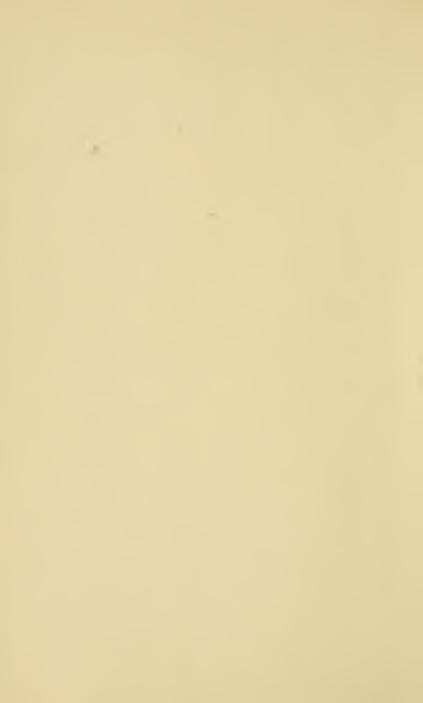
To Dr. Paul Gattooff With compliment of the anthor EM Steeler







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THE
RISE and DECLINE
OF

THE OLYMPIA OYSTER

by

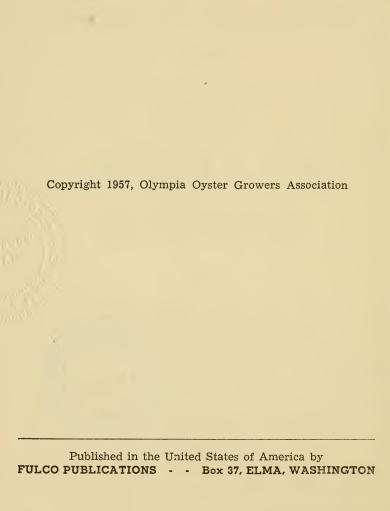
E. N. STEELE

PIONEER OLYMPIA OYSTERMAN

FOR THE

OLYMPIA OYSTER GROWERS

ASSOCIATION



DEDICATED TO THE PIONEERS OF LOWER
PUGET SOUND WHO DEVELOPED THE
OLYMPIA OYSTER FARMING
INDUSTRY.

Ode to the Olympia Oyster Bulster Pioneer Olympia Poet

Of all the palate pleasing foods That spring from land and sea There's no food so dee-licious As the oyster is to me.

I read a lot of literature
On oysters in my quest
Determined I would find a type
That outclassed all the rest.

I read Paul Bunyan's Diary
And learned that Paul had found
The super oyster of the Gods
While digging Puget Sound.

He called it the Olympia And coined a word specific Describing the Olympia As simply "Oysteriffic.

At last my search was ended Food of the Gods I'd found The nearest place to Paradise-"Olympia," Puget Sound.

And so I settled down to stay
In this land of the blest,
Here in this Northwest Wonderland
To work and play and rest.

And eat this oyster of the Gods
Which grows in Puget Sound
With the "oysterrific" flavor
For there's no place else it's found.

Foreword and Acknowledgements

The story "The Rise and Decline of the Olympia Oyster" was inspired by a desire on the part of today's oystermen to preserve the early history, the yesterdays of the pioneer oystermen. It covers more than half a century of the lives of those to whom this book is dedicated, and the part they took in the development of the native oyster found by them in the waters of southern Puget Sound; their problems and their persistent efforts and ingenuity in overcoming them.

Also how, after perfecting a system of oyster culture surpassed by none in the oyster world, which yielded abundant crops, they developed a market which readily absorbed the supply. Success was attained in producing "An oyster right for the market, a market right for the oyster".

In treating that part of the story pertaining to the "Decline" of the Olympia Oyster industry it goes into how the said pioneers and their families, and other oystermen who joined their ranks through the years, are being deprived of the fruit of their labors; the cause

of the decline and its extent.

Little will be found which appeals to the fiction reader. It is not a love story. The only mystery or love story told is "The love life of the oyster". It is simply a story of mens lives, the life of the oyster which they cultivated, and the Olumpia Ouster industry.

At the time this historic story was authorized only three of the half century pioneers remained. During its preparation one of the three, George W. Draham, has passed on. Fitting references have

been made to the very important part played by him, and the warm

spot of friendship in the hearts of all.

The book is necessarily in the first person. The writer's qualifications consist principally in his personal acquaintance with the participants in the recorded events and his personal participation in them.

I wish to express my appreciation for the co-operation of the Olympia Oyster Growers Association and its members. Especially do I mention F. W. (Mat) Mathias and Bob Bowers, the committee selected to collaborate with me. They have spent much time reviewing and perfecting the manuscript, as well as in assembling the data.

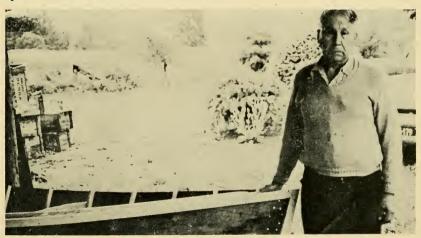
E. N. Steele

Olympia, Washington, September 30, 1957.



MUD BAY SAM

Or Sam-Saw-Witz-Kaw, respected shaker Priest of the Indian Shaker Church on Mud Bay. He promoted friendship among the Indian Northwest tribes by serving Olympia Oysters for their annual Shaker Conventions.



CHARLEY JOHN

Expert oysterman and member of Quinault Indian Tribe, worked in the oyster business for over fifty years.



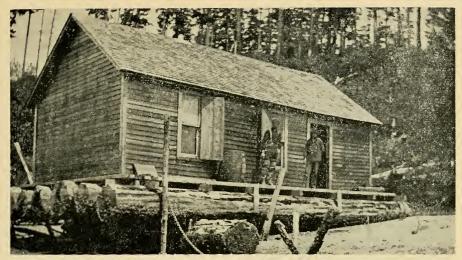
JOE Y. WALDRIP, Oyster Pioneer. He bought his first oyster land in 1891; in 1906 he, Ole Hanson and W. H. Kneeland formed the Olympia Oyster Co., of which he was vice president and manager of the beds until his death in August, 1929.



Olympia Oyster beds, home (center) and culling house of Herbert Nelson, formerly owned and developed by his step father, the late U. G. (Les) Young, pioneer grower. Note height of dike and construction.



Dr. George W. Ingham standing in midst of his Olympia Oyster bed, dressed in his customary oyster beds attire.



First Olympia Oyster Culling House on Mud Bay (Eld Inlet). Date about 1890. (Photo by J. J. Brenner.)



Opening and packing house of J. J. Brenner Oyster Company at Oyster Bay, Washington. May, 1957.



Right to Left—Earl G. Brenner, Vice President of J. J. Brenner Oyster Co., son of Jack J. Brenner, the founder. John Brenner and Earl Brenner Jr., now carrying on the business.



First shucking and shipping plant for Olympia Oysters built and operated by J. J. Brenner on Olympia waterfront in 1893—on what is now West Fourth Avenue



Second shucking and shipping plant of J. J. Brenner Oyster Company on West 4th and Simmons Street in 1898.



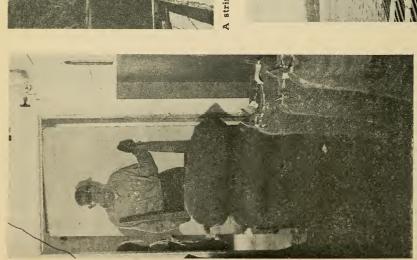
Shucking, packing and shipping plant of Clympia Oyster Co., located on West Fourth Avenue, Olympia. Built about 1924. Now occupied by Olympia Oyster House.



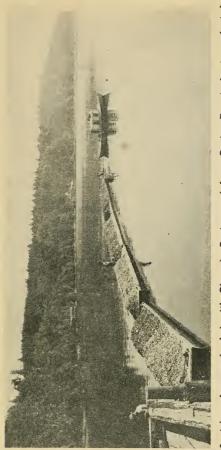
The third shucking and packing plant of the J. J. Brenner Oyster Company, built in 1927, Fourth Avenue, Olympia, Washington



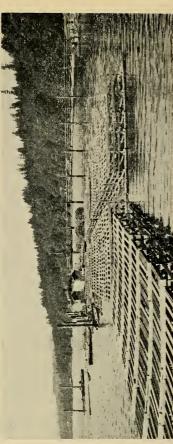
Shucking room with space for 30 shuckers in modern sun light room conforming with all State and Federal Health Department sanitation requirements.



Two bushel sacks of Olympia Oysters being stored in cold room to await opening. Sacks average 116 pounds and opened about 2 gallons of oyster meat.



A string of scows loaded with Olympia Oyster seed from Oyster Bay to be transplanted in Mud Bay.



crates are suspended in the water, supported by the floats and anchored over the oyster beds to collect seeds. Crates loaded on floats ready to be filled with "Hopkins seed collectors". When filled



When machinery took over the grading operations. This is one of the first outfits of the Olympia Oyster Co. The bucket at the end of the boom was lowered, filled, swung to present position, dumped on peak of scow house, floated to place to be filled and dumped by raising scow house side doors.



Hand Leveling.—Scows were loaded by cutting down high part of bed to desired level, then floated to part to be filled and shoveled off.



Building creosote lumber dikes by Olympia Oyster Co. J. Y. Waldrip, foreman, on right.



