure 57²⁹

The map (Figure 56) shows where all the mills were operating as of Noon, August 6, 1949. The scattered dots away from the cities are the gyppo's who go in and out of business according to the condition of the market. Their mill is set up on the section they are working and remains in one place until all cutting is finished. Log hauls are rarely more than five miles in the usual situation, and high-lines are used on the close-in work, until all merchantable timber has been removed from the land. The

²⁹Senate Document, p. 9. (3)

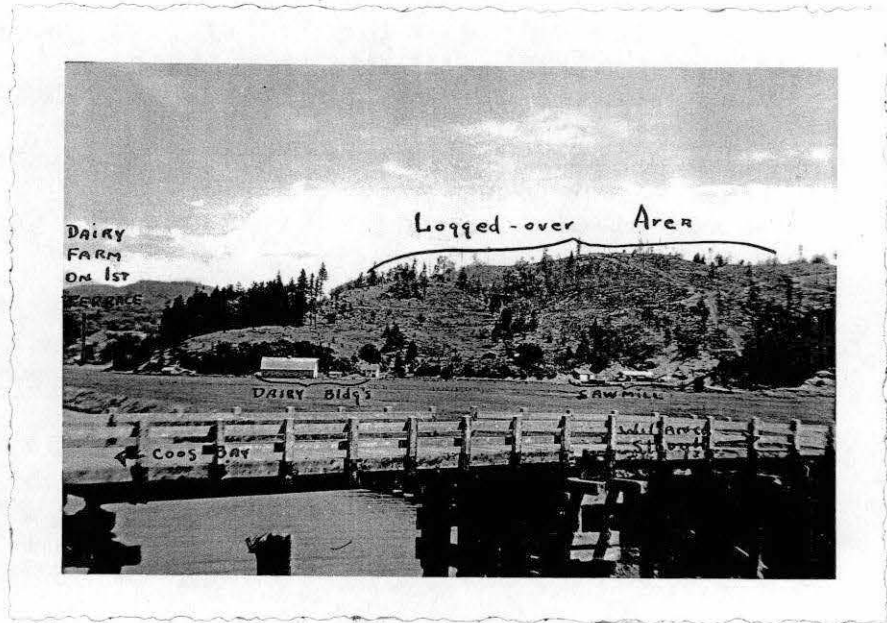
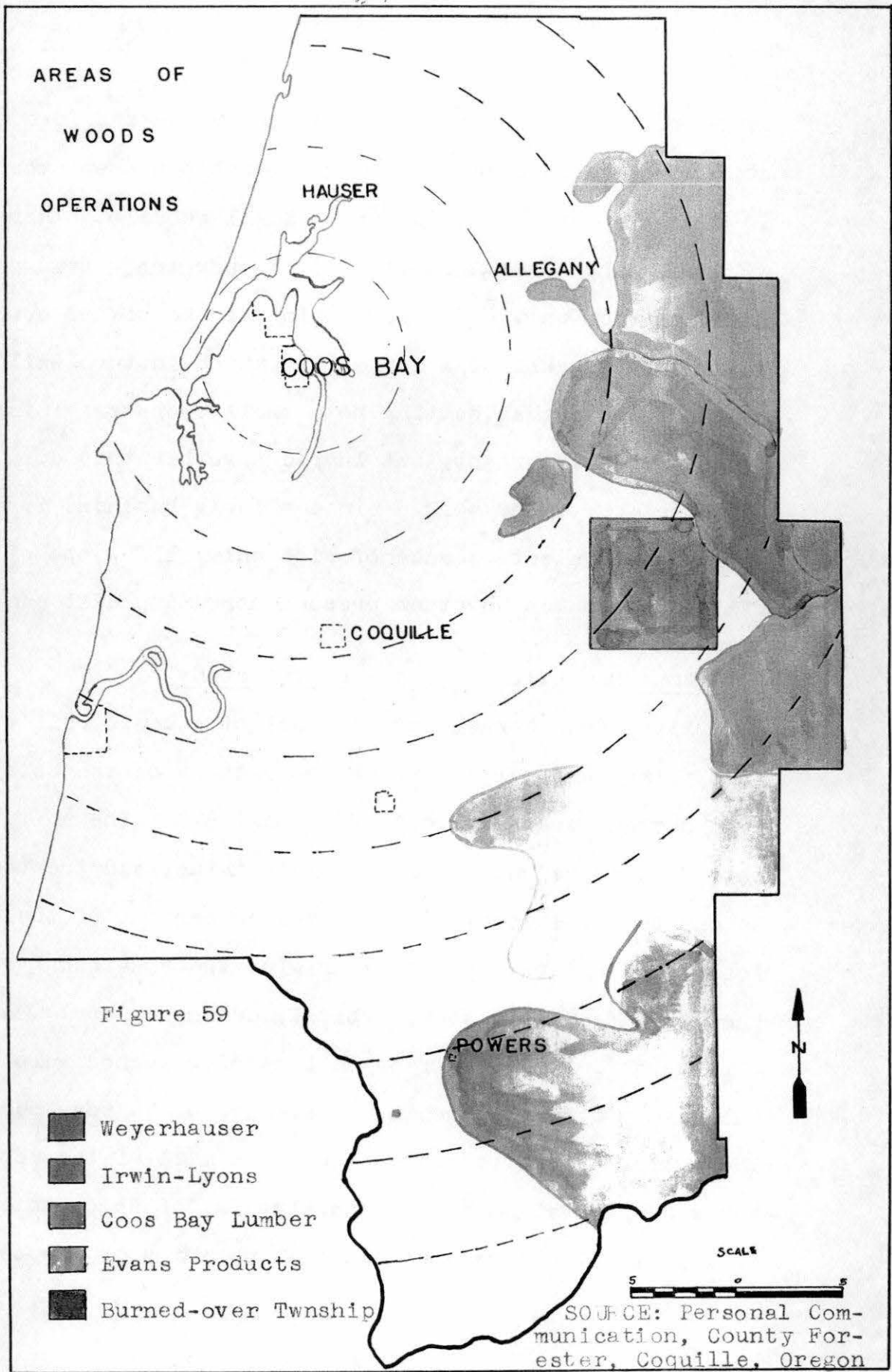


Figure 58. A gyppo mill set up in the vicinity of Kentuck Slough, about three miles east of Haynes Slough at the north end of Bay-highway bridge. The small operator can operate on cut-over land which the larger operator couldn't afford to work.



gyppo will cut where the large operator can't afford to cut, and is also used on salvage operations where there is a form of selective cutting. Small wood lot owners will sell their holdings to a small operator - land and wood, or wood only - for harvesting of the timber crop; or, they will sell to a large firm which in turn will subcontract the actual cutting to a small operator. Single gyppos are unimportant, but lumped together they do a good deal of timber work. Since all big business is not entirely efficient because of size only, the gyppo will fill a need which no other present-operating unit can.

Coos Bay Pulp Company - a type study

Fifty-four percent of the cost of a basic unit of logs, lime, and sulphur in the operations of the Coos Bay Pulp Company costs \$42 out of a total \$78. The unit, or batch, as it is run through is left intact and treated as one complete movement. Fifty-four percent of the costs for the batch are the raw materials; the remaining 46 percent is made up of labor, capital, overhead, etc. The mill turns out 2,300 air-dried tons of bleached sulphite pulp every operating month, an average of 75 tons per day. The entire output is sent to the main mill of the Scott Paper Company at Chester, Pennsylvania, of which this firm is a unit. The firm does not own any ships of its own so

must lease space on ships traveling through the Panama Canal and up the east coast to Chesapeake Bay. The mill is purely marginal and if purchase of low-cost pulp should be resumed the forests of the Scandinavian countries would supply the pulp needed.

Prior to 1940 the mill was a combined-operations mill. Cutting and finishing operations were conducted in the southern part of the building, now sold to the Coos Head Lumber Company to turn out rough-cut dimensional lumber for export. Both firms use the joint-dock facilities. Hogged fuel, the waste from lumbering operations, is sold to the pulp mill by the planing mill and used as low-cost steam boiler fuel. Pulp operations are conducted on a 24-hour schedule because of the conditions involved in making sulphite. Once the operational cycle has begun it must continue until all phases are completed; there is no eight-hour day in pulp production.

Spruce is used during the winter months, hemlock and white fir from May through September. A company-owned stand of spruce, sufficient to supply basic woods for eight to ten years, is located in the Lake Tahkenitch area in the vicinity of Reedsport, north of Coos Bay. Logging operations are conducted on company property during the winter months, while logs are purchased from independent loggers who haul to the mill site from May through September.



Figure 60. A splash dam and unloading site at Hauser: Hauser in the center background, the Howard bogs to the left, and U. S. 101 passing over the bridge to the right. A site much like this is used by the Pulp Company to raft up their logs from Lake Tahkenitch.

In the company operations the logs are truck-hauled to the splash dam at Hauser, formed into a raft, and hauled down the Bay to the mill site.

Al Pierce Lumber Company - a type study

Under the operating name of the Matheney Creek Mill, this firm has been a partnership since its inception in 1941. Initial holdings and operations were in the vicinity of Allegany, present operations are on Fishtrap Creek in and about Arago and Broadbent, and the future will be closely tied up with the 13,000 acres of land and 165,000,000 board feet measure of timber on the Davis Creek tributary. The Fishtrap haul is forty miles in one direction, but the Davis Creek haul will be only five miles.

All Pierce Company operations are "summer shows". Trees are felled from October through March; actual logging operations begin about April 15 and continue until the heavy rains set in. The beginning and ending dates will always vary, depending upon first and last heavy rains. The rain-free period is a time of ten-hour days when enough logs must be hauled out of the woods to supply the sawmill for the winter months. The rainy period is usually a time of three to four months of inactivity and lay-offs, for woods personnel. Where it is possible to do so, the men are utilized in repair and maintenance

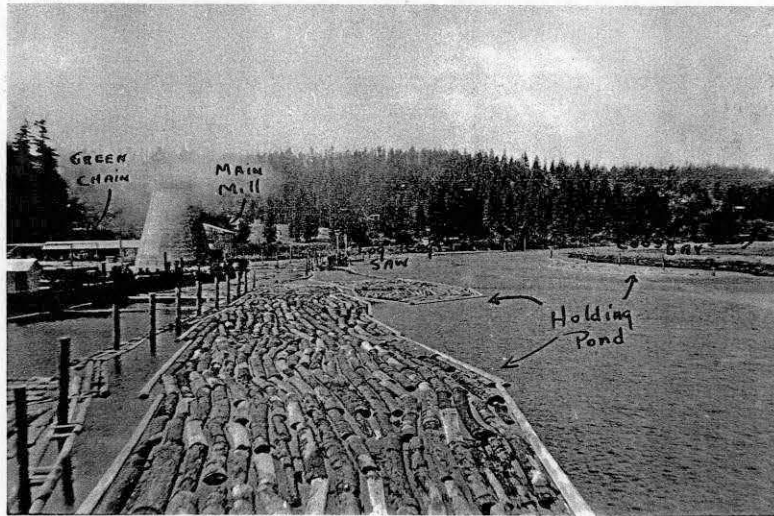


Figure 61. Matheney Creek on Isthmus Slough. In the foreground are the holding ponds which extend up to the mill. The conical-shaped building is a sawdust-scrap burner, with the main mill buildings just beyond.

operations, and the preparation of new sites to be used in the next season. If there were road rock anywhere near there would be no seasonality of operations because all-weather roads could be prepared with good ballast.

Length of haul and the number of logs available are the determinants of how many private trucks must be contracted for, other than the two company trucks used for hauling. Eight trucks are contracted for on the Fishtrap operation, but only five will be needed on Davis Creek - three to be hired. The amount and time of work fluctuate much, and with it the number of men to be employed. Regardless of how lucrative the logging business might be now, it is still uncertain.

Matheney Creek mill was constructed in 1948 and is one of the most modern in the entire county. A Swede-gang saw is used, with the full complement of seven cutting blades variable as to the width of each cut, and can process a log in less than one minute. The limitations of this saw are in the width of the log to be processed; any log over thirty-two inches diameter cannot be run through and must be sold to some other mill. The saw mill is the end of present operations, but a planing mill is to be constructed to lengthen the operations step one more notch and to increase the returns on the logs cut. At present

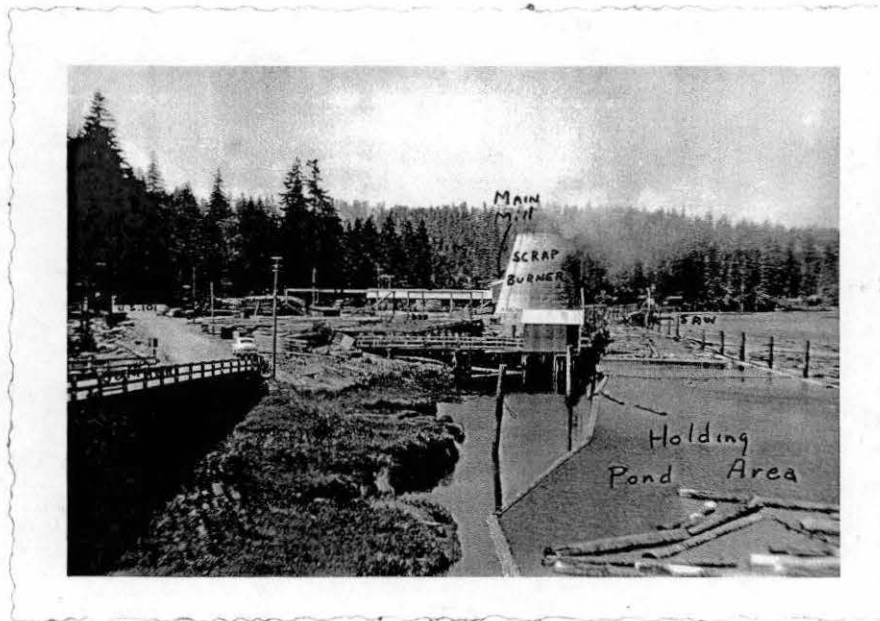


Figure 62. Matheney Creek Mill. The saw on the Slough at the far end of the holding pond is used to cut logs into proper lengths for processing.

The green chain is an endless belt which carries the newly cut lumber from the saws out along the shed where the pieces are pulled off and stacked on the proper dimensional piles. There are a number of piles for each dimension on both sides of the chain, and as a pile reaches a prescribed height it is picked up by the Hyster and taken to the loading site where it is loaded onto trucks to be taken into Coos Bay loading terminals. (Hyster: a type of carrier which straddles the load, picks it up and then moves with the lumber cradled between the wheels.)

The framework of the future planing mill can be seen in the center of the picture.

prices the proposed mill will pay for itself within six months.

Sales of dimensional lumber are made to wholesaler and jobber outlets. Lumber is all cut to customer specification and none is retained for stock at present. As an example, the 70,000 board feet measure output per day during the month of July was shipped in the following manner:

1,000,000 bfm to the East Coast by ship

200,000 bfm to California by ship, for further processing according to U. S. Government order

200,000 bfm by rail to Willamette Valley mills, primarily in Eugene, for surfacing and splitting of 4 x's into 2 x's.