GOLDEN ANNIVERSARY BANQUET OF THE OLYMPIA OYSTER GROWERS ASSN. - SEPT. 22, 1955.

Three remaining pioneer members examining the records. Left to right-George W. Draham, Director for 35 years, Jack J. Brenner, Treasurer and Director for 32 years; and E. N. Steele, Secretary and Director for 36 years. George Draham, 86; Jack Brenner, 96; E. N. Steele, 74.

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1

Golden Anniversary Banquet of the Olympia Oyster Growers Association

THE BALLROOM OF THE GOVERNOR HOTEL WAS aglow with light and good cheer. The tables were beautifully set for the occasion. The room had filled with people who eagerly met each other with a hearty handclasp and greetings, indicating long acquaintance and a very close friendship.

BANG WENT THE GAVEL!

Herbert Nelson, President of The Olympia Oyster Growers Association, requested the members and guests to be seated.

When silence prevailed, Nelson announced the occasion of the gathering: The Golden Anniversary of the Olympia Oyster Growers Association, given on that date, September 22, 1955, in honor of the Olympia Oyster in-

dustry pioneers, to which all the old timers who had been engaged in the oyster business were invited as guests. Only three were left who were charter members of the Olympia Oyster Growers Association, and who had signed the original Constitution and By-Laws thereof fifty years previous; all three were present, towit: J. J. Brenner (age 96), George Draham (age 86), and the author of this book, E. N. Steele, (age 74).

The banquet was followed by a program. Harley Post, Toastmaster, introduced the guests with historic references to many things of interest which had happened during the numerous years he had worked with them in the Olympia Oyster industry.

As speaker of the evening, I gave a graphic review of the origin and development of the Olympia Oyster culture, the harvesting and marketing, the rise and decline of the industry, and made numerous references to parts played by the different pioneers..

Following this, there were very interesting talks by Dave McMillin, Earl Brenner, George Draham, and other old timers, relating their experiences connected with the Olympia Oyster industry during the past 50 years.

DECISION TO HAVE THE "LIFE HISTORY OF OLYMPIA OYSTER" WRITTEN.

As an outgrowth of this event, the Olympia Oyster Growers Association decided that while the pioneers still lived who had personally experienced and participated in the origin and development, (the life history, let us say) of the Olympia Oyster industry, it should be written and preserved for posterity.

I, E. N. Steele was selected to write this story, largely because I had been Secretary of the Olympia Oyster Growers Association from the date of its Charter until December 1941; over 35 years, thus being in possession of the records, correspondence, and an exhaustive file of information that had come into my possession through the years, and having taken an active part in the important incidents connected with the history of the Olympia Oyster. I knew the history of every area where Olympia Oysters were grown and had known personally those engaged in the industry. The assignment was accepted by the author with a hope that he might put the facts together in such a manner as to do justice, not only to the quality of the oyster, but to those pioneers who developed the industry—a few resourceful and determined men who found an oyster growing in the waters of Southern Puget Sound in it's wild state, and step by step developed the highest level of oyster culture known by man.

The perfection attained was such that in 1929 the United States Bureau of Fisheries, in Document No. 1066, made the following comment:

"In the southern part of Puget Sound the oyster industry has developed an elaborate method of cultivation. This system of oyster culture, which is employed chiefly near Olympia, was developed through the utilization of methods used in France and by experimentation and observation made by the most progressive oystermen."

It is hoped that this book will be of interest, not only to future generations of those who took part in the recorded events, but that it may contain sufficient authentic information to be of general interest.

2

Organization of the Olympia Oyster Growers Association

BANG WENT THE GAVEL! WHERE? — IN A SMALL room on an upper floor of that historic old hotel located on the Southwest corner of the streets now named Capital Way and Fourth Avenue, in Olympia, Washington, the Kneeland Hotel. The room was the private office of W. H. Kneeland, owner of the hotel, and one of the very early pioneers of the native oyster business.

When? — fifty years ago. A half century has passed since that meeting.

Occasion? — the formation of a group of men who had become interested in the native oyster, who had filed on and purchased oyster land, and were engaged in its development. Little did they realize that a meeting was being called which would organize this group of young

men into an association which would be recognized as the official representative of the industry for over fifty years. That it would during those years be called upon to help solve the problems of the "Rise and Decline" of the industry, resulting in a Golden Anniversary Banquet in honor of those present at that meeting, who would then be called the "Old Pioneers."

Mr. Kneeland called the meeting to order. He announced that many problems were confronting the Olympia Oyster industry which presented a challenge to the oyster growers, and which would require co-operation between the growers, and their united effort to solve. Those present were: W. H. Kneeland, George W. Draham, J. J. Brenner, Dr. George W. Ingham, J. H. Deer, U. G. Young, Thomas O'Neil and E. N. Steele.

I well remember a little story told by George W. Draham which was a convincing argument in favor of organizing. It had much to do with immediate action.

A Southern darkey was driving his ox team along a Louisiana road when he met a white friend who had heard of his skill with a black snake whip. "Pop that lizard," said the white man, and zip, off came the lizard's head.

"There's a chipmunk," said his friend. A swish through the air and the chipmunk's family were in mourning.

"Pretty good, Mose, that's picking them off. Now try that hornet's nest."

Mose grinned, "Nothin' doin', I knows when to quit----them fellows is awganized."

Those present unanimously decided to "awganize."

The following temporary officers were elected: Chairman, J. H. Deer, and Secretary, E. N. Steele.

Thus, an association was born. The gavel was to fall hundreds of times calling to order this group of men, and others who joined later, in the interests of the Olympia Ovster, Many of those old pioneers have passed on, Only three of them survive. But the places of the departed have been filled by others, in many cases by members of the families of the organizers. The purpose of this story is to cover that period of time between the organization meeting of the Olympia Oyster Growers Association and the Golden Anniversary. Also the activities of the members of the Association in the advancement of the culture of Olympia Oysters, and in the harvesting and marketing of that product; also the activities and accomplishments of this Association as the official organization representing the Olympia Oyster industry. To do this the lives and the part taken by its members will be told, for the lives of these men and the story of the Olympia Oyster are so intertwined, that one cannot be told without the other.

Following the organization meeting a constitution and by-laws were prepared and adopted. The following were charter members:

Mud Bay: C. E. Wiberg, Chas. Brenner, J. A. Morrow, M. A. Simmons.

Little Skookum: U. G. Young, Daniel Lynch.

Oyster Bay: John H. Blass; Olympia Oyster Co., By G. W. Draham; Olympia Oyster Investment Co., By G. W. Ingham; R. Weatherhill; S. K. Taylor and Son, By E. B. Taylor; E. N. Steele.

Oakland Bay: J. H. Deer, A. L. McDonald, Frank C. Chester, Thomas O'Neil, J. Mitchell, B. Norman, Louis Larsen, J. W. Grosser.

Others who later signed and participated in the Association activities were: L. P. Ouellett, National Oyster Co., H. B. Welch, Humphrey Nelson, Herbert G. Nelson, Jackson and Hall, Carl C. Smith, Zandel Bros., by Oscar Zandel, W. J. Waldrip, Rocky Bay Oyster Co., by Peter Schmidt, Harley Post.

The purposes of the Olympia Oyster Growers Association set out in the Constitution were as follows:

Article I, Sec., 2,; "The purpose of this organization is to protect and foster the interests of all engaged in the production and sale of the Olympia oyster, and to promote friendly and fraternal relations among them."

The Constitution and By-Laws were prepared by a committee consisting of G. W. Draham, Thomas O'Neil, J. J. Brenner, John Blass, and E. N. Steele. Those elected as officers of the first permanent organization were:

Officers: President Dr. G. W. Ingham, Vice President Thomas O'Neil, Treasurer J. J. Brenner, Secretary E. N. Steele.

Board of Directors: George W. Draham, Thomas O'Neil, J. J. Deer, E. B. Taylor, John Blass.

3

Nativity of Species -- Early Laws Pertaining To Oyster Land -- First Oyster Land Owners

THE PIONEERS OF THE PACIFIC COAST FOUND it's bays inhabited by a very small oyster (Ostrea lurida) which had a most distinct and delicious flavor. It grew on tidelands and flats between mean high and low tides. In British Columbia they were found principally at Crescent Bay and Ladysmith. In Washington in the upper or northern Puget Sound country at Quilcene Bay and Samish Bay. In Southern Puget Sound in the vicinity of Olympia, where they were most abundant.

In those days a wooden bridge crossed Budd Inlet near the location of the present concrete bridge to the Westside district. In honor of an early pioneer, it was called the "Marshfield" bridge. Chinatown was located south of this bridge, along the east shore; so, in

Territorial days the Chinamen took over possession of the oysters south of the bridge. North of the bridge and on both sides of the bay, the cyster beds were claimed by the Indians who had a village on the west side, just north of the bridge. The natural oyster beds south of the bridge are now covered by water due to the dam recently constructed to create a lake for capital beautification.

Eld Inlet (Mud Bay), Totten Inlet (Oyster Bay), Skookum Inlet, Hammersley Inlet, Oakland Bay near Shelton, Washington) and South Bay were all well stocked with oysters. Willapa Bay and Willapa Harbor had hundreds of acres of natural oyster beds.

In Oregon, Yaquina Bay had rather extensive beds, and there were several less important beds along the Oregon and California coasts. In fact, it has since been established that this (Ostrea lurida) has abounded on the Pacific Coast from Alaska to Mexico, for millions of years.

The writer has seen petrified shell of this species in the Museum in Juneau, Alaska, which had been found along the cove near there. Also, along the highway between El Centro and San Diego in Southern California at a point called "Coyote Wells" a considerable number of petrified shells of this species have been exhumed from points covered by the ocean in prehistoric times.

MOST ABUNDANT IN VICINITY OF OLYMPIA.

In the Puget Sound area, nativity, for at least centuries of time has been established by finding of great quantities of shell covered by the debris, rotted leaves and vegetation of the past. These deposits of shell were

always in close proximity to well populated oyster beds. The Indians had evidently camped on these shores, feasted on the oysters and clams from nearby beds, leaving the shell piles where they had camped.

In fact the Indians who occupied these oyster beds when the first pioneers came, told stories of how they, the peaceful "fish-eating" Indians, (sometimes called "Siwash") had wars with the more belligerent Yakima "meat-eaters," as they were called. As the story goes, the Yakimas would steal the canoes of the Siwash Indians. The Siwashes would retreat into a cove in the proximity of the oyster beds; at night they would steal out and get their favorite foods (oysters and clams) when the tides were out. In time the Yakimas having satisfied their hunger for sea foods and taking a quantity with them, would return home.

Newell Ellison of Mud Bay has given me another story as it came to him from generations of his ancestry. In the very early days there was a fierce Indian tribe in British Columbia who raided the Mud Bay Indians. They came down in their large war canoes and it was not only oysters and clams they were after, but they captured women and children and took them home and held them as slaves.

The native oyster played it's part not only as an incentive for these raids, but later helped in bringing the tribes together in friendship and brotherly love. An Indian of the Mud Bay locality, a Chief and a good man, as the story goes, died and remained dead about three days; he then came back to life. He said he had been in the "Happy Hunting Ground" of the Indians where the Great

Father had told him that he must return to his people and preach to them and get them to stop drinking and fighting, as they were all brothers.

Their "back from the dead" brother then set about organizing a new religion which he called the "Indian Shaker Church". It seemed to be a mixture of Catholicism and Protestantism. It embodied the rules for righteous living contained in the Ten Commandments and the Golden Rule. This was an opportune time for such a religion. The "Firewater" (as whiskey was called) brought in by the whites, was turning the Indians into demons; they fought, they became thieves, and they would violate any law of God or man to get liquor. The mission of this new religion was to turn them from these things and bring them together as brothers living in peace.

The "Indian Shaker Church" seemed to appeal to the Indian's natural instincts. It grew rapidly among the tribes of the Northwest. Mud Bay was the head church. "Mud Bay Sam" was for many years the head man, a sort of Priest. The converts constructed a church on the hill west of Mud Bay and in sight of the Olympia Oyster beds and each year they held a "Camp Meeting" lasting for a week or ten days. Invitations to other tribes were appealing. They announced large feasts of Olympia Oysters, clams and salmon. It was understood these would be cooked in accordance with Indian custom. Great crowds attended these meetings; thus the Olympia Oyster performed a real service, for many Indians joined the Faith, and friendship was established among the tribes.

Perhaps digression would be pardoned should I briefly describe one of the church services held during a convention which I attended as a guest of "Mud Bay Sam."

The feast of oysters, clams and fish, held out of doors, had been completed; the church bell peeled out the announcement that the meeting was about to start. The crowd swarmed into the church which was too small to hold them all; silence prevailed for a few moments, then the meeting was opened by "Mud Bay Sam". He spoke in a slow, deliberate manner, using the Chinook dialect which was then understood by most Indians. He was followed by two or three other prominent Indians. Their talks implored their brothers to lead a better life; they then waited in silence for the Great Father to move them.

On a shelf at the front of the church were many handbells; directly an Indian slowly came forward, picked up a bell in each hand and started a slow, up and down, ringing of the bells, then an up and down step and a chant in rhythm — another and then another followed, until the entire space which had been cleared, was filled. As it continued it became more spirited — the bells peeled louder, the chant stronger and the step became a jump, until the entire building shook. It reminded me of the pictures of a Congo Tum Tum dance. This continued on and on into the night; as one became too exhausted to continue, he or she would apparently go into a trance and drop down. Another would grab the bells and carry on. I was told that as the participant proceeded he concentrated on the Holy Spirit then he began to see visions, and by the time he became exhausted and went into a

trance he was in the presence of the Great Father.

This was the condition in Western Washington, when the Pioneers succeeded in penetrating the forests surrounding Puget Sound and came on to the shores of this body of water, where they first beheld "oceans of oysters and clams". Pure cool streams of water came into nearly every cove; the salt water was pure and unpolluted. At first the main tendency of the whites was to join the Indians in enjoying an easy living.

No longer a slave of ambition,
I laugh at the world and its shams.
As I think of my happy condition
Surrounded by Acres Of Oysters and Clams!
And now that I'm used to the climate,
I think that if man ever found
A place to be peaceful and quiet,
That spot is on Puget Sound.

But to some, as new conditions developed, oyster culture became a challenge in their lives which so interested them that they never got away from it. It is about these people that I am writing.

EARLY LAWS PERTAINING TO OYSTER LAND.

Prior to 1889, when Washington became a State, the titles to all tide lands were still in the United States Government. The title to tide land was vested in the State of Washington through statehood.

Before that time the tide land, especially where oysters and clams were found, had been occupied by the

native Indians. For centuries the "Siwash" or "Fish Eaters" as they were called had made the oyster and clam, the salmon and other sea foods their principal diet. They had constructed their "Teepees" on the shores of the more favored spots; then, as the white settlers began to come and villages and small towns to develop the Indians found that the whites were also fond of sea food and that they could get as much as 25 cents for a basket of the small delicious oysters. In Olympia, Tacoma and Seattle it was a common sight to see the Indians on the street corners or in the markets with a basket of oysters for sale. In Seattle "Chief Seattle" became quite a famous personage as he peddled his oysters around the streets and markets of the city dressed in Indian blankets and feathered head gear.

Some of the oyster beds had been occupied by Indian maidens, or Indian widows to whom unattached white settlers became "Klutchmen". Marriages under Indian customs were later challenged in court, especially where title to property was involved.

The importance of adopting a policy to foster the development of our natural resources and especially the culture of oysters, was recognized by the first State Legislature and in 1890 the Legislature passed what has been known as the "Callow Act".

The "Callow Act" only provided for the sale of natural oyster land which had been occupied and the oysters cultivated on and after March 26, 1890. It provided that one who had so occupied and cultivated oyster land might make application for the purchase thereof through the State Land Office. It was necessary to have

surveyed the land so occupied and a map therof prepared and filed with the application. To encourage the industry a very low price was fixed upon the oyster land, but the State deed provided a reversionary right by the State of Washington to take the land back in case it was used for any purpose other than the cultivation of oysters.

THE FIRST OYSTER LAND OWNERS.

The maps showing these oyster lands and filed with the State Land Commissioner had the names of the allottees written upon them and those maps are still on file in that office. Thereafter, on March 2, 1895, the State Legislature passed another law known as the "Bush Act." This law gave any citizen the right to file on oyster land, whether he had previously cultivated oysters on it or not. However, it assured the use of the land for oyster culture by providing in the deed that if the land was used for any other purpose than the cultivation of oysters, upon application of any citizen, after a hearing, the deed could be cancelled and resold. Further, if the land, or any part thereof was found to be unfit for cultivation of oysters the purchaser might have it cancelled and take other land.

And so it happens that these maps disclose the names of those applicants, many of whom were Indians. The Indians filed upon the land which they were occupying and this land in many instances was the choicest oyster land to be found. Some of the names of these original applicants and purchasers of oyster land were: Olympia Jim, Mary Olympia Jim, William Krise, James Tobin, Sandy Wohaut, Dick Jackson, Joe Gale, Jim Simmons,

Little Charley, Mud Bay Lewis, Mud Bay Tom, Mud Bay Charley, George Leshi, and Mollie Peters.

Among the names of the first white men who took up oyster land appear the following: S. K. Taylor, Jesse B. Bowman, H. R. Weatherill, A. S. Ruth, William H. Kneeland, David H. Helser, J. Y. Waldrip, Charles Brenner, Z. F. Simmons, C. N. Allen, C. R. Talcott, John Blass, A. D. Simmons, W. J. Doane, J. J. Brenner, and E. N. Steele; also, the Olympia Cyster Investment Co., J. H. Deer, Thomas O'Neil and A. L. McDonald. Of these, it is interesting to note and make comment on several.

- W. J. Doane (commonly known as Captain Doane) was better known for his "Doane's Oyster House" than as an oyster grower; his Oyster House became famous far and wide for his "Doane's Olympia Oyster Pan Roast." It became recognized by oyster connoisseurs as the last word in the preparation and service of the most delicious little oyster in the whole world. As a result he had many inquiries from restauranteurs from other cities and towns who wished to serve them, so he became the first one to discover the commercial value of the native oyster.
- J. J. Brenner, who has been in the Olympia Oyster business, both as a grower, a packer and a shipper, longer than any other living man, is affectionately known as "Jack". He was one of those present as an honored guest at the Golden Anniversary Banquet; he was at that time 96 years of age but vigorous of mind, able to discuss any feature of the oyster business from it's beginning. In writing this thesis, I realize that no part of it can be told, either in the field of oyster culture, the development of the shucking and packing of oysters or the development

of the markets. without the mention of J. J. Brenner. The story of Mr. Brenner's life is enveloped in, and becomes a part of the story of the Olympia Oyster.