Additional sales of whole-log material are also made:

pulp logs to the Coos Bay Pulp Company

over-size (over 32") to any buyer on the market

cedar logs to the Evans Products Company, and

also to a steadily developing market in

Italy

piling to local and general market

peelers to local and general market

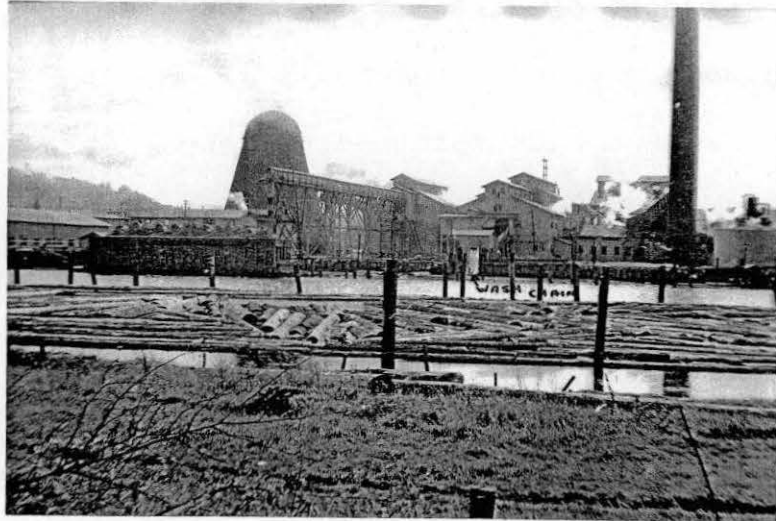


Figure 63. The Coos Bay Lumber Company seen from across Isthmus Slough. The barge being loaded with sawdust in the foreground will be towed to the power station of the Mountain States Power Company where it will be unloaded into the storage bin and used for power production.

The logs in the foreground are in one of the holding pond sections. As needed, the logs are moved across the Slough and cut into the proper lengths. The logs are washed as they are pulled up the ramp in the center on their way to the sawyer to make for a cleaner processing and greater return since the scrap is used in the firm's experimental laboratory.

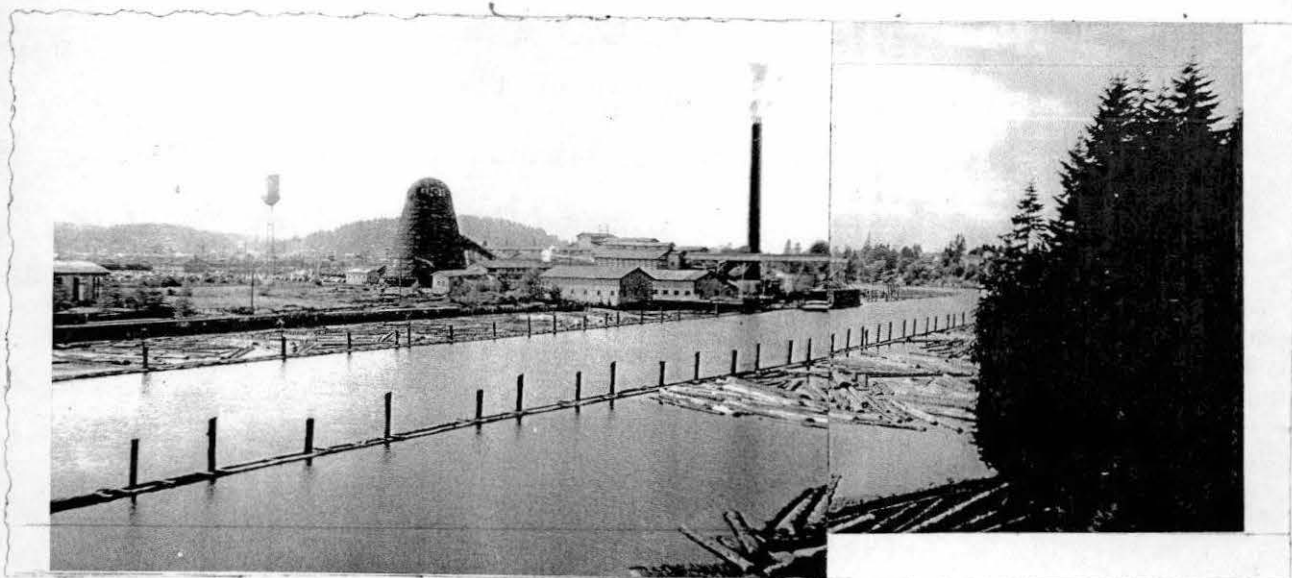


Figure 64. Another view of the mill as seen from the bridge over Isthmus Slough, southwest of Eastside. The water tower in the background is at the site of the Evans Products Company. The hill in the background in line with the scrap burner is midway between the city of Coos Bay and North Bend.

Note the size of the log ponds which are some of the largest in the entire area. They stretch along the Slough in both directions from this point. The buildings at the left side of the picture are those of a mill which was set up in the late 20's and never used. The buildings have a stucco coating, different for this country, and were designed to house a pulp mill.

Coos Bay Lumber Company - a type study

125,000 acres of timber land

4,000,000,000 bfm merchantable timber cover

3 plants (Coquille, Millington,
and Coos Bay)

600,000 combined total output - bfm

2 ship capacity loading dock

all combine to make the Coos Bay Lumber Company the largest operating company in Coos County. All timber holdings of the company are located in the southeastern corner of the County and extend on into Douglas County. The firm has an operating agreement with the Forest Service for a 100-year cutting cycle and sufficient timber to see them through it.

Sixteen hundred men and seventy-five miles of private railroad trackage, combined with the three mills are involved in an operation which extends in all directions from Coos Bay. Field Headquarters are located at Powers which is also the terminal point for the railroad. An additional fifty miles of trackage is obtained through operations agreements with the Southern Pacific Railroad from Myrtle Point to Coos Bay. All logs are rail-hauled except for the site at Bancroft when they are hauled to Myrtle Point by truck before transferring to rail. In either event, the logs are dumped into the holding ponds

on the Coos River and adjoining sloughs and sorted as needed.

Each of the mills has a specialty assigned to it. The two Bay mills ship entirely by water, while the Coquille mill uses rail movements. The combined output is enough to load one ship a week, at 4,500,000 board feet measure per ship. The management foresees 6,000,000 board feet shipments in the near future. Lumber is sold FAS, and the shipping companies are responsible for their long-shoreman commitments. At one time the company owned its own fleet of ships, but turned them over to the Navy and never reclaimed them after the war.

A company laboratory is conducting experiments on waste utilization. The writer attempted to learn what direction the experiments were taking, but the company officials were very evasive and refused to give a clear, direct answer. The only comment they were willing to make was that, "Some progress is being made".

Irwin-Lyons Company - a type study

Main operations of the Irwin-Lyons Company are being conducted on the South Fork of the Coos River, twenty-five miles from Coos Bay. The stand covers 20,000 acres and has 380,000,000 to 400,000,000 board feet measure merchantable timber. The company is now planning a sustained

yield program and expects to sign a contract with the Forestry Service soon so they can become eligible for an additional supply of timber on revested O and C Lands.

The company has constructed an all-weather logging road from the easternmost point of their holdings to the mill site, which runs within the O and C revested area. The road was constructed to gain an advantage over competitors in bids for O and C lands, but isn't having the desired effect. It was expected that the road cost would be amortized over the full period of operations via O and C lands, without competition. However, if another logging firm makes a bid on O and C lands touched by the road, and wants to use it, the Forestry regulations indicate it must make an offer of payment. If the I and L Company refuses on grounds it is insufficient, the Forestry Officer acts as arbiter and renders a ruling. In most rulings to date, the I and L company has been over-ruled and been forced to accept the lower bid. The road was built as a means of access, and also to keep out competition; it has succeeded in the first but not the second motive.

The holdings are surrounded on three sides by the new Weyerhaeuser development and it is assumed that both firms will use the same method to get their logs to the mills. I and L uses a fleet of twenty-two large trucks to haul logs to splash dams located at the limit of



Figure 65. A splash dam site on Daniels Creek, southeast of the confluence of the Coos and Millicoma Rivers, on the South Fork Branch. A full boom has been taken out recently and new boom guides have been left by the tug. As the logs are dumped into the dam they will be maneuvered about to make a compact raft; the completed boom will be hauled downriver with the tide, to the mill.

tidewater. The logs are lashed together to form a boom and taken downstream to the mill, on the outgoing tide. I and L has one of the largest docks on the coast, constructed adjacent to the mill and berths to load five ships simultaneously. Shipments are varied and use all methods of transportation - at present, they are evenly divided between rail and water. In all other matters, the I and L mill operates as does the Coos Bay Lumber Company.

Coos Fire Patrol - a type study

Only seven percent of all standing timber in Coos County is in National Forest controlled land and thereby under the observation of the regular Forest Service lookout. The other 93 percent of timber is primarily under private control or local governmental bodies. The overlapping Forestry Service line of lookouts covers only the southern portion of Coos County. It was to protect the rest of the County that the Fire Patrol was organized.

The Fire Patrol is a private organization with a system of lookouts, connected by a radio network, equipped with fire fighting equipment and personnel, and controls the area extending from the California-Oregon border to the southern edge of Lane County in Oregon. There are eighteen patrols and sixteen lookouts to protect the 1,500,000 acres of timber land. Connection with the

Forestry Service is provided via telephone with exchange of services where possible.

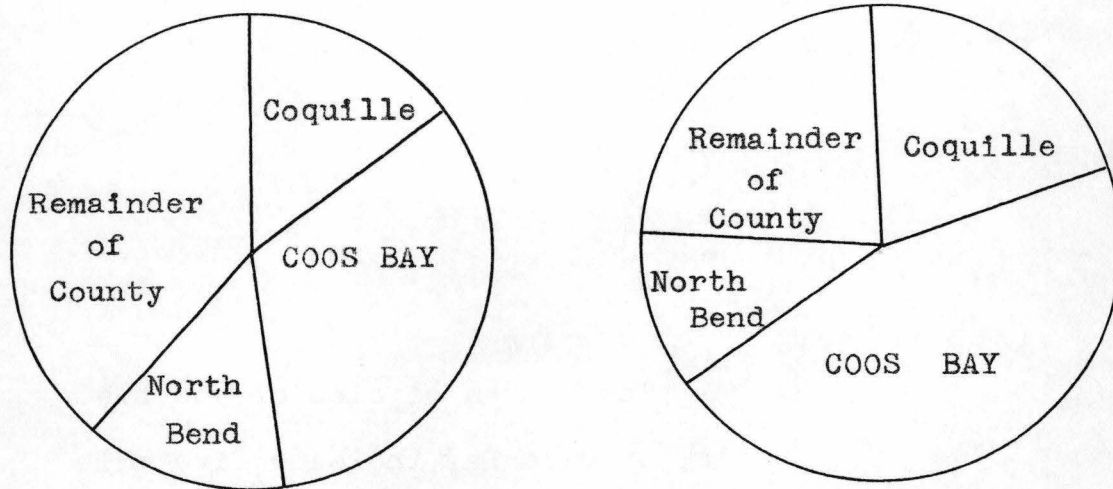
The entire area is divided into eighteen sections. A patrolman in each section is responsible for the distribution of supplies and equipment, the care of lookouts, and fighting local fires until replaced by some higher authority. The patrolman lives in the area for which he is responsible, issues fire permits, and burns slashings when all personnel leave in the fall. Seed starts to fall in late August, more than half normally falls in September, and two-thirds of the seed is on the ground before the end of October; therefore, slashings have to be burned early enough to keep from consuming valuable seed-fall, but late enough to prevent dangerous forest fires. If properly planned, slash burning will reduce the fire hazard, retard brush and weed development, and facilitate planting where natural regeneration fails.

Fire suppression units are located at: Coos Bay (15 men), Bridge (8 men), Bandon (6 men), and Gold Beach (8 men). Six additional equipment operators are spotted around and called in as needed. Operations begin about May 1 when maintenance men come into the area. The main body of fire watchers are on duty from June 1 until October 1, after which the reverse cycle starts and personnel decline to a minimum.

Logging operators contribute a fee of five cents per thousand feet of timber cut, with a like contribution from the State agency, to finance the operation of the Patrol. Appointment recommendations for fire wardens are made to the private firm and the Patrol headquarters, but need the approval of the State Warden before the appointment is final.

Trade Points up the Central Characteristics of Coos Bay
The general picture of retail-wholesale trade

The city of Coos Bay is the center of activity within Coos County. Within ten miles of the city are to be found: fifty percent of the county's population, over one-half of the active and potential coal mines, forty percent of the lumber mills with seventy-five percent of the total capacity, the only private power plant within the county, the largest terminal yard, and the only large-scale facilities of the Southern Pacific Railroad within the county, the only commercial airport in the county.



Number of Stores

Portion of Sales

<u>Number</u>	<u>Percent</u>		<u>Percent</u>	<u>Amount (\$1,000)</u>
82	15.6	Coquille	20.4	\$2,409
173	32.9	Coos Bay	46.4	5,498
73	13.8	North Bend	10.5	1,239
		Remainder of		
		Coos County	22.7	2,691
<u>198</u>	<u>37.7</u>	<u>Coos County</u>	<u>22.7</u>	<u>2,691</u>
526	100.0	Total	100.0	\$11,837

Figure 66³⁰

³⁰ Census Report, 1940. (14)

The broken circles around the city of Coos Bay indicate five mile belts out from the city. The circles were drawn after the various pick-ups had been put in. The ten-mile line very closely indicates the extent of the milk shed. Both to the north and south of the ten mile marker, there are just two contributing members which would indicate they are exceptions and the bulk of contributing farmers are within the circle.

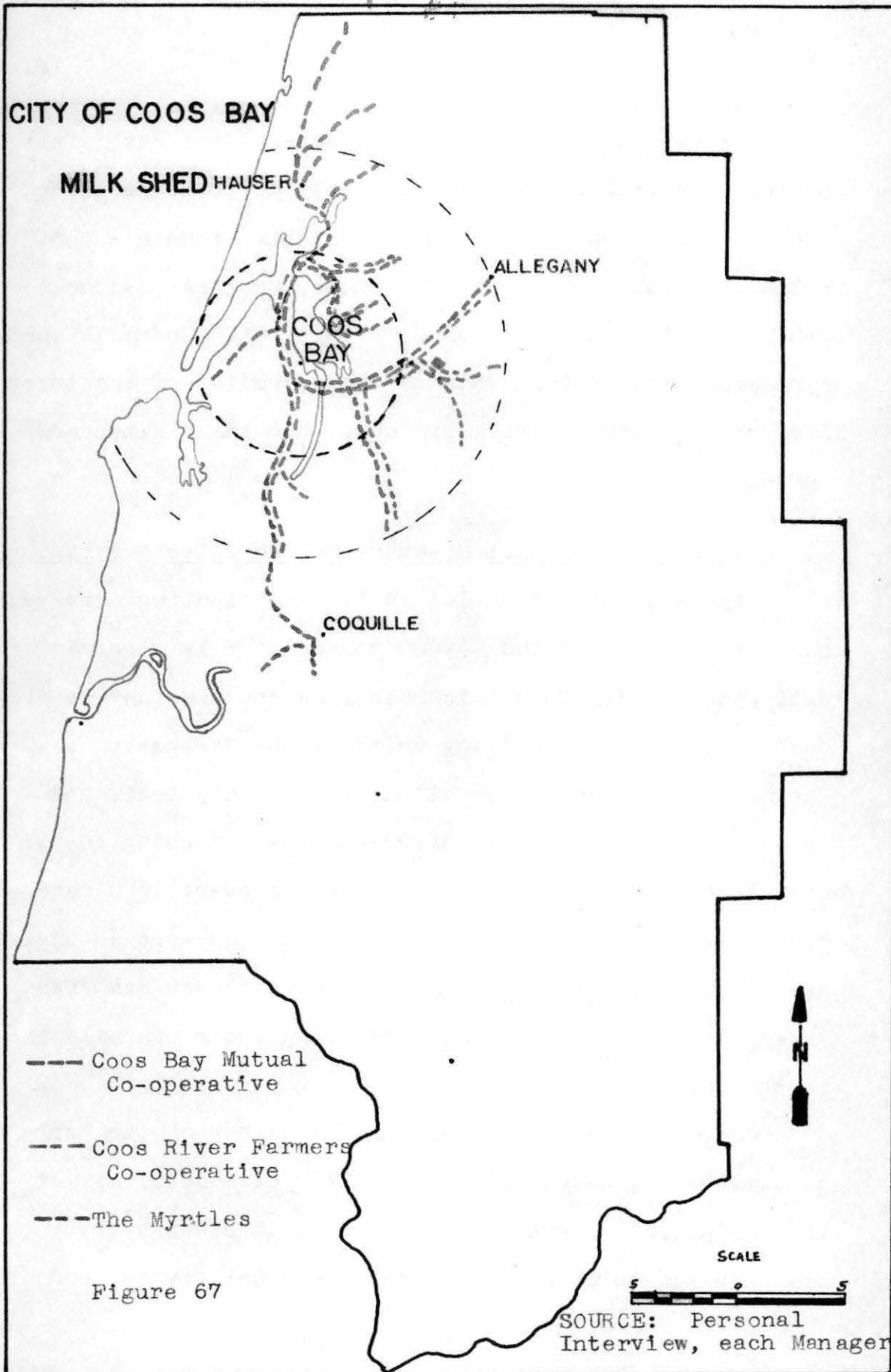


Figure 67

As the table (Figure 66) indicates, Coos Bay is the center of retail activities; in addition to controlling over sixty percent of the wholesale establishments and sales. As the map (Figure 67) shows, Coos Bay is the center-point of the milk shed of the area. The milk shed was delineated on the basis of the operation of the three largest producers of milk products, and talks with farm operators.