Mr. Brenner was a Charter Member and served as Treasurer and a member of the Board of Directors of the Olympia Oyster Growers Association from it's beginning until 1937 when he resigned and was succeeded by his son E. G. Brenner.

W. H. Kneeland was an original filer upon important oyster land; he, Joe Y. Waldrip, Ole Hanson, and G. W. Draham (son-in-law of W. H. Kneeland) was made president of the Olympia Oyster Co., and served as such for many years, he also has taken a leading part in the history of the Olympia Oyster. Mr. Kneeland passed on many years ago, but George W. Draham was one of those honored at the Golden Anniversary Banquet; at this Banquet he responded to a toast and his response was full of humor and stories of the old days. As president of the Olympia Oyster Company George has also taken an active part in all phases of the industry — the growing, packing and marketing of the Olympia Oyster.

The Olympia Oyster Co., represented by Mr. Draham, was a Charter member of the Olympia Oyster Growers Association. George was elected vice president and director at the first meeting and continued to serve until 1941. The records show that during all those years he attended every regular meeting and missed very few committee meetings

The writer of this thesis — E. N. Steele, was the third and youngest honored guest as a Pioneer; his age was 74

years and he has been in the Olympia Oyster business for over 50 years. His connection with the Olympia Oyster industry will creep into this story from time to time as it is written, because of a personal contact and participation in the recorded events as herein set out. He was a charter member of the Olympia Oyster Growers Association and served as secretary and a director until he resigned in December 1941, a total of over 35 years.

I wish at this point to memorialize one who dedicated a large part of his life to the Olympia Oyster industry. He did not live to be honored at the Golden Anniversary Banquet, except in the hearts and memories of those in attendance.

The Olympia Oyster Investment Co., (a Corporation) filed on very important oyster land under the Callow Act. Dr. George W. Ingham was it's president; as such he signed the Constitution and By-Laws of the Olympia Oyster Growers Association and was elected it's first president. Thereafter, year after year, he was re-elected as president. For thirty-three years he presided at every called meeting of the Association. He was Chairman of the Board of Directors, appointed all committees, and attended all meetings of both directors and committees.

From my earliest recollection, the Olympia Oyster and the scientific development of it's culture was Dr. Ingham's only hobby. While he was a busy and successful Doctor of Medicine, yet he always seemed to find time to participate in his hobby. It was a mental and physical release from the strain of his busy professional career. He was loved by all, and the Olympia Oyster industry is greatly indebted to him for his progressive and active

part taken in it's development. He was influential in the development of the Standards of Health adopted by the State Department pertaining to the growing, opening and packing of Olympia Oysters.

George Ingham's beloved widow, now 83 years of age, was present at the "Golden Anniversary Banquet." Her presence was greatly enjoyed by all. She was always greatly interested in her husband's work and especially in his interest in the Oyster industry. She has shared his joys and disappointments in life. The life of the wife of a doctor is one of waiting and watching for the return of the husband from some emergency call. There were no regular hours in the life of Dr. Ingham, especially in the days of horse and buggy transportation and few, if any hospitals. Added to this was his hobby, the Olympia Oyster, which in itself causes one to live by the tide book.

Dr. Ingham loved to don his old clothes and rubber boots, and by personal inspection observe the oysters and figure out new methods of assisting nature to grow two oysters where only one grew before. (See picture).

Another who took part at the "Golden Anniversary Banquet" was Harley Post. Harley was an electrician by profession. He was a public spirited man and had served his state as state senator. He was indeed an early pioneer of this part of the country. His father operated a livery stable in Olympia in the early 1900's. I remember renting a horse and buggy from him, to get down to the oyster beds about 1904.

Harley was always interested in the Olympia Oyster, and about the year 1920 he purchased and began the development of beds in Oyster Bay. From that time on to the time of his death, which occurred in 1956, he was an active member of the Olympia Oyster Growers Association. At the "Golden Anniversary Banquet" as previously stated, he acted as toastmaster.

Before we go into the activities of these men, both as individuals and as members and officials of the Olympia Oyster Growers Association, let us take a look at this little animal which lured them on with captivating interest. Much has been written about the lure of gold and the tremendous sacrifices of men in quest of it; also the hardships of the fishermen of the early days, the seal hunters and the explorers. What was there about this little shell fish, hidden away in the remote waters of Puget Sound, that caused these men to dedicate their lives to its development and distribution?

Oysters from time immemorial, have been considered a delicacy. In the days of the far reaching Roman Empire, history records that swift runners traveled in relays carrying fresh oysters from Britania to the tables of Roman emperors. Nero gave magnificent banquets at which he ate oysters and "fiddled" as on the night of the burning of Rome. He called them "delicious". But Nero lived about two thousand years too soon to know the real meaning of that word when applied to oysters. If Olympia Oysters had been available he would have made them famous for all time; he would have proposed a toast something like this:

"Olympia, the home of the Gods, Olympia Oysters, food of the Gods."

The Olympia Oyster pioneers who discovered this delicacy did not have a background in history to adver-

tise and proclaim the virtues of their discovery. They recognized it's quality and it became their ambition to let the people know that the "Pearl of all Oysters" grew in our own waters.

Adjectives describe many things, but it is difficult to describe a delicate flavor with words. "Luscious, exquisite, delightful, delicate, food for the Gods, the aristocrat of all oysters" — all are descriptive words that have been used to glorify it, but after all has been said, the real test is in the eating; an experience in eating speaks more eloquently than words.

The Olympia Oyster has been described as a "very small oyster." Hal Boyle the columnist once described them as "forty to the dozen"; in fact there are over three hundred to the pint when shucked. The size removes the objection often heard, especially by the ladies, to other oysters and classifies them as "delicate."

The biology of the Olympia Oyster I shall leave to others. As to it's food value, chemical analysis shows that it abounds in valuable minerals and very little fat; an ideal food for waistline watchers, and as good for the health as the taste.

To supply the public with such an article of food, to develop it's cultivation, it's processing, it's distribution, was the challenge experienced by these pioneers and the interest which they took in their work continued through the years.

4

Early Day Culling, Cultivating, Marketing, Opening, and Packing -- Inception of Diking System

UP TO THE TIME OF THE PASSAGE OF THE "Callow Act" in 1890 the native oysters were not cultivated; they grew wild, so to speak. The Indians would go out on the beds and pick up what oysters they wanted to eat and dump the shells near their camp; where the tide flats were uneven with ridges of gravel piled up by the waves, the oysters were reefed and in places several inches deep — nothing was done to level out the beds or distribute more evenly the accumulation of oysters. The Indians accepted nature and it's bounties as they found them; there was always a plenty to supply their needs as well as early local sales which they made in the nearby settlements. As a general rule, transportation was by water in their dugout cedar log canoes and

the oysters were carried and delivered in their Indian baskets.

The white settlers were not satisfied with that; soon after they acquired title they began to find and develop a market — in Olympia, Captain Doane opened and operated "Doane's Oyster House."

The white settlers finding that picking the oysters from the beds when the tide was out was too slow and inefficient, conceived the idea of what was known as a top float. They took two cedar logs of equal size (about 30 feet long) used cedar cross pieces to hold the logs about six feet apart, then covered them with heavy rough lumber. This provided a floating platform which could be moved when the tide was in, by use of long poles (push poles as they were called). They would, at low tide, mark with poles, tall slender fir trees about 18 or 20 feet in length thrust into the tide flat where the oysters were abundant, and take the top float to these markers on high tide. The top float could be held in place by poles pushed into the tide flat, at two opposite corners of the float. At low tide oysters could then be thrown onto the top float, the large (or marketable oysters) culled out when the tide was in and the small oysters again scattered out on the beds for further growth. The marketable oysters were then put in baskets or other containers and taken to market. Thus the first step was taken toward oyster culture.

Culling oysters on the top float in the rain and blustery winter weather when the demand for oysters was at a peak, was most difficult and objectionable and the need for another development soon found it's answer.

The "Culling House" with benches on which to place the oysters for culling, and a fire to keep the cullers warm and comfortable while doing their work, was worked out. Large cedar logs were assembled, fastened together by cross pieces and covered by a floor which afforded the foundation for a small house called a "Culling House." At first these culling houses were small, perhaps twelve or fourteen feet wide and fourteen or fifteen feet long, but as time went on and the development of the oyster beds and demands of the market increased, culling became a family operation and the houses were increased in size with living quarters in one end of the building.

The culling house, when completed, was anchored in the nearest available cove so that a top float could come alongside and the culling house could be more or less protected from wind and storm. The oysters were then carried in and placed on the culling tables where the cullers could work in comfort. The young oysters (or culls) were then put back on the top float and replaced on the beds for further growth.

Another need for development was soon felt. — When the oysters were loaded on the top float they were dirty and some method of washing them before they were taken into the culling house must be found, Again, the cedar log, then abundant on the shores of Puget Sound, was the answer. When the top float was turned over before the floor was put on, the cross pieces were under the water and when the tide was out, the floor was nailed in. When the tide came in this floor was twelve to eighteen inches under the water and was known as a sink float; the oysters were forked into this sink float and

washed before they were culled. While in the sink float they were protected from heat and cold. The sink float answered another purpose; after the oysters were culled they were put into the sink float again which enabled them to continue to feed and live until they were taken to market and also protected them from freezing or too much sun.