The Coos Bay Mutual Creamery Co-operative - a type study

Eighteen employees, 163 active contributing members, capacity to process the 90,000 pounds of milk received daily, and a milk shed which has remained constant in area, combine to form the working units of the Co-operative. The Co-op has been in operation since April, 1936, and is formed under the State of Oregon law governing co-operatives. The only visible change in operations have been in the amount of milk received through more intensive use of the land, rather than through increased membership. Except for one area, all members bring their own milk into the dairy buildings.

The Co-operative is a producing member of the Daringold marketing association. The lack of a local market for the potential production has made it necessary for the dairymen to market their output in California, and

cooperation is an easier method of doing the job. The greatest amount of production is in cheddar cheese which is sold under the brand name of Melowest through Darigold and Bowman. The cheese is shipped by truck to San Francisco and Los Angeles where it competes with Tillamook production.

Where possible, supplies are purchased locally. Outside supplies are trucked into the city of Coos Bay and consist of: Rennet from Wisconsin, ice cream fruit from Seattle, cartons from San Francisco, and paper boxes from Portland.

Coos River Farmer's Creamery - a type study

Dissension in the Co-operative discussed previously made possible the organization of this splinter group. The Creamery has sixty members, three employees, and processes 24,000 pounds of raw milk into 2,500 pounds of cheddar cheese in daily operations. The 38-pound bricks of cheese (ten pounds of milk for one pound of cheese on an average) are shipped by ONC motor freight to San Francisco where it is marketed under the name of Challenge. The cheese is aged in the warehouse at San Francisco before sale since facilities at Coos Bay are too limited for it to be done there.

Plant capacity has never been increased, and will

not be in the future. The members are close-knit and refuse to take in additional producers, or to consolidate with the parent organization. Supplies are purchased from the Western Dairy Creamery Supply Company in Portland, and shipped in via ONC truck line. The two creamery trucks which are used to pick up milk from the fifty members (the other ten bring in their own) are used to deliver the finished cheese to the truck terminal in the afternoons, in the city of Coos Bay.

Local delivery of milk - a type study

The local dairies, The Myrtles and Brookmeade, deliver all pasteurized milk in the triangle bounded by Bandon, the city of Coos Bay and North Bend, and Coquille. Raw milk for The Myrtles is supplied by twenty-one farmers who bring in the milk to the plant; while the Brookmeade Dairy has its own supply farm located just north of the Landrith farm.

The National Cranberry Association - a type study

The entire line of products of the National Cranberry Association are marketed under the name of "Ocean Spray", regardless of which plant makes it. The main processing plants are located at:

Waukegan, Illinois
Onset, Massachusetts
Coquille, Oregon

Bordentown, New Jersey
Hansen, Massachusetts
Markham, Washington

The basic recipes, over-all planning, and the checking of each batch prepared are all handled through the main office at Hansen. In addition to the cranberry sauce which all plants produce, each plant has been given a special sideline to put out for all to distribute - Coquille turns out cocktail mix, Markham makes raspberry-cranberry marmalade, etc.

There are 102 members who are contributing growers of the Coquille plant which serves all of Coos County. Thirty-four of the growers are concentrated around Coos Bay-North Bend, and although controlling one-third of the membership only have one-fifth of the bog area in production; high in relative acreage, low in volume of production because the bogs are new. Each member gains initial voting rights by the purchase of one share of stock. Additional shares are purchased on the basis of one share for each five barrels of cranberries delivered. The first advance payment is made at time of delivery of the cranberries, with additional payments as successive batches of berries are sold. Full payment is finally made on the basis of patronage dividend - each member receives a portion of the pool commensurate with the volume and quality of cranberries delivered.

Three trucks pick up berries from the grower's bog and deliver them to be stored in the freezer at Coquille.

Because of the seasonal operation, berries are stored in a six thousand barrel capacity freezer with a temperature of eight to ten degrees below zero. Berries are processed in batches large enough to supply a ninety day demand and only enough are taken out of the freezer to fill the order. Cranberries retain their quality under freezing conditions, and prior to processing are thawed by being placed in a cauldron of hot water. The entire canning operation is finished in two hours.

Personnel varies considerably (72 in 1944, 41 in 1945), but sixteen people will be hired during the harvest season until the beginning of the fresh fruit season; then thirty-four will be taken, but beyond the first of the year five people, including office help and the manager, will be sufficient to take care of all needs. During the normal year of operation, the plant will use:

5 to 6 carloads of sugar, from the Spreckles Company at Sugar City, California

6,000 barrels of one hundred pounds each, of cranberries

6 carloads of cans from the California plant of the Continental Can Company

24,000 boxes, each capable of holding one-quarter barrel (24 lb.) or a sufficient number of bags which will hold one pound of cranberries each, and the main boxes. Starting now, fresh cranberries are to be packed in cellophane bags through use of a special machine to be sent from Hansen. The manager at Coquille had to make a trip East to learn how to operate the machine which is completely automatic.

The American Cranberry Exchange - a type study

The Exchange is smaller than the Association, and markets only the fresh fruit - on agreement with the Association. The Association attempted to gain control of all cranberry producers during the last war by subsidizing new growers and by wooing members of the Exchange. Since four years are needed to get the bog into production, it meant that the full output hit the market for the first time in 1946-7 with an inferior berry. The buying public balked at this post-war lack of good manners and the result is an over-stock in the freezers loaded to capacity with a new crop due in two months. Money loaned in 1941 is now coming due at a comparatively higher rate since prices for the crop are now lower, and many of the newer men are facing bankruptcy.

To forestall a disaster, the Association and Exchange joined and formed a sixteen man joint council to lay out a master plan. No fruit will be accepted by either group unless it meets minimum specifications of quality; the Council will decide how the crop will be sold in the fresh fruit and processed market; the Council will act as arbiter on all disputes with their word accepted as final. The joint cooperation will give the Council control of 80 percent of the 12,000 barrels expected in Coos County this year. Since the United States is the only country

with cranberries, it might be said that this combine has a world-wide monopoly.

Five of the Exchange's forty members in Coos County are located in the general vicinity of Coos Bay - Mr. Bates is the President of the local group. The packaged fresh fruit is sold under the trade name of "Eatmor". Any excess or left-overs are sold to the Association and processed into sauce, juice, etc. Prior to the war the entire output was sold to California brokers, and to the Safeway Stores. Poor quality and merchandising policies-practices cost them the outlets they had, and which can be regained only with uniform quality berries. With five-sixths of last year's crop still in the freezer, the Exchange and Association will certainly have to push their merchandising policies. Hand-picked berries are kept on the premises of the owner and sent out to fill orders in cooperation with other members nearby. There is no central warehouse for fresh fruit since the season for their sale is short and restricted.

Comparative Data³¹

<u>State</u>	<u>Average Holding</u>	<u>Yield/Acre</u>	<u>Output</u>
Oregon	10 acres	100 bbls	12,000 bbls
Wisconsin	23 acres	230 bbls	225,000 bbls
<u>U. S. Production (100# bbls)</u>		<u>Price to growers - extremes</u>	
1937 - 877,300	barrels	1914 - \$ 4.02	per barrel
1946 - 833,100	"	1944 - 24.30	per barrel
1948 - 925,000	"		
1940		<u>Farm value of crop</u>	
to			
1946 - 680,000	"	1900 - \$ 200,000	
1900 - 300,000	"	1944 - 10,000,000	
<u>Record Yield of 1940's</u>			
Washington - 46,200		bbl	
Oregon - 13,970		bbl	

Coos County cranberry production is, and can be, important only in the western and coastal states - with Denver as the eastern extreme.

³¹Planning Committee Report, p. 35. (1)

Callison Drug Company - a type study

Under a Nurseryman's license, purchases are made from gatherers for later sale of:

foxglove leaf	- by the pound
ferns	- by the bunch, 55 per bunch
solal bush	-)
huckleberry bush	-) all bought by bunch or bale
cedar bows	-)
pitch and tar	- by drum container, or pound

through a string of warehouses located at

<u>Washington</u>	<u>Oregon</u>	<u>California</u>
Bellingham	Eugene	Crescent City
Chehalis	De Lake	
Raymond	Florence	
	Coos Bay	

Trucks from the city of Coos Bay warehouse make pick-up trips to Myrtle Point and Gold Beach, and Florence trucks collect from sub-stations at Powers and Lakeside. Shipments from the warehouses are primarily by iced-rail-car to wholesalers in eastern and mid-western cities, for resale to florists and morticians.

The pickers are part-time farmers who own a few milk cows and enough land to pasture the animals and also grow a small variety of table-type garden vegetables. Farm chores are done early in the morning and late in the afternoon; by sunrise the pickers are at work gathering the bush growth which they turn into the warehouse by early mid-morning. An experienced picker will average 100

bunches, or 5500 ferns, by the noon hour, depending upon the cluster and quality of the ferns. In the afternoon pickers have odd-hour jobs in town or neighboring farms followed by home-farm chores.

Ferns are preferred when 25 to 27 inches long, are worked into two-pound bunches by the warehouse worker, and the picker is paid according to the number of bunches made from his original batch. The ferns are gathered year-round, different from some of the other bushes. Huckleberry and solal are packed in flat sprays, 30 inches long. These bushes are picked in the fall, winter and spring, but not in the summer. Cascara bark is purchased by the dry pound, and is picked only during spring and early summer when the tree is peeling. Pitch is collected and kept in a container supplied by the warehouse. When full, average of 50 gallons and 410 pounds, the drum is boiled to throw off the water and dirt content, checked for purity, and is shipped.

Shipments are primarily by rail: cascara bark, pitch and foxglove leaf to the crude drug processing center at Chehalis; pitch to Portland and then by water transport to eastern United States, or to Chehalis. Eight people in the summer and sixteen during winter handle all operations of a warehouse. No local purchasing is done, since all supplies are shipped from Chehalis. Gatherings are

kept in the warehouse until sufficient to load one rail car; everything is loaded at one time and a car is iced, packed, and sealed in less than eight hours to prevent unnecessary spoilage.

Operating characteristics of retail food stores

The majority of foodstuffs are brought in by rail and truck transport. Canned goods and other staples are supplied through the Pioneer and General Wholesale Grocery outlets; fresh and preserved meats are forwarded by Railway Express from D. Nebergall packing house in Salem, or by truck salesmen of Swift and Armour Companies from Portland.

Fresh fruits and vegetables are sold by truck salesmen from south California - Sacramento and Los Angeles. The peddlers drive directly to Coos Bay, sell and unload, and dead-head back to California. Emergency supplies, or some rarer item, are available at Pacific Fruit and Produce Company local warehouses. In-season vegetables and berries are also trucked in from Willamette Valley growers. Local purchases, except for milk, are small since there is no excess production of consequence. A new chicken flock, now 2,000 strong with a future flock of 5,000, should answer egg and fowl demands.

The Williams Bread Company of Eugene supplies most of

the bread sold here. However, Sanitary Bakers operates in the city of Coos Bay and supplies much of the demand around the Bay area (North Bend, Coos Bay, Empire, Charleston, and Eastside). Sanitary Bakery employs six people on inside work, and uses two trucks for the daily delivery of 2,500 pounds of bread. Supplies are purchased locally when available, and are concentrated on the Pacific Coast outlets otherwise:

Sugar: 100 pounds of corn, daily; manufactured in the East, but shipped here from Portland. Also, 100 pounds of cane, daily; shipped from California.

Salt: 50 pounds daily, shipped from California

Flour: 50,000 pounds monthly - 500 100-pound sacks - in varying amounts from Fisher's in Seattle, General Mills in Tacoma, and Crown Mills in Portland.

Lard: 100 pounds total used every day; from Nebergall Packing Company in Albany, and Wesson Oil from Oakland, California.

Canned fruit and walnuts: from Oregon Fruit Company in the Willamette Valley.

Powdered milk: one 250-pound barrel, from Portland, will last four days. No fresh milk is used.

Local frozen berries: from Willamette Valley producers and from local Coos Bay producers in season.

Light and power of the present and future

The local power plant is a part of the Mountain States Power Company system, and is located on the Coos Bay water

front close to the joint city limits. The state-wide system is controlled from the dispatcher's office in Medford, and the local plant is tied in with the main line at Dixonville. There is an interchange of power agreement with neighboring units but the future should see the extension of BPA lines to include most of these private units. Large lumber mills (Coos Bay, Evans Product, Cape Arago, New Menashee Plywood) have their own generating units, but have an exchange agreement also.

Thirty-nine men are employed on three six-hour shifts for the twenty-four hour operating day. The plant runs at full-rated capacity of 15,000 kw during the daylight hours with some strain, but can adequately handle all demands during night hours. Demands of outside producers depend upon water supply, since other Mountain States units around here are hydro-electric, and are controlled by the Medford dispatcher.

The main source of energy is hogged fuel, with an emergency supply of 20,000 gallons of oil on hand when needed. The oil is stored in two 10,000 gallon tanks immediately west of the dock area, and replenished by tanker shipments from Standard Oil refineries in California. Hogged fuel is a form of lumber scrap, ground to the size of small pea coal, and is supplied by local mills.

"Millbee" - Irwin-Lyons Lumber Company
 "Old Town" - Coos Bay Logging Company (Cape Arago)
 "Big Mill" - Coos Bay Lumber Company

Irwin-Lyons fuel is trucked in by Mountain States trucks, but the other two use Power Company barges. Each barge holds 200 units of fuel and barge shipments vary from one to two per day. Fuel is unloaded with the use of a clam-shell in eight hours and stored in a gravity-feed bin on the Bay side of the mill.

A unit of hogged fuel is 200 cubic feet and produces 752.5 kilowatts. Storage capacity is 3,500 units per bin. During an eight-day period of operations there was consumption varying from 120 to 280 units per day which produced an average of 211,230 kilowatts every 24-hour period. Since normal consumption is 280 units per 24-hour day, the fuel supply is sufficient to carry the mill from ten to twelve days.

Transportation Media are Varied

Airway and highway travel - extremes of coverage

Coos Bay is isolated! With the exception of ships, there is no means of transportation which connects the city with other important centers of commerce and industry in a direct line.

The most direct line of flight for West Coast Airlines is up the Sacramento-San Joaquin-Willamette Valleys. Six

The main road, U. S. 101, passes through the city of Coos Bay and connects that city with Coquille. From Coquille, 101 swings to the west and Bandon, and follows the coast to the south. The southern and southeastern portions of the County are very much lacking in good roads. Market roads leading out from Coos Bay are good macadam for five miles, after which they become gravel and dirt with reasonably good maintenance.

Main roads are 2-lane, except for that portion which connects the city of Coos Bay and North Bend, and the developmental work now being done on the road connecting Coquille and Coos Bay. Roads are very important for three reasons:

- 1) required for logging operations which form the basic foundations of the local economy
- 2) needed to answer the demands of the tourists which the people of Coos Bay hope to lure here for fishing and hunting, and sight-seeing
- 3) the people of Coos Bay and Coos County depend almost entirely upon their private motor cars for transportation. Coverage and frequency of service by public transportation is not sufficient to answer needs.