At first, getting the oysters to town for market was very difficult, but as the need became felt and the possibilities of a new freight business became apparent, boats were fitted up suitable for carrying the oysters. The boats would sometimes make two or three trips a day into Oyster Bay and Mud Bay when necessary to pick up and take the oysters to market from the many culling houses which were now located in said bays.

The first boat making regular trips to Olympia with Olympia Oysters was an 18-foot boat called the Polly (owned by J. Y. Waldrip and Jess Bowman) and it was powered by a one-cylinder two-cycle gas engine. It was subject to frequent break-downs as is testified to by Humphrey Nelson, who (as a passenger) spent a night floating around the Bay in 1902. In 1905, Captain Volney Young put on a boat named "Mizpa" which was a steamboat about 40 feet long and used wood for fuel which was supplied by settlers along the shores of Oyster Bay and Little Skookum. In a few years this boat was outmoded by new boats with shallow draft, more power, and a greater capacity for oysters. The oysters were increasing very rapidly and new boats came on the run as needed. The "Chickeree" and then the "Traveler" captained by Charley Cheadle, were next. The "Traveler" had an explosion and fire and Captain Cheadle lost his life. Between 1910 and 1915 Captain Chris Grinrod operated the "Lark" and the "Hyak." The "Noble" (owned and operated by Ira Noble) then the "Leota" and "Dove" (owned and operated by John and Robert Wallin) came into service on the Olympia Oyster run. At one time it took three large, fast boats to carry the oysters from Oyster Bay, Mud Bay and Little Skookum, in addition to oysters taken on irregular runs by the larger oyster producers. As the industry declined this was reduced to two boats, then to one, and finally none.

EARLY OPENING AND PACKING.

By the time these problems were worked out, plans were in progress to develop markets for these oysters. At first all oysters were sold in the shell. Captain Doane had a Chinaman who opened his oysters. Each restaurant or hotel had to provide their own opener; often the opener had his booth fixed up in the window, thus providing a very attractive advertisement. The oyster actually went from the shell into the pan, the stew or the cocktail. This, in turn, created a desire by the public to use them as a family food. The opening process was slow and difficult for the housewife. This need was observed by our old friend J. J. Brenner, who opened up a small Olympia Oyster House in Olympia in the year 1898; from this place of business oysters were shipped, both in the shell and opened. (See picture).

To keep pace with these developments in taking care of the culling and preparing of the oysters for market, and the marketing of them, what was being done on the

beds for the cultivation of oysters?

At first the oysters were in abundant supply as nature had provided them. It soon became apparent that in order that the supply be continued, a system of taking up and re-planting had to be followed. Even in those days it took four years to grow an oyster. The beds were worked so that a crop would be available each year. Oyster growers had made observations as to where the heaviest sets of seed took place. Also, that new clean shell, put on the seed ground in June or early July, during the spawning season, was particularly suitable for seed to attach to; in fact, much better than old, dirty shell, mussels or barnacles. So, the shell from the opening houses was saved and then taken back on the beds and spread on higher levels for seed, and this greatly increased the seed supply.

INCEPTION OF A SYSTEM OF DIKING.

By the year 1900 the oyster growers became alive to the value of the Olympia Oyster industry and with optimism they began to think in terms of extending the natural oyster beds. Realizing the importance of catching more seed in order to do this, observations as to what conditions were most suitable for seed setting were being made. An oyster grower in Swindle Cove, Oakland Bay, by the name of Anton Heilenburger, observed that in places where water was held behind a ridge of gravel, even though located on the tide flats on higher levels where otherwise no set of seed took place, seed caught in abundance. He conceived the idea of artificially holding the water by use of sunken logs or the placing of boards,

or gravel filled in between two boards, which were held in place by stakes. In this way a few inches of water would be held. Soon after J. J. Brenner began to use this system on Mud Bay.

These seeds of thought soon produced more seeds of oysters and from it a system of leveling and diking was developed which eventually meant so much to the culture of oysters.



GAS LAUNCH NOBLE coming from Oyster Bay run loaded with sacks of Olympia Oysters, under Skipper John Wallin.

5

How the "Olympia Oyster" Received Its Name

THIS WAS THE STATUS OF THE OYSTER BUSINESS when I arrived in Olympia in September 1903. My first meal consisted of a "Doane's Olympia Oyster Pan Roast." I had found the spot where the manna from heaven was to be had. Little did I realize that through guidance of Providence I was to find my way into the habitat of this delicious little bivalve, become interested in the practical and the scientific development of it's culture, harvesting and marketing, with a summer home on the shore above an oyster bed on which Olympia Oysters were grown and which I was to own and operate for the rest of my life. I was then a young man of 22 years, just graduated from law school of the State of Iowa; on a trip to see the wonders of the great Northwest, the land of the setting

sun, with a return trip ticket but no money in my pocket. I was entirely undecided as to where I should put out my shingle. The return trip ticket was never used.

A few days after my first introduction to the Olympia Oyster, a friend whom I had met invited me to join a small yachting party. Through some quirk of fate we came into Ovster Bay and pulled up alongside an oyster float. Lying on the float in the sun was an Indian girl. It later developed that she was the daughter of Dick Jackson, an Indian who had taken up oyster beds and lived there. His oyster land was adjoining other oyster beds of Sandy and Tilsa Wohaut, famous old Indian characters, which land I afterward bought. At this moment I am sitting at the window of the cottage where I have lived during many summers and reared my family. I am also watching our bed manager as he sets his scow to move seed oysters. Pictures of these oyster beds with dikes, both of creosote lumber and cement construction, and of the culling house and floats, were published in Document No. 1086 by the Department of Commerce, Bureau of Fisheries in 1929, on pages 379 to 383.

To return to our visit with the Jackson girl. Alongside the top float where she was sunning was a sink float with a quantity of Olympia Oysters. We purchased some from her, took them back to Olympia, and enjoyed another feast of Olympia Oysters. As a result of these experiences I decided to locate in Olympia, and in due time had hung out my shingle and established a law practice.

My interest seemed to center around the Olympia Oyster and it's history; from the start I gained informa-

tion as to its history up to that time. I met the people who were pioneering the industry and became attorney for the Indians who were engaged in litigation to defend their fishing rights. Through these connections the opportunity to acquire about seven acres of undeveloped oyster land was taken advantage of and in later years added to. At that time the first developments herein set out had already taken place in the cultivation, harvesting, and marketing of Olympia Oysters. The first night visit I made to Oyster Bay many lights were visible in the southern, or upper flats, of Oyster Bay. Men were out gathering oysters on the low night tide. I learned that when the winter harvesting time was on the lights from the oyster harvesters so resembled a town that it was called Oysterville.

One of the questions that came to me was "Why was the oyster called the Olympia Oyster." All references I could find in Government reports referred to them as Native Western oysters. From one who had participated in it, I was told the following story:

After Washington was given it's statehood in 1889, the question arose as to where the Capital should be located; Olympia had been the Territorial Capital. However, other cities both east and west of the mountains, became contestants to be made the Capital of this new and rapidly growing state. The people of Olympia were thus brought together and worked as a unit to save Olympia as the Capital City. It was put to a vote of the people and the contest became very spirited. The people of Olympia got their heads together and planned a campaign; they arranged for public meetings in many of the

most populated points in Eastern Washington, supplied themselves with a goodly quantity of oysters and the battle was on. Their arguments why the Capital should remain in Olympia were many and forcefully stated, but the clinching argument was the oyster dinner following the meeting. They created a warmth and friendly spirit and the oysters were so well liked that much publicity was given, not only to the merit of the arguments, but to the merit of the oysters.

I was told that the oyster dinners were closed by recital of this little jingle:

Said one oyster to another In a tone of pure delight I will meet you in the kitchen And we'll both get stewed tonight.

Olympia won the election, and the oyster dinners were given the credit. From that time on, the oysters were known as "Olympia Oysters."

Doubtless the fact that Olympia was the closest city to the heart or center of this new industry and the central shipping point, also had something to do with adoption of that name. At that time Olympia Oyster beds covered that area now known as Capital Lake, claimed in Territorial days by the Chinese, and also the area on both sides of the Bay, extending North to Priest Point Park, formerly claimed by the Indians. For sanitary reasons these beds soon had to be abandoned and the use of the oysters for food was prohibited. On the west side, across from the present Capital buildings, there was a favorite spot where "Gloomy Gus" the tramp had his favorite

camp. He was not concerned with the health regulations and he did love Olympia Oysters. He would slip out on the night tide, secure a supply of Olympia Oysters and the next day he was King of Shanty Town, as he banqueted his friends. This continued for years after I came to Olympia.

For over a half century in publicity matters the Olympia Oyster and the City of Olympia have proclaimed each other's virtues. At a Chamber of Commerce dinner it was stated that enough advertising and newsprint about Olympia Oysters and Olympia had been published, that if placed end to end would encircle the world.

6

Development of Grading and Diking System

IN A PREVIOUS CHAPTER I HAVE COVERED THE early development of the cultivation of Olympia Oysters to the point of discovery of the method of catching more seed by the creation of pools of water behind some logs or lumber placed in such a way that the water would be retained at low tide. This idea developed very rapidly from the experimental stage. It was soon found that the area could be increased by leveling down the beach behind the dike so that the water covered it. This led, in turn, to the creation of a dike by driving into the tideflat short boards of uniform length, driven perpendiculary. These boards were one inch in thickness, usually twelve inches wide, and in length depending on the desired level the oysterman wished for his water-level.

Having decided the desired water level, stakes were

driven firmly into the tide flat and a board, 12 to 16 ft. in length, placed against and nailed to these stakes parallel with the tide flat, and perfectly level. This level would be approximately six inches above the ground level desired, as that had been found to be the best depth of the water to be retained. Then the short boards would be driven perpendicular, tight against the horizontal board, and against each other, making a dike two inches in thickness. This dike could be extended as far as was practical, considering the contour of the beach.

LEVELING THE OYSTER BEDS.

The area inside this dike would then be filled and leveled with dirt from the shore side. Sometimes the dike would require a fill of two or three feet to bring it up to the desired level. To do this log floats would be used. The place where the cut was to be made would be marked by stakes when the tide was out. When the tide came in, floats would be brought and set in place by the use of anchor poles thrust into the bottom. When the tide went out again workmen, using what was known as a "mud fork" dug down to the desired depth and loaded it onto the floats. On the high tide this "oyster mud" would be floated out to the area to be filled behind the dike. The bed would eventually be level both where filled and where cut down. This was a slow and tiresome process, for to be a success the entire area behind the dike had to be level as a floor, carrying a water level of approximately six inches in depth to protect the oysters from the heat of summer and the cold of winter. On some beaches as many as five dike levels have been used.

EXTENT OF DEVELOPMENT

This system of diking increased the production of oysters very rapidly. Practically all oyster culturists adopted it. In the summer season when the tides were out in the day time, Oyster Bay, Mud Bay, Oakland Bay and Little Skookum were alive with diking activities. The areas where oysters thrived in their natural state were greatly expanded. The Olympia Oyster Co., The Olympia Oyster Investment Co., the J. J. Brenner Oyster Co., and some of the smaller growers carried this work into the winter, even though the work had to be done at night, as the tides in winter only go out far enough at night. Through the years the oyster areas were expanded until there was a total of approximately four hundred acres of oyster land under dike.

DIFFICULTIES IN CONSTRUCTION.

It is difficult to comprehend the great amount of work done, and the length of time it took. The dike work was slow, as it had to be done by hand labor at low tide. The tides only permitted from four to six hours each day of construction. Then the material for the next day's work had to be prepared, loaded on floats and taken out on high tide. From fifty to one hundred feet of dike per day, depending on the height of the dike and length of the tide, was a good day's work for four men. In later years some machinery was used by the Olympia Oyster Co. and others of the larger companies, who developed machines on large floats with drag lines and scrapers, and loaded the fill mud onto large dump scows. Other

oystermen adopted smaller types of labor saving equipment. But at best, the work went very slowly. I recall one instance, the leveling of what is known as "Dike One" of The Olympia Oyster Company, in Oyster Bay. It is, I believe, the largest oyster dike in existence, about fifteen acres. They had a flotilla of oyster equipment and worked summer and winter. Yet it took between three and four years to do the leveling. (See picture).

ONE GROWER'S EXPERIENCE.

As I sit here I am locking out over my own eighteen acres of dike land. It has five dike levels, terraces following the curved beach and the natural contour of the tide flat. The dikes are from two feet to four feet in depth. Most of these dikes have been built three or four times. In the very early days with untreated lumber, then replaced by dikes using lumber treated with creosote. This lumber had been permeated under pressure with creosote to withstand the action of teredoes, a boring mollusk, which eat up and destroy untreated lumber dikes in two or three years. In many instances in rebuilding a dike it has been found advisable to change and re-locate part of it, to prevent deposit of mud by the tides.

Then it was found that cement would harden under water. A permanent dike seemed to be the thing, even though it's construction was slow and costly. The advantages and disadvantages were discussed in many Association meetings. Fifteen years had elapsed since I had started to put in any creosote lumber dikes, and they needed replacement, so I started to rebuild them with cement. First the form, or about one hundred feet of it,

would be put in, using untreated lumber. This had to be strong enough to hold the cement. Then sand, gravel, and cement would be loaded on floats or scows and taken out to where it was to be used. At first, a hand operated cement mixer was used. Later power driven mixers speeded the construction. The cement was poured into the forms at low tide, carefully leveled on top, and by the next tide, it would be hardened enough to be extended.

This work continued year after year. Even in summer there are only an average of twenty days each month that the tides are low enough to allow work on the beds. It took thirty five years, beginning each year with the first daylight tides about the first of April until the dark tides in September, working from four to ten men, to do the job.

Another thing that delays the dike work is the weather. Especially in the spring, one may have several loads of mud, or if constructing dike, several floats filled with material, and a storm suddenly come up and play havoc. The mud washes from the scows or material washes off and goes scooting down the bay. The storm sometime lasts for days, and all that can be done is to wait for better weather.

The investment that is necessary to accomplish this work is tremendous. My own investment in development of the dike area has been approximately five thousand dollars per acre. I would say that the average cost of construction of all diked land is over four thousand dollars per acre. I have about one-half mile of cement dike, fourteen inch base, eight inch top, four feet high; numer-

ous cross dikes and lower dikes of cement, and at least one mile of creosote lumber dikes.

I have given this rather in detail because it is my personal experience, and I know the facts. During this time I was an official of the Olympia Oyster Growers Association, made inspection trips to the beds of most of the growers, and heard the experiences of others. This example is typical of other growers experience and costs.

LIFE OF AN OYSTERMAN - NOT AN EASY ONE

The life of the oysterman, and especially the pioneer, was and is a rugged one. When asked why I have stayed with it, my answer is "because I love it." And I believe that is true of every oysterman. Everyday there is a new challenge in life; new problems to work out. The out-of-door and on the water life is wholesome and healthful. And most of all, the Olympia Oyster is a food one is happy to produce. It has made millions of people delighted and full of praise to those who produce it. I would not do otherwise if I had it to do again; my life has been a happy one, much more so than if I had been occupied in distasteful employment, though I might have accumulated more material wealth. I believe this feeling is shared by all old timers in the oyster business.

7

Seeding and Cultivating Olympia Oysters

BUT AFTER THE DIKING AND LEVELING HAS been done, what then?

The Olympia Oyster is four to five years of age when harvested. The higher level dikes are generally the seed dikes. Each oysterman has studied his ground and knows where seed sets the best. The deeper levels usually grow a better marketable oyster, a fatter and more firm oyster, with a beautiful velvet rim. The Olympia Oyster (Ostrea lurida) is a bi-sexual animal; the organism of both male and female being within the same shell. In the spring, as the waters warm, the male sperms are thrown into the water. Later, generally in early June, the eggs which have been produced and held inthe shell are fertilized by male sperms which the oyster has taken in as it feeds. The oysterman then knows spawning time

is approaching. As he opens an oyster here or there on the beds, he finds first a quantity of white, milky substance, which he knows to be the first development stage. Later, as it grows and becomes dark, the oysterman knows the spawning season is at hand, and that the setting time, usually starting early in July, is about three weeks away. The embryo when released from the shell into the water is a free swimming oyster for about eighteen days.

At this stage of its development the oyster is so small that you cannot see it without a microscope. A fish or something generally swallows it by mistake before it becomes visible. Only one in a million is lucky enough to grow up and be stewed. It swims around by means of its microscopic cilia, or eyelashes. If it knew its future it would continue to do this the rest of its days, but it starts to develop a shell, sinks to the bottom and fastens itself to a shell or some other type of cultch with a bit of glue which it carries with it for that purpose. This process is called seed setting.

The oyster plays a useful role because he's edible, The way he side steps birth-control is nothing but incredible. The sons and daughters he begets are numbered by the myriad, They're known as spats the little brats throughout their baby period.

The way he multiplies his kind he merits no apologist, And keeping track would wreck the mind of any geneologist. Of course as parents do, he likes his kiddies, sad or humorous, But he can't name the little tykes, because they're too numerous.

The oysterman knows that if he is to get maximum setting he must have his seed ground covered with a suitable cultch. In the early days it was observed that clean shell was the best. These were obtained from the oyster opening houses where the shell had been saved and piled for this use. So the oysterman would secure the amount he needed, bring it to his beds and spread it upon the ground he had cleaned for use as a seed bed just as near the time the setting took place as he could, so that the set would take place before the shell became silted and dirty.

DIFFERENT TYPES OF CULTCH.

In time the demand for the shell for cultch became greater than the supply. A biologist, Dr. A. E. Hopkins, was successful in his experiments with a new type of cultch, later known as the "Hopkins' Collector." He took egg crate fillers, dipped them in a thin solution of cement, lime, sand, and water; then let them dry slowly. At the proper time these were placed on the seed ground. The surface was clean and rough enough for the baby oysters to cling to. These were found to be a highly efficient cultch, and millions of them were used. Also fish net dipped in cement and lath dipped in cement, dried and placed on the seed ground, have been used.

MOVING SEED AND MATURING THEM.

After the set of seed had taken place, it became the practice to leave it for about two years until it had taken on sufficient growth to be moved.

At this point the moving takes place. The oysterman has been marketing his oysters and has dikes that are cleaned up ready for a new crop.