The railroad from Powers to Coquille is primarily that of the Coos Bay Lumber Company, and connects at Powers Terminal yards with the main seventy-five miles of private trackage leading into the National Forest holdings in the southeast corner of the County, extending over into Douglas County. The Southern Pacific Railroad Company and the Coos Bay Lumber Company have joint operating agreements to cover the trackage from Powers to Coos Bay for the inter-operation of their equipment on either portion of the line.

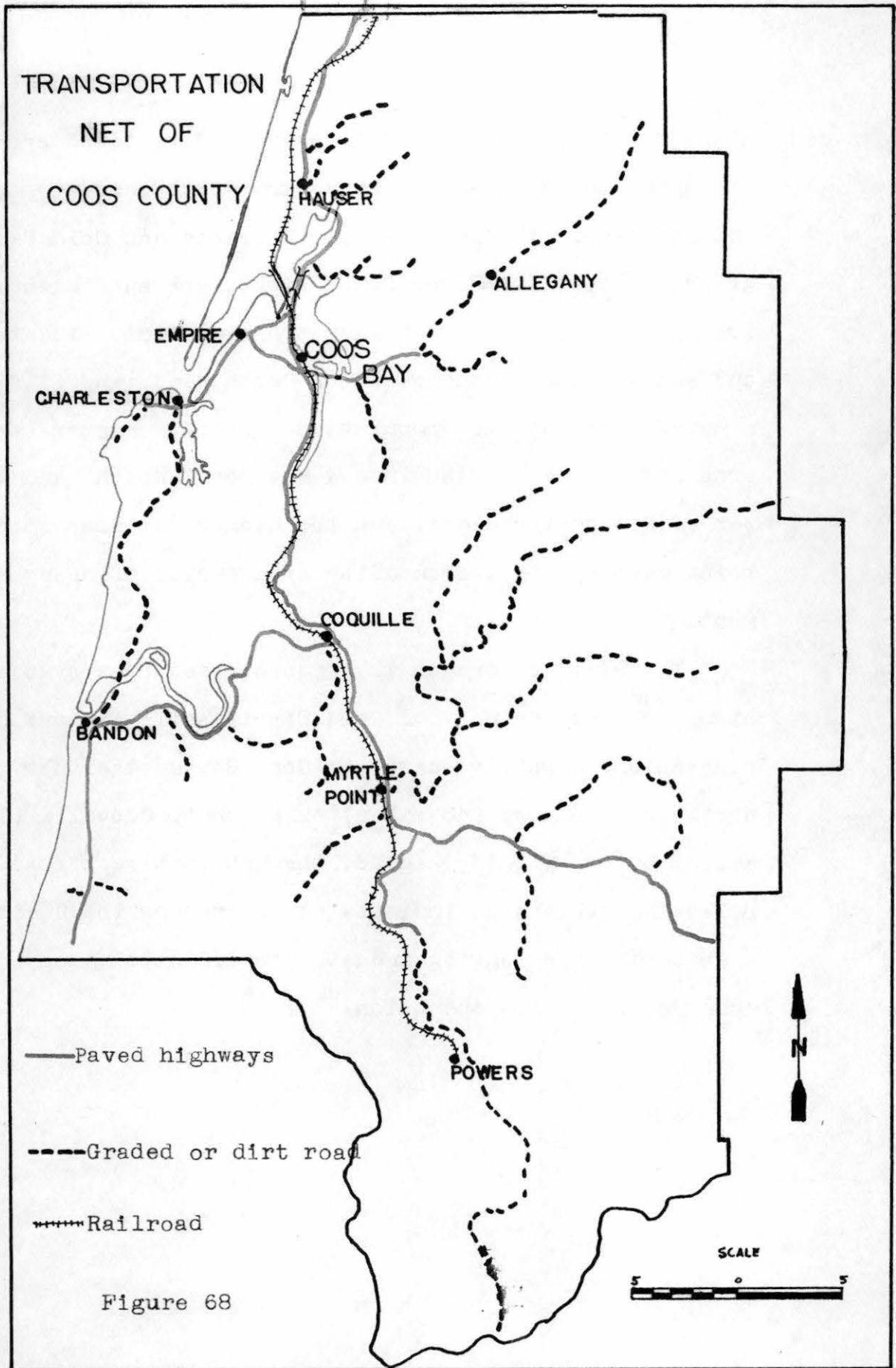


Figure 68

times a day, three in each direction, deviations are made at Eugene and Roseburg to serve the North Bend airport - and indirectly the area between Florence and Gold Beach. After the tourist season four flights are sufficient. The local airport is a former Navy training field, located due west of the northern end of North Bend, and is fifteen minutes from the main population centers. Former barracks area has been converted into a New Hotel North Bend to serve through-travelers, and the hangar and shop space is being used by service and display agencies of heavy equipment.

The State of Oregon is criss-crossed by a system of highways, but the city of Coos Bay is still without direct connection. Traffic east from Coos Bay must either travel north to Reedsport (40 miles) or south to Coquille (18 miles) before finding a good, through east-west road. The following table will indicate how road-poor the County is, even though the logging industry is definitely dependent upon roads for its operation.

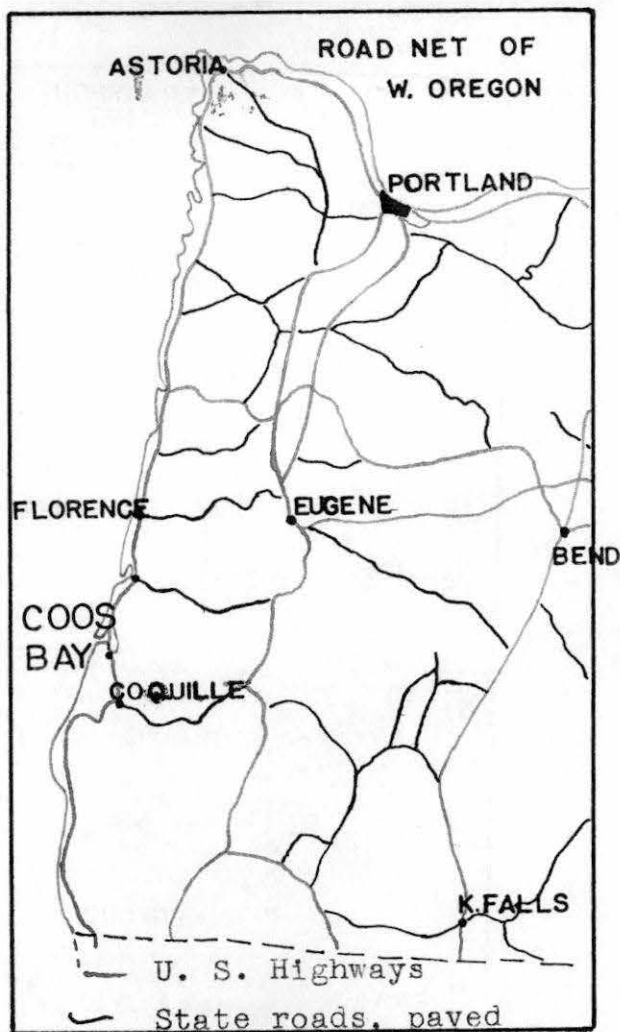


Figure 69. Three main roads parallel each other, separated by mountain ranges: US 101 on the coastal fringe, US 99 in the Willamette Valley (Portland, to Eugene, etc), and US 97 going through Bend, Klamath Falls, etc.

The city of Coos Bay is connected to Willamette Valley cities by State highways at Reedsport to the north, and Coquille to the south. The Coast Range effectively hinders all direct east-west traffic to Coos Bay.

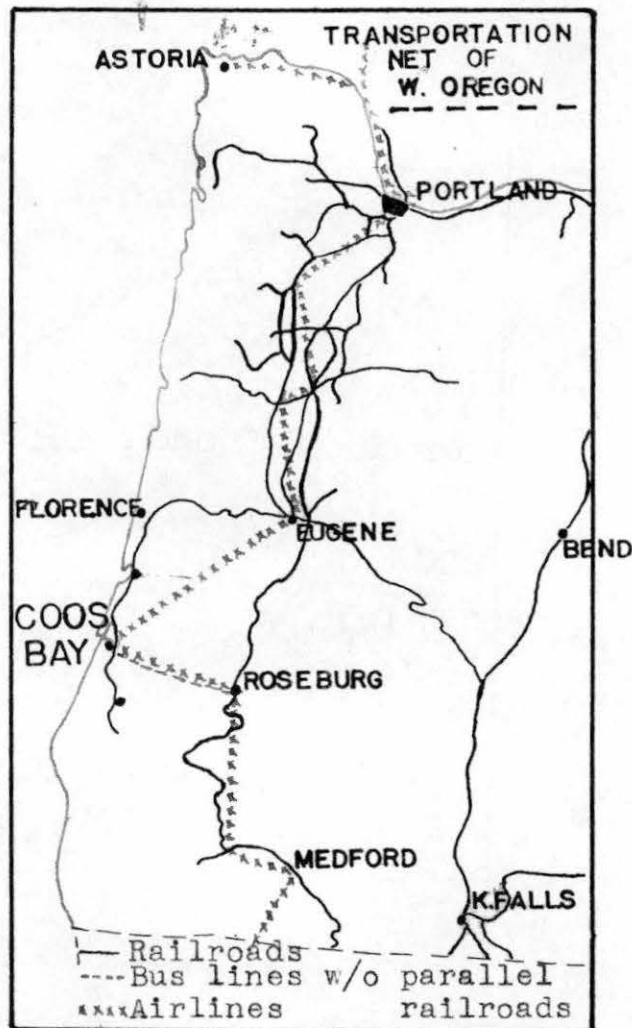


Figure 70. The transportation types indicated help to point up the relative isolation of the Coos Bay Region. The bus line from Roseburg is part of the Greyhound System but provides service on railroad tickets from Roseburg by virtue of a general agreement with the Southern Pacific Railroad.

It is very doubtful that additional rail facilities will ever be made available to the people of Coos Bay - the number of trains might be increased slightly, but not the track mileage. Air travel will continue as it is, since there is no need for the development of an airline to parallel the coastline, now.

Comparative Mileage
of State Highway

	Coos County		State of Oregon
	<u>Actual</u>	<u>Percent</u>	<u> </u>
Concrete Paving	22.83	6.4	355.94
Bituminous Paving	3.01	.4	690.73
Bituminous Macadam	24.96	2.	1,276.76
Oiled Surfacing	90.83	2.7	3,350.29
Un-oiled Surfacing	10.91	1.2	900.58
Graded	-	-	290.87
Unimproved	<u>5.20</u>	1.5	<u>342.18</u>
Total:	157.74		7,207.35

Figure 71³²

Indicates the mileage of State highway in the State of Oregon, and within Coos County. Roads are of importance around Coos Bay because of the general dependence upon motor transportation for travel, and the extreme dependence of the lumber industry upon good roads for hauling.

Existing rail facilities consist of one line to Eugene

The branch line connecting Eugene and the city of Coos Bay was constructed in 1916-17 primarily to bring out the stands of spruce along the Seven Devil's Road for use in constructing airplane bodies during World War I. If the war and the airplane had not arrived simultaneously, it is quite possible that Coos Bay would still be without adequate rail connections. The line is one-way, in the

³²Oregon Bluebook, p. 275. (5)

form of a right angle with the center anchored slightly east of Florence.

There are two passenger trains a day; westbound leaves Eugene at midnight and arrives in Coos Bay at 7:30 A.M. the following morning; eastbound leaves the city of Coos Bay at 7:30 p.m. and arrives in Eugene at 1:00 a.m. the following morning - the same train makes the round trip. Express and fast freight make up the bulk of the train, and are composed of fresh meat, fruit and produce for at least thirty local retailers. Stops are made en route at Mapleton, Reedsport, and other towns. Outbound shipments consist of commercial fish, fish livers, ferns and bushes, and crabs - the crab shipment is a specialty developed by North Bend packers.

There are three main freight trains to serve:

- #1 - Eugene to Coos Bay, plus all towns south of Reedsport
- #2 - Eugene to Reedsport, plus all towns west and south of Mapleton
- #3 - Eugene to Mapleton, plus all points-between.

With the month of April, 1949, as an average, and confining movements to those which originated south of Reeds* port, there were: (one carload - 80,000 pounds)

- 105 carloads of logs and piling
- 786 carloads of lumber
- 68 carloads of plywood
- 34 carloads of veneer
- 25 carloads of battery separators

Projecting the figures into the future, in a period of one year the railroad will carry a total of 40,720 tons of lumber products out of the city of Coos Bay. The data does not include the tremendous shipments of food, clothing, and heavy equipment which moves by rail. For example:

In-bound

Logs from Reedsport, Swisshome, and Powers
(1100 carloads per month, minimum)

Lumber for export from Willamette Valley, Tillamook, Grants Pass, and Roseburg. Largely Evans Products Company stock which is processed into the finished product and then sent along.

Automobiles. Twenty-eight carloads in July, 1949.

Hay from eastern Oregon. Primarily made up of summer shipments so as to leave the lines free for lumber

Feed from Portland and Tacoma grain mills

Peat moss from British Columbia for local lawns. A very odd movement since peat moss from local bogs is being packaged and sold outside Coos County in the same manner and for the same purpose.

Fruit from California, Arizona and New Mexico

Gravel from Reedsport for Powers. Probably for the roads of the Coos Bay Lumber Company since Powers is their center of operations in the field.

Cement from Gold Hill

Explosives from California

Furniture from Dallas, Texas

Beer from Washington, and from Milwaukee, Wisconsin

Other industrial supplies (as for Industrial Steel Supply)

Transmissions from Mishawaka, Indiana

Chains and chain hoists from St. Charles, Illinois, and from Sandusky, Ohio

Winches from Tulsa, Oklahoma

Fire Brick from Mexico, Missouri

Steel from Sparrows Point, Maryland, and from San Francisco, Seattle, Portland, Geneva, and Bethlehem (Pa.)

Scrap steel exchanged for new in Portland

Out-Bound

Lumber, plywood, battery separator stock, handles, and pallet boards to all parts of the country. The peak in lumber shipments comes between June and August with some carry-over into September

Ferns, cascara bark and other Callison material, a combined total of seven carloads every month

Gasoline and by-products distributed by rail to Reedsport, Myrtle Point and Coquille

Furniture stock cut to shape, but not finely finished, from Evans Products Company

Fish - intermittent shipments for sports fishermen

Empty beer barrels and drums.

Extreme rail activity occurs at the time of longshore strikes when more lumber is shipped out by train. If there were more cars available, it is conceivable that the Southern Pacific facilities could handle the entire output of the mills if demand were sufficiently strong to cover increased costs of rail over water shipment. Rock slides occur frequently during the rainy months, between Eugene and Mapleton, but the railway does not plan additional construction. However, extra trains can handle any traffic which originates out of the Coos Bay-North Bend area. Time would be of the essence until the needed cars and personnel could be transferred or trained.

Use and development of waterways, a controversial issue

The Harbor, a long-term, planned development

Coos Bay is a tidal U-shaped estuary. It is fifteen miles long, averages 1,200 feet wide at low tide, and has channel depths varying from twenty-two to thirty feet over the entrance bar to Guano Rock one mile inside, thence twenty-one to twenty-six feet to Smith's Mill, mile fifteen.³³

Earlier projects to benefit the Port of Coos Bay, under River and Harbor Act of:

1879	1910	1927
1890	1919	1930
1898	1922	1935

Up-to-date cumulative costs:

Federal Government	-	\$13,290,185.27
Port of Coos Bay	-	1,027,181.66
		<u>\$14,317,366.93</u>

Current River and Harbor Act
to develop a 40-foot
to 22-foot channel

	-	<u>5,689,000.00</u>
Total costs	-	\$20,006,366.93

Yearly upkeep Costs	-	235,000.00	³⁴
------------------------	---	------------	---------------

³³Senate Document Number 253, p. 2 (3)

³⁴Ibid., pp 13-15.