The same method is used in moving seed as is used in moving oysters. The seed oysters are removed from an area large enough to set the scow. The seed is forked by hand onto the scow which is lifted by the incoming tide and then moved to the place where they are to be spread, which has been marked by stakes. The oysters are scattered from the scow at high tide, and the seed have found a new home.

These oysters are left for two to three years to mature and fatten. Then in the winter months when markets are available they are taken up on floats again, taken to the culling house where they are washed in the sink float, placed on the culling table, the marketable oysters removed and put in another sink float to await the boat to take them to the opening or shucking house; the culls, which include many small oysters, are taken back and placed on the beds to mature for market.

8

Oyster Land Titles -- Isolated Tracts -Reversionary Rights

BANG WENT THE GAVEL

Time: 2:00 o'clock p.m., June 21, 1915.

Place: Chamber of Commerce Rooms, Olympia, Washington.

Purpose of the Meeting. A special meeting of the Olympia Oyster Growers and Dealers Association to consider the question of Oyster Land titles.

Mark Reed, of Shelton, Washington, who was at that time a member of the State Legislature, was unanimously chosen to act as honorary chairman.

The subject for consideration was one of great import-

ance to the Olympia Oyster growers, and one which had been a major part of the program of the Association for some time.

Mention has been made that the majority of titles to Olympia Oyster land were issued under the "Callow Act", passed in 1891. This law permitted the applicant to select and buy the part he desired. Naturally the best natural oyster ground, and the boundaries were generally irregular. In many instances there were irregular tracts between the oyster land selected and the beach or meander-line. There were, also, irregular and isolated tracts between different growers. As the system of leveling and diking had developed, these tracts, the title to which remained in the State, became very important in the development of their beds. They needed the beach gravel for filling, and the land back to the meander line, which generally follows the line of mean high tide, for access to their oyster beds. Also, the isolated and irregular tracts, if owned, could be graded or filled and enable the adjoining dikes to be straightened out and made easier to operate. After a long period of effort on the part of the committee of the Association, the legislature had, in 1915, passed a law permitting the oystermen to purchase these isolated tracts. The procedure to be followed out by filing of maps and abstract of title with their application, so that the rights of adjoining owners would be protected, was provided for in the law. This meeting, through the leadership of Mark Reed, was to aid and assist the ovster growers in filing their applications to purchase and buy adjoining isolated tracts. This meeting

was followed up by others, and finally all concerned were taken care of to their satisfaction.

STATE'S SALE OF REVERSIONARY RIGHTS.

As time went on the investment of the Olympia Oyster Growers in their grading and diking of oyster land became enormous. As I have stated, the deeds to the oyster land issued under the "Callow Act", both the original deeds and the deeds to the isolated tracts, had a reversionary provision under which the State could, if certain conditions existed, reclaim the oyster land. The State would have to make settlement with the owner, but the owners felt uneasy at making these investments without owning the fee simple title. Committees were appointed to see if legislation might be passed to authorize the State to deed outright to owners of "Callow Act" titles. This was finally accomplished and, as shown by the Session Laws of 1927, page 546, Sec. 140, this was authorized and the procedure set out. Most of the oystermen perfected their titles under this act. Again co-operation won out through the combined efforts of the oystermen through their organization, the Olympia Oyster Growers Association.

9

Marketing -- Advertising Program

TO KEEP PACE WITH THE GROWING OF OLYMPIA Oysters, the opening, packing and sales of the product had been receiving careful attention. The leaders, men who had extensive beds, which they had been busy developing, were first in entering that field. Their first thought was the opening (sometimes called shucking) and packing and selling of their own oysters, but as time went on, it was realized that there were many small growers who did not produce enough oysters to pay to have an opening house and that it would be economically sound to have fewer sales centers. At first the small growers sold their oysters in the shell, packed in two bushel burlap sacks, shipping direct to small opening and wholesale places in surrounding cities such as Seattle, Tacoma, Portland, San Francisco and Los Angeles. As markets were extended, the local packing plants

found their own oysters not sufficient to fill the demands and began to negotiate with the smaller growers' often purchasing their entire season's supply. Oysters would be delivered in the shell packed in the two bushel burlap bags, and the packing house would either sell and ship them to the packers in other cities or open them, pack in pint, quart, half-gallon or gallon cans, and ship to their customers.

As production increased the supply began to exceed demand. This resulted in each local packer advertising its own brand both locally and in more distant places.

But again as time went on the supply began to exceed the demand. Before I go into the manner in which this was met, I must speak of the development of the local packing plants.

LOCAL PACKING PLANTS.

J. J. Brenner and the Olympia Oyster Co. were and always have been, the leaders in the packing plant and distribution field. J. J. Brenner Oyster Co. was a corporation and has always done business under that name.

The first J. J. Brenner plant was erected on piling in Olympia about the year 1893. At that time, the road on West Fourth St., consisted of a plank causeway constructed on piling, the tide running in and out of the upper cove, where "Capital Lake" is now located.

This plant was soon inadequate, so Jack began his plans for a new, larger and better equipped building. This was constructed on the corner of West Fourth and Simmons Street. It was a large building, well equipped for a plant of those days, and would accommodate about

thirty openers. It had a roomy office, well furnished; an ice box sufficient in size to refrigerate all oysters on hand at any time, either in the shell or opened stock; a large packing room where shucked stock was washed, packed and prepared for shipment; and storage room overhead for storage of box lumber, cans and containers. This was an up-to-date, and much above the average, oyster plant for that time.

At the rear of the plant was a shipping dock where the boats bringing the oysters could land, unload the oysters, and load any freight that was to be sent back to the beds.

This plant satisfied the needs of the J. J. Brenner Oyster Co. until about the year 1927. Jack Brenner had been dreaming about a new and up to the minute packing plant for years. That dream came true in 1928. His company owned the adjoining land, so he moved the old plant over onto it and continued to use it while constructing the new one. By that time the dredging in the Bay had been done and all the lots adjacent to the channel including the Brenner property, had been filled. The new building was a two story concrete structure, and was large and modern in every detail, constructed especially for the sanitary opening, packing, and shipping of oysters.

This plant was used until 1951 when for many reasons it was decided that the packing plant should be located at the heart of the oyster production on Oyster Bay. By that time the transportation condition had entirely changed. Cement pavements had been constructed almost to the point where it was decided to build. Trucks had come

into use, which made the transportation by water slow and inadequate. Communication by phone, wire, or mail was as easy as from town. By opening at the beds the bysters were delivered in the shell directly to the plant, opened, and the shell left handy for use on the beds, leaving only the finished product, the byster packed ready for the market, to be delivered by truck to the point of shipment.

So, the J. J. Brenner Oyster Co. met these new conditions by the construction of a fine new modern plant on the shores of their own beds near the head of Oyster Bay, where they are carrying on their business, producing and marketing a fine product, and are a substantial factor in the oyster business. (See picture).

The Olympia Ovster Co., Inc., from the beginning was in the front ranks in its packing house program. They owned substantial oyster beds, were progressive in the development of Olympia Oysters, and operated their own boat to transport their oysters to Olympia where they had constructed an opening house on Fourth Street, only one block east of the J. J. Brenner Oyster Co. plant. Here, also, in the earlier days the water ran under their plant, which was constructed on piling. They also had their private dock for unloading their oysters. The "Old Timer" Geo. W. Draham was president of the corporation. He also had dreams of having the latest equipment known to the industry for the sanitary and efficient opening, washing, and packing of Olympia Oysters. These dreams were realized when, in 1924, a concrete building was erected and equipped with the latest and best known machinery used in an opening plant including refrigerating rooms and a sterilizing plant. This building is still in use, being occupied by the "Olympia Oyster House," where their purveying of Olympia Oysters has become as famous as in the days of "Doane's Oyster House." After the inspection of this plant by the United States Department of Health, it was pronounced a model oyster opening and shipping plant. In fact, these officials told me while I was in Washington D. C. that the oyster plants here were superior to most of those on the East Coast, and that the Olympia Oyster Co. plant and the J. J. Brenner Oyster Co. plant were so well equipped and so clean that they looked more like a laboratory than an oyster house. (See picture).

In 1925 the United States Bureau of Fisheries recognized this and commented as follows in Document No. 1066, referring to the Olympia Oyster industry in the Southern part of Puget Sound:

"The shucking houses are built according to specifications established by the United States Health Service, and in many respects surpass these requirements. The rooms where oysters are opened are sunny; the benches, tables, floors and walls are of cement; in respect to cleanliness and compliance to the highest standard of sanitary requirements, the condition of the Olympia shucking houses is unsurpassed in any other oyster producing state."

As the J. J. Brenner Oyster Co., due to changed conditions, found it advisable to change the location of its packing plant to Oyster Bay, so for the same reasons the Olympia Oyster Co. constructed a plant near the head of

Oyster Bay, and within a mile of the J. J. Brenner plant. It is modern in every respect.

You may be asking what it means to say that these two plants are modern in every respect. The first packing plants were modern when they had a bench upon which to pile oysters, carried in by hand from a boat moored to a dock near the plant. I have quoted from the United States Bureau of Fisheries bulletin as to the standards of sanitary requirements in 1925. Today the word modern, when applied to oyster packing plants, has taken a new meaning. In addition to the standards of those days, modernized by better design and equipment, the plant is fully mechanized.