The Project Map for the development of the main harbor channel at Coos Bay. All information pertaining to the past and present projects is contained in the material in the upper left-hand corner of the map.

MAIN HARBOR PROJECT MAP

EXISTING PROJECTS: Provisions for two rubble-mound, high tide aprons at the entrance to a channel across the outer bar at least deep and of suitable width, with transverse rubble-mound groynes to form a channel 30 feet deep and 300 feet wide thence to Latham Slough turning basin. 20 feet deep, 300 feet wide and 1,000 feet long at Coos Bay and at City of North Bend anchorage basins 20 feet deep, 600 feet wide and 1,000 feet long at mile 5.5 and near mile 7. A channel 22 feet deep and 180 feet wide from mile 4.5 (mile 13) to Millington, turning basin 300 feet by 300 feet at Millington, with channel to deep water in Coos Bay and construction of breakwater and bulkhead.

PROPOSED: The north jetty was completed in 1919, the outer jetty being reconstructed in 1947 and the north jetty completed in 1950 with reconstruction in 1962. The entrance and harbor basins, prior to the 1946 modification were completed in 1907. Rock construction at Ocean Rock in the entrance channel was initiated. Her and bay channel were dredged and hydrographic surveys made. The existing project is approximately 80 percent complete. Proposed new work for F. I. 1962 includes rock rip-rap and dredging at Ocean Rock and between mile 2.2 and 4.5, bridge pier and apron channel, and existing piers and dolphins for use as moles.

DEPTH OF TIDES: The mean of higher high waters above the plane of reference and 1/2 extreme SL&L range at Charleston, along the entrance, are 7 and about 11.7 feet, respectively, and at Coos Bay 7.3 and 11.5 feet.

UNIMPROVED CHANNELS: 18 feet at entrance, 21.5 feet to Coos Bay, 24.5 feet in turning basin and 30 feet in Latham Slough.

WATER PLANS: All depths refer to plane of mean lower low water.

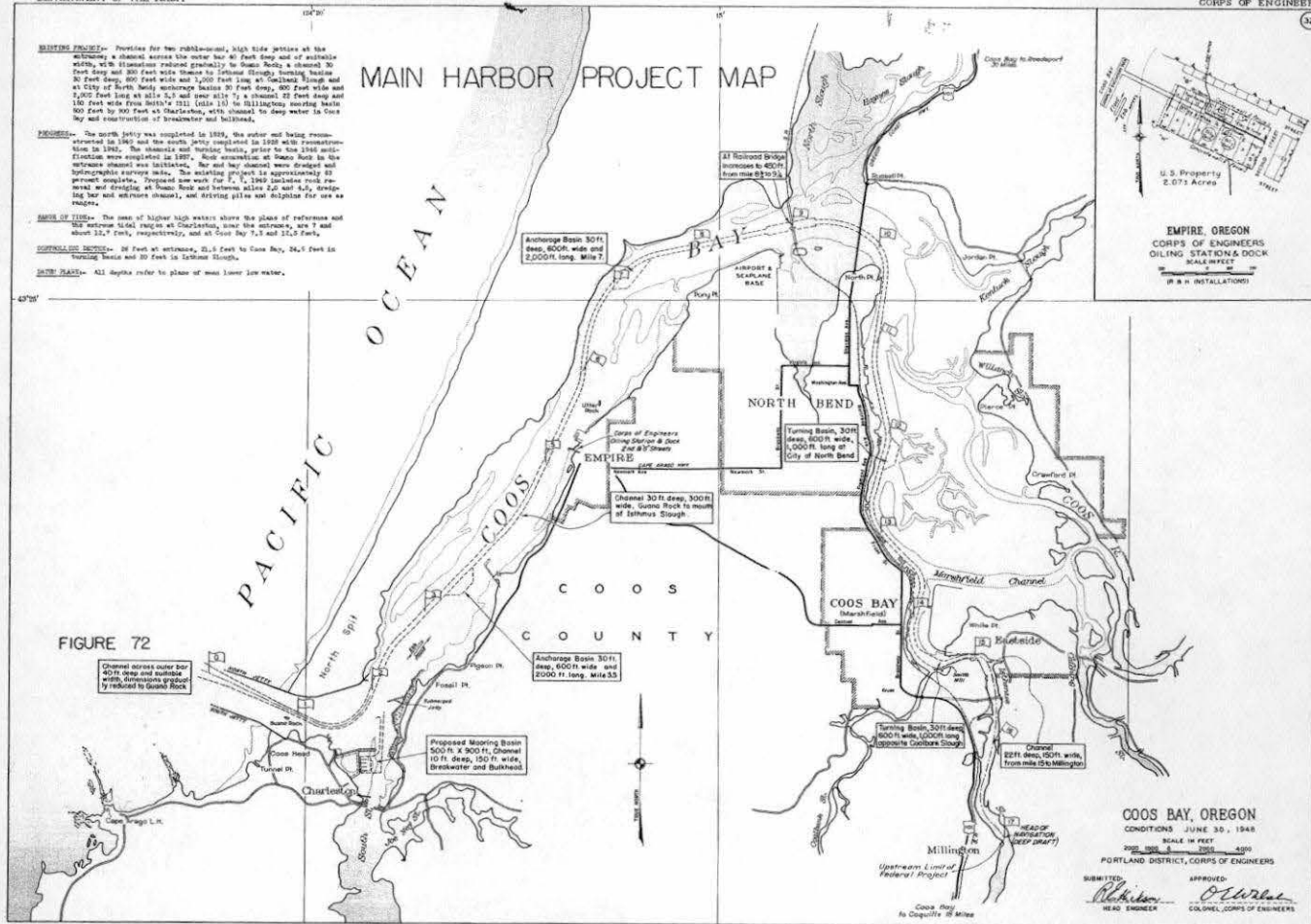
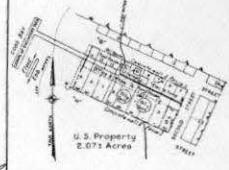


FIGURE 72

COOS BAY, OREGON
 CONDITIONS JUNE 30, 1948
 SCALE IN FEET
 1" = 1000'
 PORTLAND DISTRICT, CORPS OF ENGINEERS
 SUBMITTED: *R. H. ...* HEAD ENGINEER
 APPROVED: *O. ...* COLONEL, CORPS OF ENGINEERS

The project map for the entire area to be affected by the present program. In both the South Fork of the Coos River and the Millicoma River, the extent of the Federal Project is also the extent of tidewater effect and the head of light draft navigation.

The channel to be dredged on the upper portions of the rivers will be large enough to handle tugs of low draft and log booms to be hauled down to the mills. There is no reason for larger vessels to proceed up the river since there is not enough in the way of commerce or possible industrial expansion to warrant it.

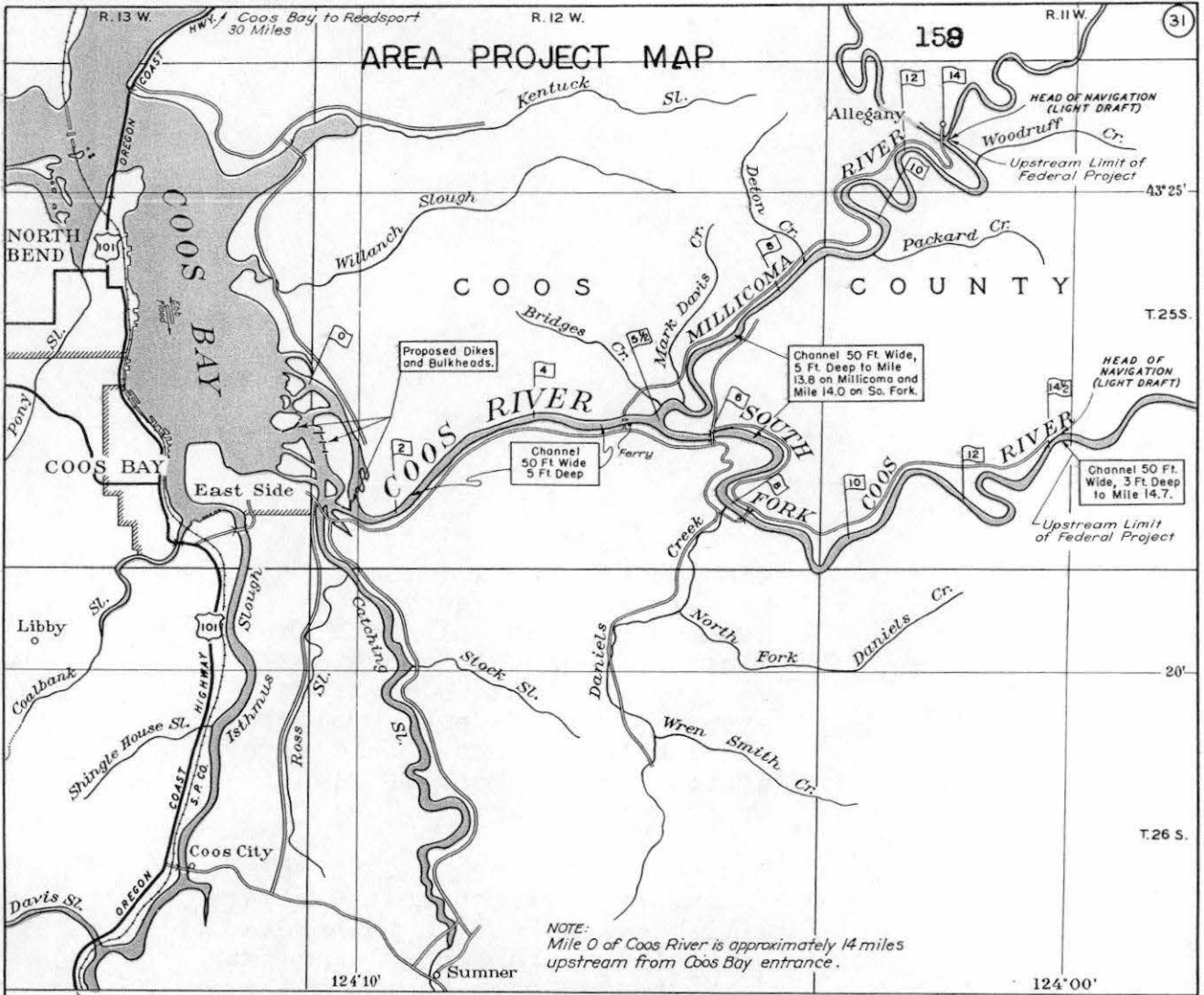


FIGURE 73

EXISTING PROJECT:- Channel 5 feet deep and 50 feet wide from mouth of Coos River to Allegany on Milllicoma River, mile 13.8, and to Dellwood, mile 14, on South Fork; 3 feet deep and 50 feet wide to mile 14.7 on South Fork; stabilization works on Coos River at the mouth.

PROGRESS:- The Coos River project was completed in 1899. No work has been done on the project as modified by the RAH Act of June 30, 1948.

RANGE OF TIDE:- Between mean lower low water and mean higher high water is 7.3 feet at mouth and 1 foot at the heads of navigation. Extreme range at the mouth is about 11 feet.

CONTROLLING DEPTHS:- About 4 feet from mouth to the forks and 2 to 3 feet in the South Fork and Milllicoma to the head of navigation.

DATUM PLANE:- All depths refer to plane of mean lower low water.



COOS AND MILLICOMA RIVERS, OREGON
CONDITIONS JUNE 30, 1948

SCALE IN MILES
0 1 2 3
PORTLAND DISTRICT, CORPS OF ENGINEERS

SUBMITTED:
R. H. Johnson
HEAD ENGINEER

APPROVED:
O. W. White
COLONEL, CORPS OF ENGINEERS

DRAWN BY C.S.

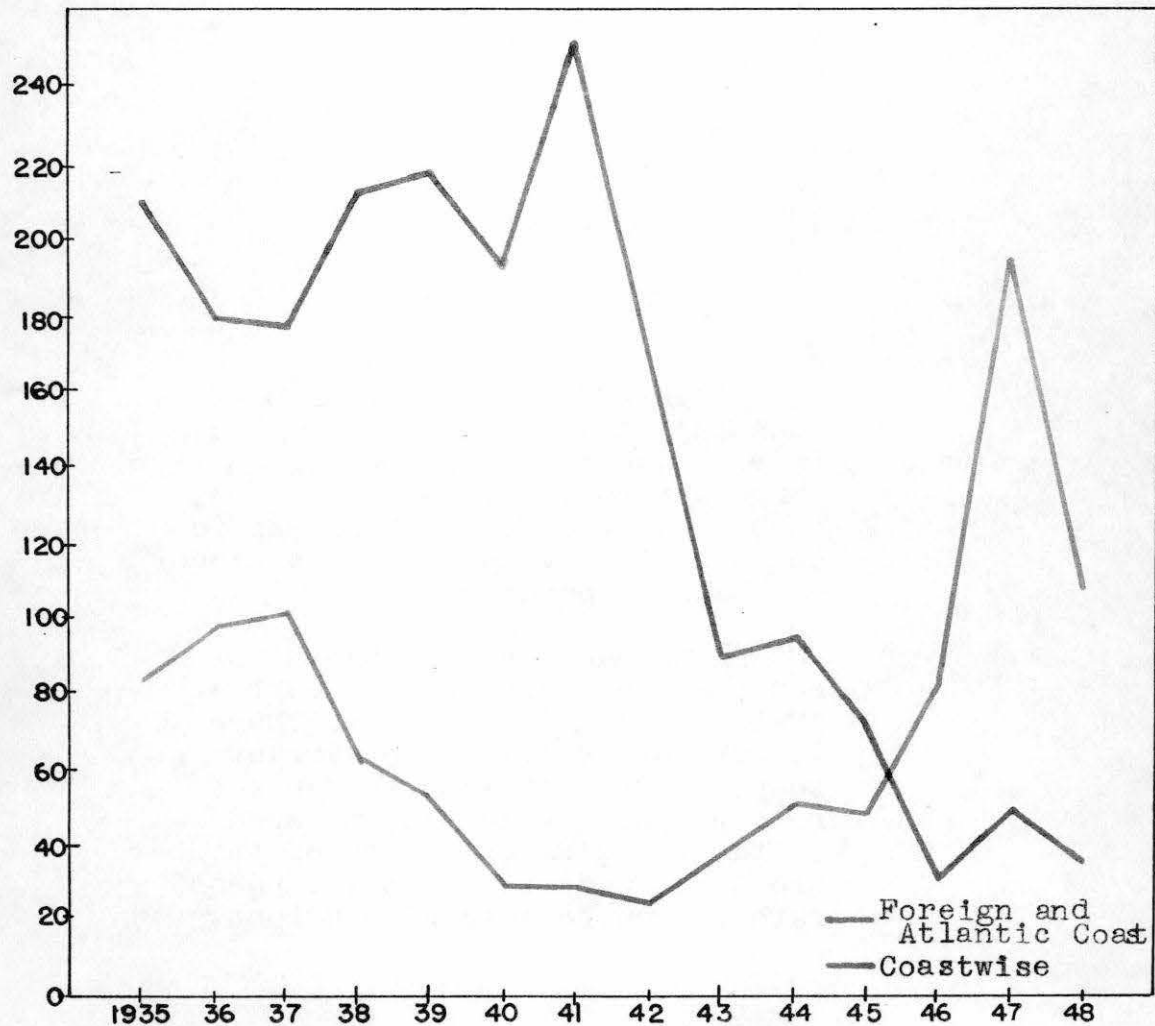
Prior to 1935 there was no mandatory local cooperation which accounts for the small effort of the port of Coos Bay Authority in part. A bond issue floated in 1914 was the first step taken by the Authority to raise large sums of money by a purely voluntary method, the funds to be used for the development of piers, harbor facilities, and the purchase of dredging equipment. All work to be done on the harbor is carried on by the Army Engineers, or under their direction and supervision, if awarded on a contractual basis. The contract for outer harbor dredging has been awarded and assumedly will start soon.

Existing harbor facilities are more than sufficient for the mills which use them, except for some limiting aspects of the channel which requires partial loading. If the existing facilities were to be taken collectively, there would be enough space available to load nine ships simultaneously - more than enough to handle the Coos Bay Trade. Rate of cutting, lowering prices for lumber, decreasing number of foreign shipments to countries able to pay for them with dollars, and the increased trend towards raised tariff barriers would all help to limit expansion of present trade and keep it more nearly at its current level. Other than lumber and logging firms, there is little demand made of the shipping industry; other industrial firms in the Bay area are more apt to rely on

Figure 74 indicates the present sea-borne trade which originates in the Coos Bay region. The two graphs have almost opposite profiles.

Coastwise shipments reached a peak in the early days of World War II, reflecting war-housing and defense activities, while the foreign shipments reached a peak in the early post-war era. Foreign trade has not been large enough to make up for the loss in coastwise shipments.

The downturn in foreign shipments coincides closely with the period when lack of foreign exchange made itself felt - too few American dollars.

Water Shipments made from Coos Bay, 1935 to 1948

Year	Coastwise	Foreign & Atl Coast	In-coming	Year	Coastwise	Foreign & Atl Coast	In-coming
1935	211	83 (21)	2	1942	168	25	-
1936	180	98 (23)	3	1943	93	38	-
1937	178	101 (21)	4	1944	95	52	-
1938	211	63 (2)	-	1945	71	48	1
1939	218	54 (1)	1	1946	30	81	-
1940	192	29	3	1947	47	195	-
1941	251	28	1	1948	33	107	2

() indicates number of Japanese-registry ships calling

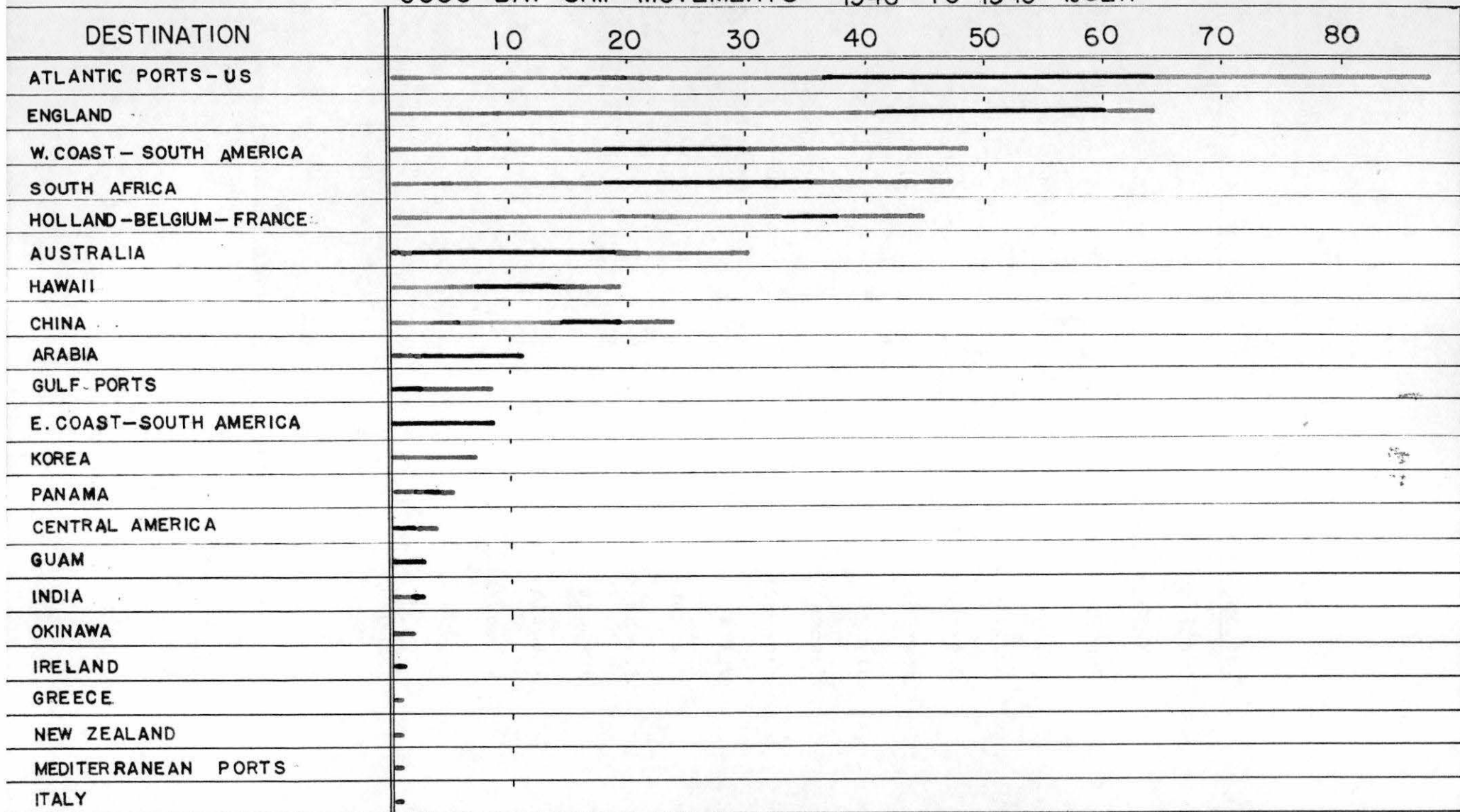
SOURCE: Personal communication,
Independent Stevedore Company,
Coos Bay, Oregon

Figure 74

Figure 75 illustrates that Coos Bay is a second-choice port. Ships which do stop here for a cargo can only half-load and must then travel to some other Pacific Coast port to take on the remainder of their shipment.

Although the Columbia River ports are supposed to be short of available standing timber, there is sufficient lumber to warrant ships making trips north for the sole purpose of completing loads. By far the greater number of trips are those made to the River ports, rather than to coastal stations.

COOS BAY SHIP MOVEMENTS - 1946 TO 1949 (JULY)



1946
 1947
 1948
 1949
 SOURCE = INDEPENDENT STEVEDORE CO. COOS BAY, OREGON

Pacific Coast Destination
of Departures from Coos Bay
during 1947

<u>Destination</u>	<u>Number of trips</u>
Portland	31
Columbia River	15
San Francisco	14
Seattle	9
Longview	5
Grays Harbor	4
Aberdeen	3
Olympia	3
Tacoma	3
San Pedro	3
Willipa	2
Houston	1
St. Helens	1
Newport	1
Astoria	1
Vancouver, B. C.	1
Bradwood	1
Victoria, B. C.	1

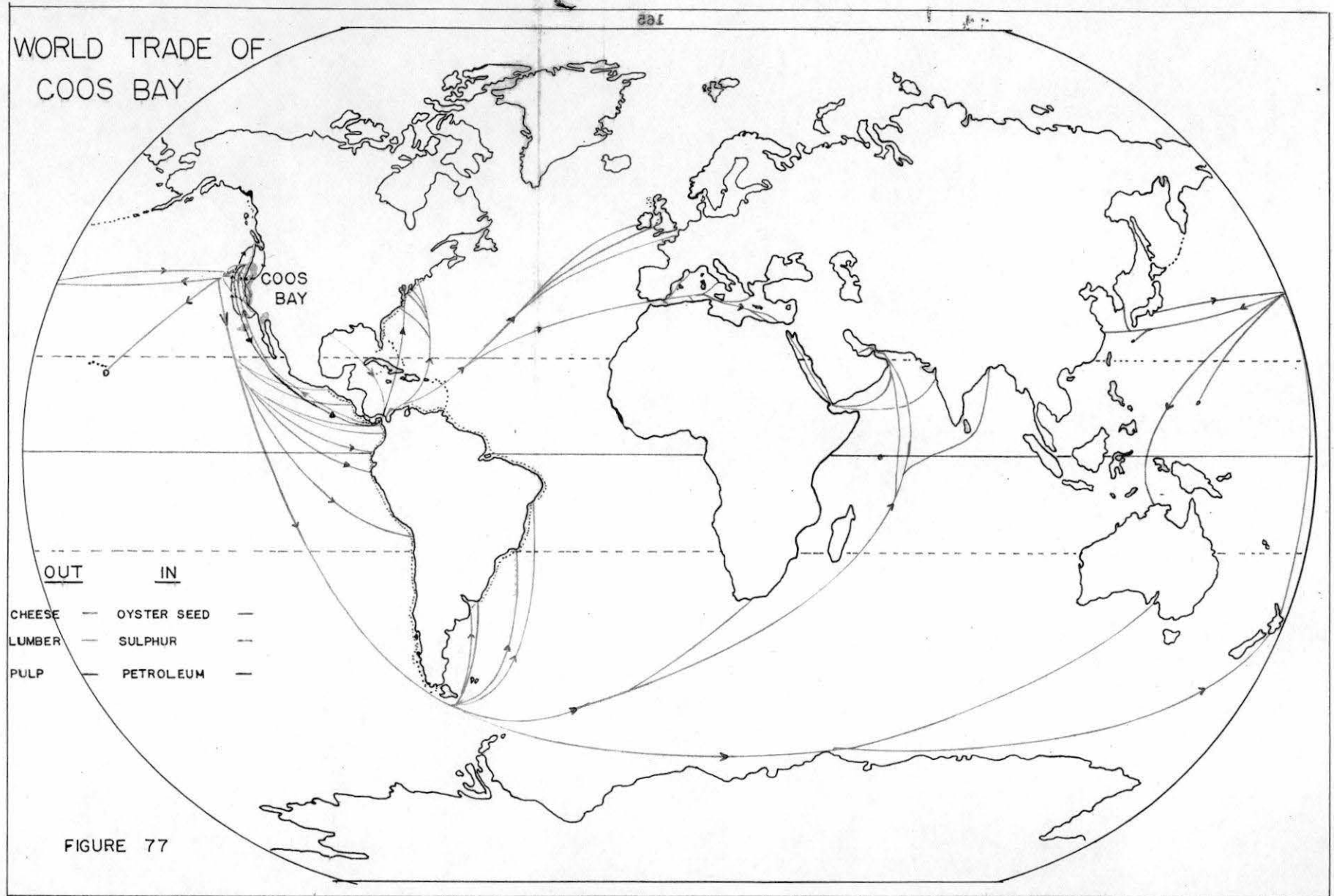
Total: 99 ships

18 ports-of-call

SOURCE: Independent Stevedore
Company, Coos Bay

Figure 75

WORLD TRADE OF
COOS BAY



the railroad than upon the water shipments.

Trade movement in the Port of Coos Bay is primarily out-bound. In-bound shipments are composed of petroleum, oyster seed and sulphur, and are very light compared to traffic in the other direction. Out-bound shipments are not always destined for a particular harbor. Ships to South America and some to the East Coast of the United States, will act as tramp steamers - sail along the coast and stop in at likely ports to discharge and pick up cargo wherever there is a market. Ships going to particular destinations always seem to go to the centers of population.

Future high-level sales are closely wound up with the Marshall Plan or ECA, tariff barriers, and other intangibles. The lumbermen of Oregon, and Coos Bay, will fight to hold their markets at all costs - e.g., Yugoslavia requested aid in the form of logging-sawmill equipment so that they could exploit their forests; from the money received they would repay the initial loans; West Coast lumbermen prevented the plan going through on the grounds that it would cost them a market in Yugoslavia and neighboring countries. Governmental aid is abhorable, unless it means the maintenance of a particular type of market.

Longshoremen of Coos Bay-North Bend - a type study

A loading gang of longshoremen is made up of:

- a - one hatch boss
- b - two or three hatch tenders (winch operators) depending upon the number of winches carried on a ship
- c - eight hold men to stack the lumber on board ship
- d - two dock men to make fast the winch cable around each load as it is readied to be hoisted on board ship

All stevedoring work for Coos Bay-North Bend is done by the twenty-one gangs of longshoremen here, hired through the Independent Stevedore Company. The shipping company informs the Stevedore Company of the men needed, the Stevedore Company consolidates all requests and then informs the hiring hall where the men are supposed to report. Salaries are set for the entire Pacific Coast by an organization composed of ship and stevedore companies, called the Waterfront Employers Association. The present rate is:

\$1.82 for the first six hours between eight and five

2.73 per hour for all overtime, after the first six hours for five days a week, from Monday through Friday. Higher rates are applicable, depending upon the type of work to be done and the experience of the individual worker. Penalty rates are added where the handling of the cargo implies a certain amount of risk. Saturday, Sunday and all recognized holidays are always overtime hours.

Average loading is 15,000 board feet measure per hour; Coos Bay operations will load 7,000 board feet per hour. In 1936, 1,000 board feet of lumber was loaded for

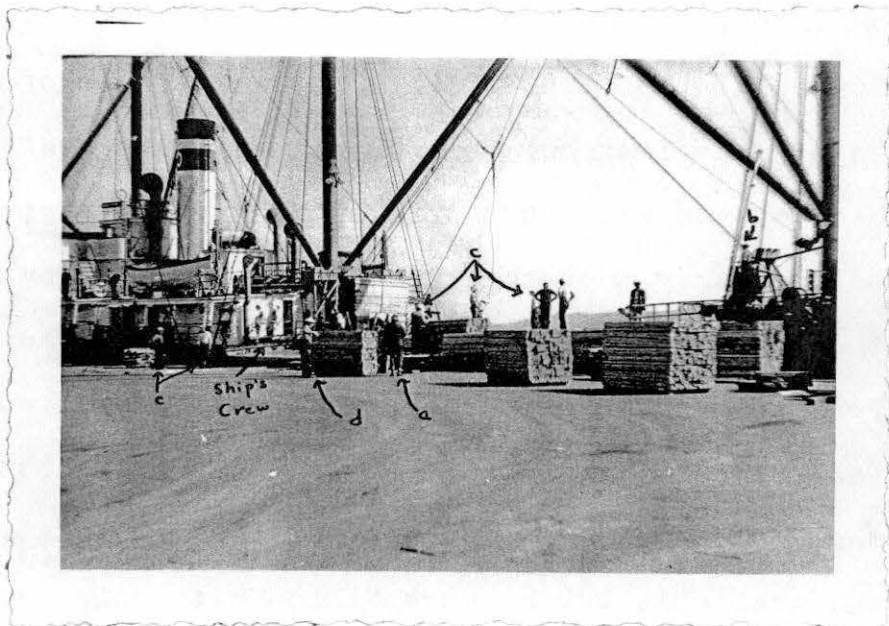


Figure 78. A longshoreman crew loading the Karen Olson at the Central Dock. One load is being readied to be hauled onto the deck while others are waiting. Hysters bring the loads to the ship's side.

Various members of the loading gang are indicated by symbols, with their definition shown on the facing page. All members of the gang in motion is a rare sight - the casual onlooker is more apt to find conditions as shown in Figure 80.

83¢ per hour; in 1949, with additional labor saving devices and improved methods of handling, this same lumber was loaded at the cost of \$13. The main cause of the difference - the longshoremen who refuse to work after five o'clock, on week-ends or holidays, or any faster than they believe they must to stay on the job. In any loading crew, the work is geared to the speed of the slowest man. In Portland and Astoria where the longshoremen work somewhat faster, a ship is loaded in two days - in Coos Bay harbor, that ship would be tied up four days at least. Where once the available berths were filled with ships waiting to be loaded, owners are now reluctant to bring ships into a port where waiting costs pyramid at \$1000 per day, plus the cost of inefficient labor.

Unless, and until, more railroad equipment is moved into Coos Bay to take some of the business away from the ships, the stevedores will remain the pinch spot of the entire economic picture. And, since lumber which piles up on the piers during strikes will eventually back up into the mills with little storage space, these 273 men can halt industry through all of Coos County if and when they wish. Since more than one-third of the entire labor force is dependent upon a portion of the logging industry for a livelihood it is probable that they would affect the other two-thirds if they were out of work. Weather



Figure 79. Berths and docks of the Central Dock Company, at the north end of the city of Coos Bay.

- a) lumber stacked after unloading from incoming trucks and railroad cars
- b) lumber moved to ship-side by Dock Company personnel and equipment
- c) ship's loading lines, winches, booms
- d) Hyster in operation
- e) truck bringing in another load
- f) ladder alongside rail siding, used to aid in unloading-stacking operation.
- g) petroleum company docks between the city of Coos Bay and North Bend.

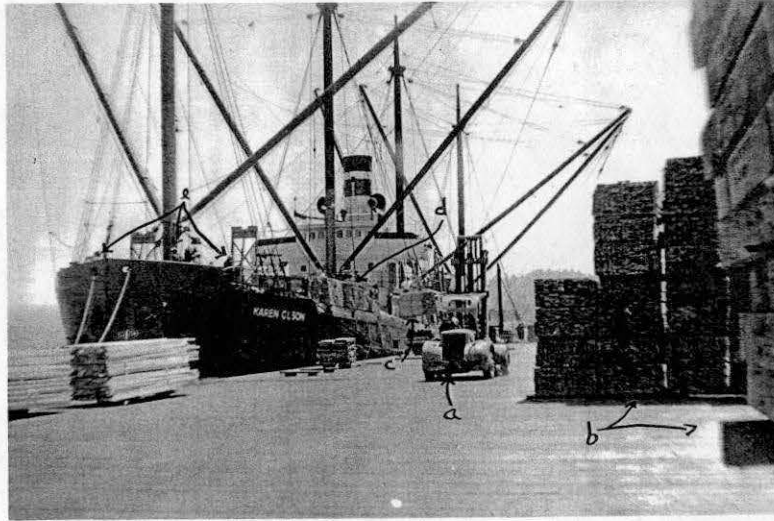


Figure 80. The Karen Olson loading at the Central Dock Company facilities.

- a) Hyster moving lumber to shipside.
- b) lumber, recently unloaded from a train waiting to be moved to shipside
- c) a sling-load, recently moved to the side of the ship, now being hoisted aboard
- d) partial loading above decks when holds are full
- e) stevedore gang members

If the Karen Olson were able to take a full deck load and still pass over the bar, it would load piling as an additional deck load filler.

conditions can hinder operations in the field, but the stevedores can hamstring all operations just as effectively and still not leave their homes - and apparently man doesn't have control over either one of these factors now.

The Central Dock Company - a type study

The Port Authority of Coos Bay has financed and built a series of docks along the Bay shore, immediately north of the main business district, which are being operated by the personnel of the Central Dock Company on a lease basis. Shipments originate in Eugene, Roseburg, Port Orford, Gardiner, and Reedsport, but the majority of traffic is from mills close to the dock. Mills outside the city of Coos Bay will contribute approximately one-third of estimated future traffic:

Estimated annual commerce
after harbor improvements

	<u>Tons</u>
Out-bound lumber:	
From inland mills (156,000 bfm)	257,400
From Coos Bay mills (340,000 bfm)	612,000
Out-bound piling (1,000,000 11 ft)	20,000
Out-bound wood pulp	30,000
In-bound sulphur	3,600
In-bound petroleum products	30,000
In-bound merchandise	<u>14,000</u>
Total:	967,000

Figure 81³⁵

³⁵Senate Document, p. 20. (3)

Of the total future output, forty-three percent will move to its destination by water, while the remainder will move by rail.³⁶ The farther a mill is from the Central Dock, the less apt is it to use water transportation. Cost data of movements from Camas Valley (midway between Coquille and Roseburg, beyond the Coast Range crest) to Portland help to substantiate the contention that water shipments are cheaper:

Present cost to shipside at Portland (1,000 ft bfm). Location of Mills, Camas Valley. Railhead, Dillard. <u>Rough green lumber</u>	
Trucking from mill to Dillard (20 miles)	\$2.54
Transfer from truck to car	1.00
Rail freight to Portland (3,600 pounds at \$0.16 per hundredweight)	5.76
Wharfage	<u>.50</u>
Total:	<u><u>\$9.80</u></u>

³⁶Ibid., p. 22.

Prospective cost to shipside at Coos
Bay (1,000 ft bfm)

Trucking from mill to Coos Bay (62 miles)	\$4.58
Storage, handling, etc.	1.00
Wharfage	<u>.50</u>
Total:	\$6.08

or

where the mills are located in southern Douglas County and need to be shipped either to Portland or to Coos Bay for trans-shipment, there are some cases where the lumber could be trucked to Coos Bay at a lower cost than shipping by rail to Portland.

Rail rate from Powers, Oregon, to Portland 3,600 pounds at 20¢ hundredweight	\$7.20
Rail rate from Powers, Oregon, to Coos Bay 3,600 pounds at 6½¢ hundredweight	<u>2.34</u>
Saving:	\$4.86

Figure 82³⁷

Shipments to the Central Dock are made by truck or rail. The service of the Dock Company consists of moving the lumber from the original conveyance to a position close to the ship where the winches aboard ship can be used. Two Myster's and operators are sufficient to handle all present shipments, and the fee charged pays for the storage and movement service.

³⁷ Senate Document, p. 22 (3)

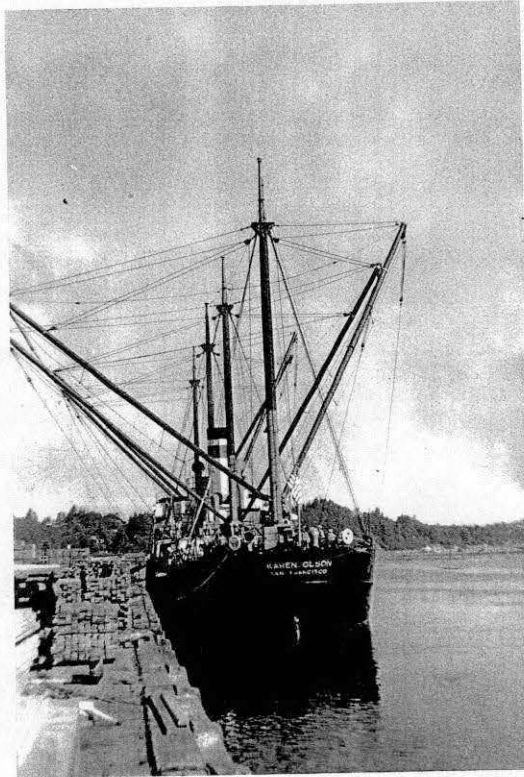


Figure 83. The Karen Olson, typical of the ships of the Olson Line, operating on the Pacific Coast between California and the Northwest lumber ports. Men on the after-deck are members of the longshore gang. Ship's equipment is used for all loading; if deemed in poor repair, the owner is forced to make a premium payment to all stevedore's who work the ship.

The Olson Line - a type study

Olson ships are used to transport lumber from Oregon and Washington ports to California using areas. Ships of Isthmian Line, larger and more modern, carry lumber to South America, Atlantic Coast ports of the United States, and to foreign countries. The Olson line ships hold a maximum of 2,500,000 board feet measure of lumber. They are loaded in four days at Coos Bay and unloaded in three days at San Pedro, terminus of a majority of the trips. The small size of the ship accommodated makes it necessary that the trip be shortened also, so that the two combine to make of the city of Coos Bay an appendage of California. The dealers must of a necessity limit their operations to California markets and lessens what effectiveness they might have in world trade.

The south-bound trip requires 70 hours, and the return is made empty. Another problem to be faced is that of the fog and channel. The channel hugs the shore very closely in the inner Bay, and since there is a close coordination between morning fogs and low tides it is sometimes necessary that the ships have to wait for the fog to lift before attempting to leave the harbor - plus, two hours required to get out of the harbor. Time lost, added expense, and small paying cargoes are a present affliction of Coos Bay harbor.



Figure 84. The Enegren Ferry crossing the Coos River from south to north. The power unit is housed in the control house in the middle of the ferry, with two winch lines to provide the means of movement. The cable extending out to the front takes the strain of the motor pulling, while that to the rear acts to control the direction.

Capacity is six cars. The ramps at either end of the ferry ride up on the shore approaches for easy access. Two operators are used, one to run the ferry motor, the other to raise and lower gates and to guide cars onto the ferry.

The road on the far bank runs parallel to the river, to the right; later it follows the Millicoma River to and beyond the town of Allegany onto the Roseburg highway at Scottsburg. The road to the left is only one mile long.

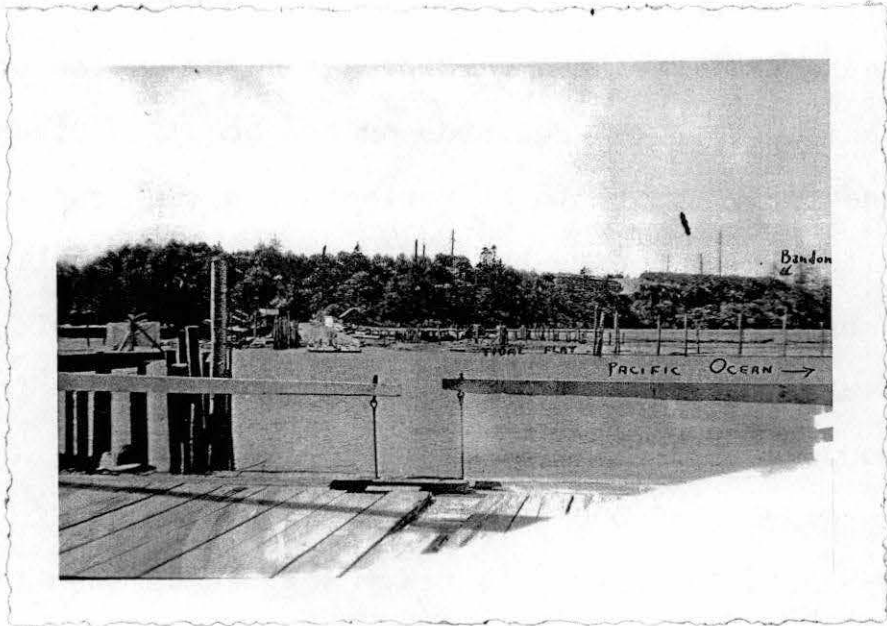


Figure 85. Bullards ferry across the mouth of the Coquille River. The city of Bandon is approximately two miles from the far side of the river.

This ferry is in poorer condition than the Enegren Ferry, but except for the fact that the power unit and cables operate from the center of the craft, they are alike. The shoreline to both sides of the ramp site is full of drift wood and scrap washed up by the current.

The existing ferry system

Bridges have replaced early ferries in all but two instances, the Enegren Brothers Ferry on the Coos River, and the ferry at Bullards on the Coquille River. One of the last ferries to be replaced was that run by the Landrith family before the present bridge was built. All ferries are now State-operated and give service from six o'clock in the morning until two o'clock the following morning. The Enegren is typical of the two, and carries an average of 300 cars and 1,500 passengers in one day's operation. Traffic is heavy now because the ferry is the only means of getting to Allegany and the Weyerhauser developments beyond.

Tidewater has no noticeable effect on ferry operations. Increased run-offs during the spring add strain to the cable guiding the ferry, but the only time operations have been curtailed is when the log booms and rafts are taken downstream to the mills. At such times, the cables are released and dropped to the bottom of the river until the rafts pass and are then winched up and operations resumed.

Development of a Fish Industry in the Future is Questionable

The greater number of trips in and out of Coos Bay harbor are made by the members of the fishing fleet which

ties up at Charleston, with some overflow into the city of Coos Bay.

Trips, in-bound (1944)

<u>Draft, feet</u>	<u>Steamers</u>	<u>Motor Vessels</u>	<u>Barges</u>	<u>Total</u>
22 to 24	-	-	-	-
20 to 22	-	-	-	-
18 to 20	3	-	-	3
16 to 18	5	-	-	5
14 to 16	96	-	-	96
12 to 14	10	-	-	10
Under 12	<u>7</u>	<u>3,944</u>	<u>511</u>	<u>4,462</u>
Total:	121	3,944	511	4,576

Total net registered tons	110,220	29,580	153,300	293,100
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Trips, out-bound

<u>Draft, feet</u>	<u>Steamers</u>	<u>Motor Vessels</u>	<u>Barges</u>	<u>Total</u>
22 to 24	5	-	-	5
20 to 22	97	-	-	97
18 to 20	8	-	-	8
16 to 18	1	-	-	1
14 to 16	10	-	-	10
12 to 14	-	-	-	-
Under 12	<u>-</u>	<u>3,944</u>	<u>511</u>	<u>4,455</u>
Total:	121	3,944	511	4,576

Total net registered tons	110,220	29,580	153,300	293,100
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Figure 86³⁸

³⁸Senate Document, p. 20. (3)

Crab fishermen in and around Coos Bay set their pots parallel to the shoreline so as to catch the crab as they move into the shore. The pots are indicated by a bobbin which floats on top of the water, and are themselves checked almost daily for gathering of the catch or for resetting the traps with bait. This group is the only one around here which can be said to follow any sort of regularity in their operations. Fishermen are an itinerant group which follow the schools of fish until they get a load. Ports-of-call are chosen because they can supply the physical needs of a fishing boat, and also for the market they have for the catch. Crab fishermen can remain at Charleston and help to feed the lumbering folk of Coos Bay, but the other fishermen will call here to sell and then move on - only after the fishing season has passed will the remainder of the fleet put in for clean-up and repairs.

Charleston, even though it too has a bothersome bar across its harbor entrance, is the real center of fishing operations. A few of the larger boats go up the Bay to the city of Coos Bay, but in number of calls and departures, Charleston leads. The packing houses have accepted this movement, and have opened branch outlets at Charleston in order to maintain their status. Since fishing craft are eager to sell their catch, refit and move out

again, Charleston answers the need.

However, the writer doubts if either Charleston or the city of Coos Bay will ever develop beyond their present position because neither one has a large consuming population center around it, nor do they have efficient transportation and canneries to make the catch available to more distant cities. Except for canned crab meat, there is very little movement of fish by rail, unless it is the catch of a private fisherman. Coos Bay will more likely decrease in importance since:

1. salmon, on which it based its early importance, are no longer being caught in large enough numbers. The salmon fleets are working to the north.
2. tuna are being caught on a large, commercial basis now, but they are caught in waters of 59° to 61° temperature which is found due west of British Columbia at the beginning of the season. Canneries now in operation along the Columbia River and its general vicinity are competent and efficient enough to process all catches. To establish a cannery in Coos Bay would be expensive and inefficient.
3. there are no plans for an increased transportation network to benefit the city of Coos Bay. The only quick means of getting the fish away from here and to market is by air, and that is much too expensive.

Charles Feller, Fish Factor - a type study

Mr. Feller is engaged in a number of operations:

1. has two large warehouses in which to carry on operations, one along the north waterfront of the city of Coos Bay, the other at the entrance to Charleston harbor.
2. has rail connections from his Coos Bay warehouse leading to inland markets via Eugene.
3. has a sufficiently large icing plant so that he can prepare Pacific Fruit Express cars, and also cars to be used by Callison's and other Railway Express movements.
4. has 1,000 frozen food lockers in his main plant for the use of people in Coos Bay and North Bend.
5. prepares and ices shipments of sports fishermen who are becoming more numerous in recent years.
6. on customer order will purchase for immediate shipment, catches of tuna and whatever salmon come in. No fish are stocked except on direct customer order.
7. surplus fish left here without an order to fill are sent to the canneries at Newport, Astoria, or Eureka.

In past seasons, as much as 2,000,000 pounds of salmon have been processed, but recent catches have been less than 500,000 pounds. Tuna, however, has been climbing steadily in importance; last year the facilities here handled over 1,500,000 pounds of fresh fish. Past years have shown an erratic increase:

1946:	50	tuna	boats	called	in	a	30-day	period
1947:	600	"	"	"	"	"	"	"
1948:	200	"	"	"	"	"	"	"

Ships which are operating in an area south of Heceta Head and north of the mouth of the Rogue River will probably use the local facilities. If the ships are sufficiently far out that they can as easily head for Newport, Astoria, or Eureka, instead of Coos Bay, they will do that and will be able to sell direct to the cannery.

Raw materials consist of boxes from Astoria, and salt from San Francisco. Rail shipments are of primary importance, with trucks a poor secondary method. Ship service is almost non-existent. Future operations will consist of a service for sports fishermen in the inner harbor, and a commercial undertaking at the warehouse in Charleston harbor.

Oyster plantings present a source of future income

Four hundred acres of oyster seedlings are planted on Haynes Slough channel between the highway and railway bridges, along the Glasgow frontage, and south of Kentuck Slough. The seedlings have been financed by the Farmer Co-operative of Salem, Oregon on the assumption that anything which can be harvested is a good side investment. The seedlings have been brought from Japan and future replacements are expected to come from the same source. It

is the belief that Japanese starters are more hardy than those available at Willapa Bay, or from the new plantings at Tillamook Bay. The present plantings will last for three years before the new planting is put in.

Sewage disposal is a problem throughout the State and it is just as much a handicap here. Wastes are discharged into the Bay without any form of prior treatment, by all communities bordering it, including all industrial plants. There has been a heavy contamination of the water with a resultant debilitating effect on the oyster beds. Until the water is cleared, all oysters gathered will have to be canned since the oyster will not stand up well enough for sale as fresh fish. After the water is cleaned up, the oysters will be gathered year round, and will be sold as fresh, frozen, and as smoked tidbits. The smoked oyster will be introduced as an hors d'oeuvres in the luxury-consuming California market.

The full-time operation will employ 50 men inside the plant, and 12 gathering in the beds. All current work is done by hand, but future gathering will be done entirely by dredging. Operations will be steady from February until June when an estimated 250,000 gallons of oysters will be processed, and intermittent from October to February. In one year's operation, the plant will use:

Cans: 20,000 cases of 48 cans each. Cans are the size of the Campbell soup can of 10 ounces, called the Eastern Oyster Can, and are purchased from the Continental Can Company at Seattle, Washington.

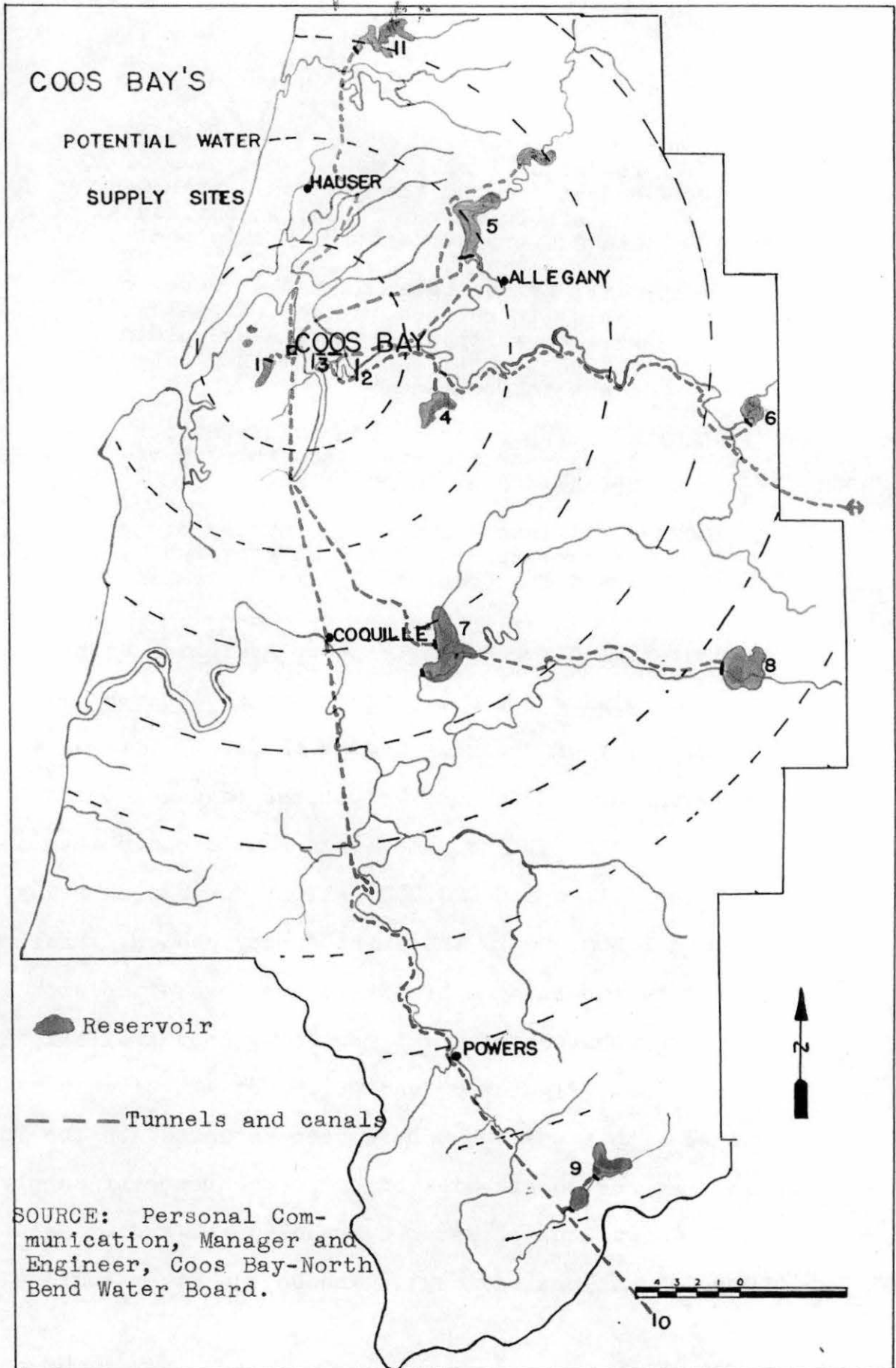
Salt: will be purchased in tablet form, one tablet to be used in each can. The salt will be shipped in containers holding 11,500 tablets each, from the Morton plant in Portland.

Labels: are purchased from the Schmitt Printing Company of San Francisco through the branch office in Portland.

Boxes: will use a sufficient number of 24 and 48 can capacity boxes made by the Fibre Board Box Company of Sumner, Washington.

Commercial Water Supply - A Problem Which Might Well
Hinder All Future Economic Development

The city of Coos Bay has no choice - if it is to supply the demand for 30,000,000 gallons of water which will come soon, then it must seek some source other than that which now delivers 2,000,000 gallons during the rainy season, and 1,500,000 in the drier summer season. Preliminary surveys have been made of twelve possible sites with an idea of further development depending upon available supply and cost (Figures 87 and 88). Not all sites have been checked with a weir, but have been estimated on the formula that one square mile of drainage area will supply 1,000,000 gallons of water every day. (1 sq. mi. = 1,000,000 gallons per day). The Umpqua River would supply



COST AND OUTPUT OF SURVEYED WATER SUPPLY POINTS

No.	Area	Million gal/day	Total Cost	Cost per Million Gal.	Methods of Distr.
1	Pony Creek	1	\$ 250,000	\$	Grav-Pump
2	Coos River - A	50	2,053,000	15.00	Pump
3	Coos River - C	100	2,018,000	10.30	Pump
4	Daniel Creek	15	7,000,000	-	-
5	West Fork of Millicoma River	8	3,522,792	71.60	Gravity
		25	6,019,114	46.85	Pump
		50	9,234,128	37.18	Pump
6	South Fork of the Coos River	25	8,826,828	55.00	Gravity
7	North Fork of the Coquille River	25	5,067,000	50.00	Pump
		50	7,260,922	38.65	-
8	East Fork of the Coquille River	25	7,082,482	44.77	Gravity
9	South Fork of the Coquille River	25	10,689,776	65.81	Gravity
		50	15,599,815	48.16	Gravity
10	Rogue River	50	22,390,515	71.03	Gravity
11	Eel Lake	5.65	1,795,367	71.50	-
12	North Fork of the Umpqua River	50	22,390,515	71.03	Gravity

The storage capacity of Pony Creek can be increased slightly if a second storage dam is built upstream from the present installation.

Figure 88

SOURCE: Personal Communication,
Chief Engineer and Operations
Manager, Coos Bay-North Bend
Water Board, Coos Bay, Oregon.

Site 3 is merely tentative as a last resort. Tentatively, a dam would be built across the Bay at the point where the Coos River enters and thereby back up the river while at the same time controlling the tide and salt water which might contaminate the water.

Sites 10 and 12 are also tentative and last-resort since the cost involved would be much too great for the local municipalities to handle now.

all the foreseeable needs of the Coos Bay-North Bend Water Board, but the water cannot be supplied at a price which the users would be willing to pay.

The Water Board is a joint organization which was set up to handle the water supply problems of these two cities. Prior to its organization, the water supply was handled by a private concern, a member of a national chain. The municipalities bought the holdings in 1947 and have been operating it jointly with the aid of thirty employees. Water is taken solely from the Pony Creek reservoir located midway between the city of Coos Bay and Empire. The reservoir will hold 106,000,000 gallons of water if additional splash boards are added above the dam. State law limits the number of splash boards which can be added because of the safety factor involved - if the water overflowed and broke the dam, it would inundate the homes and other property just across the road. Since the dam is made of earth and sand, it would wear quickly if the initial break were made.

A tunnel extends underground from the dam back to the filter tank, purification plant, and settling tanks located three-fourths of a mile to the southeast atop a hill. The southern end of the city of Coos Bay is gravity fed; the northern portion is also gravity fed from water initially pumped to a holding reservoir on the hill between

the two cities; and, North Bend is also fed from water initially pumped to another reservoir atop a hill in North Bend.

Water supplies are no problem during the rainy winter months. During the months of June, July and August, however, there is a supply of 1,500,000 gallons to satisfy demands for 2,000,000 gallons. Nineteen hundred forty-nine has been a dry year and when the dam level dropped to the point of 1,000,000 gallons, the lowest in the recorded history, stringent restrictions were applied. When the Weyerhauser development is put into full operation, the demand will rise to 30,000,000 gallons for all users and will be a problem which cannot be sidestepped.

Water around Coos Bay is highly potable, insofar as chemical and biological analysis is concerned. The only problem which arises is that of color - the alder tree which has grown in to take the place of the original Douglas fir has a leaf with the qualities of the tea leaf. If water filters through, it will be colored very much like tea water; a hand immersed to arm's length cannot be seen. A form of bleaching is the only treatment needed to supply any water here.

Before the water system will be completed however, to the point where it can handle all demands, especially at the peak, the present pipes will have to be replaced with

a completely new set of a larger diameter. The pipes were ordered in 1947 when the present Board came in, but the first shipment wasn't received until middle 1949.

SUMMARY

Population and industrial developments are concentrated within ten miles of the city of Coos Bay, but their effects are felt throughout all of Coos County.

Transportation nets are largely confined to roads built in river and stream valleys. The general occupation of the region follows the same pattern - a combination of cluster and string.

Except for water travel, the Coos Bay area is relatively isolated from the main markets of continental United States. The limitation of harbor facilities is reflected in the close ties existing between the Coos Bay area and its California markets; low capacity ships cannot afford long sea voyages.

Railroad facilities are limited, but satisfactory in view of the current demands. They present the only real competition to the heavy-hauling ship lines, but will not become overly effective until operations personnel and equipment have been increased.

Present poor-harbor facilities are rectifiable at large costs, with a low benefit-ratio.

There is a decided lack of diversification in industry.

The main industrial developments are concentrated in some aspect of the lumber industry which results in instability and vulnerability as it pertains to a good, integrated, and diversified economy.

The water supply is not large enough to satisfy the demands of the people and industries now in and around the city of Coos Bay; it is even less satisfactory in meeting demands of the firms which might want to establish here and could offer the diversity which Coos Bay needs.

Agriculture and timber products siphoning towards California markets, primarily, are too dependent upon a one-market outlet; their fortunes rise and fall with California.

Future timber wealth of Coos Bay will come from Douglas County. As the developments are extended farther from the Coos County border and hauling costs increase, the operators will have to contend with Roseburg loggers developing land which is closer to their center of operations, at a lower cost.

Coos County timber is primarily privately owned, while tributary areas are mainly under governmental control. Benefits of sustained yield, therefore, will have to develop in the tributary area first. Past cutting practices preclude the greater part of Coos County becoming a timber producer for many years, as Douglas County

is significant now, until sustained yield programs bring about a re-growth on heavily-logged portions of the County.

Small operators abound, but the few large mills turn out the greatest volume of cut lumber.

Log movements are truck-hauled to splash dams at the tide water limits, made up into a boom or raft, and tug-hauled to the mill sites.

Extensive stands of Douglas fir on the eastern margin of the County are the basis of the present industrial development, but extending pasture areas conflict with re-forestation plans in the logged-over portion to the center and west.

Agriculture is now limited to stream-bordering alluvium, and to isolated peat bogs in sand dune areas. Future extensions will have to come on what is currently timber-producing land.

Periodic inundations hinder activity, but there is year-round agriculture activity through summer-use of irrigation equipment.

Farms are generally small in size, but have a high value per acre. More owners spend more time working at jobs away from the farms than the rest of the farmers in the State of Oregon, or the average of the United States.

Co-operatives handle most of the milk production which is made into cheddar cheese and sold in the markets

of California.

Longshoreman activities will continue to hinder development and present production, as definitely as a poor harbor and lack of a commercial water supply.

Oyster beds present a source of possible future extensive development. The present practice of sewage disposal direct into the Bay will have to be discontinued before the oysters can compete in the luxury trade, in year-round operation.

Except for crabbing, future fishing activities will lean more completely towards the sports fisherman than towards extensive commercial fishing.

Insofar as the hinterland is concerned, which the city of Coos Bay hopes to tap for its future trade:

Klamath Falls and Bend: produce livestock, potatoes and pine lumber products. All of these are of a type which go to inland consumers, and by their very nature are not suited to water shipment. It is closer and cheaper to ship directly from the area of production to the consumer by rail than to use a roundabout water route through the Panama Canal.

Eugene: the same distance from Portland, and because of the traffic volume, flat terrain, and position on the main line of travel from

California to Portland, would be cheaper and faster. In addition, the presence of more towns along the Willamette Valley route, with their heavier traffic and diminishing costs resulting from greater volume, would aid in lowering charges eventually.

Portland: for its commerce draws on all the mills along the Columbia River, the wheat fields of eastern Oregon and Washington, and the canneries along the Columbia River. It has the facilities and capacity for handling the larger ships used on world-wide trade routes, and if needed can discharge a portion of its cargo at the close-in port of Astoria - in itself a more modern and commodious port than that of Coos Bay.

Coos Bay: can draw for its trade along the coast from Florence to Gold Beach, east of Coquille and Allegany, the only movement inward is that of timber cut from western Douglas County. At any point beyond Florence, it is more advantageous for trade to trend towards Eugene. Coos Bay offers no incentive for Willamette Valley towns to enter into extensive trade with it.

The city of Coos Bay exists as an important small-port only because of the timber resources which are to be found in its Coast Range timber shed. Future growth will be internal, consolidating the advances which have been made to date. And, if extensive developments in timber growth and conservation are not made soon, with the addition of more diversification, the internal changes are more likely to be retrogressive. As a city dependent upon timber for its prime source of income, the city of Coos Bay is open to the fluctuations of market and weather. Poor aspects of either one has a decided effect on activity here; if reverse economic conditions should arise it is very possible that this city would shrink as quickly as it has grown.

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