The oysters are carried from the boat on a moving belt and dropped onto shucking tables. The shell, instead of being carried or wheeled to the shell pile are dropped through the table and carried by a moving belt to the shell pile. Manual labor has been reduced to a minimum.

These two companies have owned adjacent Olympia Oyster beds, have operated packing plants close together, have been operating as neighbors, during the entire life of the Olympia Oyster industry. Likewise J. J. Brenner and Geo. W. Draham, have been members of the Olympia Oyster Growers Association, have co-operated with its members thoughout its existence, have served on many important committees together, and were close friends as they shared honors as "Old Timers" at the Golden Anniversary Dinner given by the Association in their honor.

In Oakland Bay, near Shelton, Washington, Joe H. Deer, Thomas O'Neil, A. L. McDonald, Frank C. Chester

and others, had substantial oyster beds. These were all progressive men, were co-operative with the other growers and were members of and took a substantial part in the work of the Olympia Oyster Growers Association.

It has been stated by Dr. Trevor Kincaid, a recognized authority, that in the earlier days Oakland Bay was the most prolific oyster seed ground in the world. Transportation from there to the packing plants in Olympia was very difficult. Not long after the commercial value of Olympia Oysters was discovered J. H. Deer built and operated an opening and packing plant in Shelton which met the need of the oyster growers in that locality. Later D. R. Helser operated an Olympia Oyster opening and packing plant in Olympia, which he supplied mostly with oysters from his own beds in Oyster Bay.

EXTENSIVE ADVERTISING PROGRAM USED.

Another critical period in the history of the Olympia Oyster had been reached, and as always, the old pioneers, through the medium of their representative organization, were about to meet it.

During the year 1921 it became apparent that there was a surplus of Olympia Oysters. Competition in the markets was very keen, and in December, a drop in price was threatening. Investments had been very heavy and cost of production increased so that a price war would be disastrous to the industry. Dr. G. W. Ingham, President of the Association, realized the situation, and this meeting, held on the evening of Dec. 14, 1921, at the Shelton Hotel, was called for the purpose of considering it.

BANG WENT THE GAVEL!

It was really a wonderful meeting, attended by thirty growers. It was preceded by a social meeting in the hotel lobby. An orchestra played as we marched into the dining room. An oyster banquet was beautifully served; Olympia Oysters from soup to nuts, and all the trimmings.

President Dr. Ingham called the meeting to order and presented one of our hosts, Joe Deer, to give the address of welcome. The minutes recite, and I personally remember, that he welcomed us in his jovial manner. Joe Deer left us many years ago, and one can only say that he was indeed a good man, well beloved by his fellow men.

President Ingham responded to the welcoming address and he was at his best. I can see and hear him yet, as he pleaded for united rather than divided effort, for co-operative effort through the Association; for faith in the future and in the Olympia Oyster, the most wonderful food created by the Almighty and cultured by man. All that was needed was that the public be told of its virtues, and demand would increase beyond our ability to supply.

His address was an inspiration to us all.

George Draham followed with a strong presentation, following the subject as it had been presented by Dr. Ingham, and strongly recommending a proposed advertising campaign. The Secretary, E. N. Steele, who was Chairman of the Advertising Committee, was called upon-I can remember that I stressed the importance of united

effort, and told of the picture which we have hanging in our kitchen as a family guide. It is of a bunch of bananas, and reads "Remember the banana. Every time it leaves the bunch it gets skinned."

Mark Reed, of the Olympia Oyster Investment Co. then, in a logical and well presented statement, recommended that no cut in price be made, but that we should create a demand and the demand would raise the price. He recommended that as of January 1922 ten per cent of the gross sales be set aside for that purpose.

The Advertising Committee then presented J. William Sheets and Fitzherbert Leather, of the J. William Sheets advertising firm of Seattle, who presented an outline of the type and extent of advertising they proposed.

And so was born the advertising campaign which was started on January 1, 1922. It was the beginning of one of the most unique and effective campaigns of its day, creating comment far and wide. And it was effective. The price of oysters was soon raised to meet the cost of advertising, which was one dollar per sack, and the price of Olympia Oysters never went back to the previous level. In fact, it drew the attention of the Eastern oyster growers. In 1924, the Oyster Growers Association of North America were in about the same trouble we had been in. Having been Chairman of the Olympia Oyster Advertisin Committee, and active in its camjaign, I received a letter from Dr. Radcliffe, then an official in The Oysters Growers Association of North America asking me, at their expense, to come to New York and meet with their Directors, and tell them of our abvertising experience.

This invitation was accepted. I was met and conducted on a tour of the oyster areas of the East, went out on dredges in Chesapeake Bay, in New Jersey, Virginia, and New York, visited some of the largest packing plants, and ended by attending the directors meeting in New York. There an advertising campaign was started by initial subscriptions of approximately fifty thousand dollars. On that trip I met many of the leading oystermen, and in Washington D. C., I met men in the Fisheries Department and the U. S. Department of Health, who were very helpful when later on I was called upon to make other trips representing our own oyster industry.

The Olympia Oyster advertising program was unique in every respect. It was for the most part limited to the western states. This was because of the competition with the Eastern oyster, especially east of the Rocky Mountains, and excessive express rates. In fact, it was limited to the Pacific Coast States. In those days advertising was not as expensive as it is today. Now half-hour programs on T. V. cost more than this small industry, at one dollar per sack, (about ten per cent of gross receipts) could afford to spend in one year. But the subject matter was of such interest to the public that it received broad coverage from a news and general interest standpoint. Such able writers as Dr. Trevor Kincaid contributed most interesting articles on the history of the Olympia Oysters, its merits as a food of the finest flavor and food value. These articles, with illustrative pictures, were published by such papers as the Seattle Post Intelligencer, the Oregon Journal, and in San Francisco and Los Angeles. As the interest spread, other writers wanted information

and pictures for publication in other newspapers and magazines. Our advertising committee was kept busy furnishing material for these writers.

Soon the food economists began to publicize recipes and demonstrate them in cooking schools.

Each year the advertising committee laid out very carefully its advertising campaign. It estimated the quantity of oysters that should be marketed the following year. It contacted the markets, found out where it could spend the advertising funds to best advantage and with the advice of the advertising managers prepared the material. This was reviewed at a meeting of the Association. When agreed upon and approved it was put to a membership vote. Thus, all were satisfied and knew just how their money was to be spent. The records show that the assessment of one dollar per sack was regularly paid for many years.

In some places we used roadside billboards. The hotels and sea-food eating houses were supplied with beautiful banners, and recipe folders were distributed by the thousands. Newspapers and magazine ads were used judiciously.

The campaign was started off each year by making the first week in September "Olympia Oyster Week." For many years, this was done by a proclamation signed by the Mayor of Olympia and under the official "Seal of the City of Olympia." During that time I happened to be a member of the City Commission of Olympia for ten years, serving as Mayor about four years. I have before me some of those proclamations addressed:

"To the Citizens of Olympia, and to all Fellow Citizens, governing Executives and Officials of the Sovereign States of our glorious Pacific Coast."

The Proclamation, after extolling the virtues of Olympia Oysters as a food, set aside said week as Olympia Oyster Week throughout the Northwest for "feasting, celebration, thanksgiving and good cheer in memory of the occasion."

"Signed at Olympia, End of the Oregon Trail, Capitol of the State of Washington."

Signed by the Mayor and City Clerk, and attested by the City Seal.

These proclamations were beautifully gotten out and sent to hundreds of City, County, and State Officials, and to the editors of all papers. They were well received, and much publicity was given.

This program was carried out for about fifteen years; by that time the demand became greater than the supply, so the advertising was tapered off. During these years the gavel fell many times, as meetings of the Olympia Oyster Growers Association were called to order to consider their advertising program.

10

Sanitation -- Sanitary Control

BANG WENT THE GAVEL!

IT WAS ON APRIL 20, 1925, ONE OF THE SUBJECTS for consideration was co-operation with Dr. Simpson, head of the State Department of Health, in working out a manual to co-ordinate with the National Department of Health for Sanitary Control.

Sanitary Control by the State was not a new subject. It had been under discussion many times before. The National Public Health Service had been working on it since about 1908. There had been some typhoid fever traced to sewage polluted shellfish in the East over the years. During the fall and winter of 1924-25, outbreaks of typhoid fever occurred in New York, Washington, Chicago and several other cities. As a result, the matter of Sanitary Control became a very live issue. The Surgeon

General of the United States Public Health Service called together a conference of Federal, State, and municipal authorities, and representatives of the shellfish industry, to work out a plan of Sanitary Control for oysters.

CONTRIBUTION TOWARD SANITARY CONTROL BY OLYMPIA OYSTER GROWERS ASSOCIATION.

The Olympia Oyster Growers from the start had been in favor of some plan of control. When the epidemic in the East broke out it had repercussions in our Olympia Oyster industry, even though our Sanitary conditions here were very good. The law had prevented the sale of oyster land near any city, and there were but few inhabitants along our oyster bed shores. Yet the need for systematic control was recognized.

At the time of this meeting the Federal Public Service had prepared a tentative manual and furnished copies to the Health Department of each state. Each state was asked to prepare ready for adoption, a manual in which minmum requirements would be comparable with the minmum requirements of the Federal manual. At this Association meeting a committee was appointed to work with Dr. Simpson in formulating a manual for the State of Washington.

This committee was appointed consisting of Dr. G. W. lngham, Geo, W. Draham, and myself. This work required numerous meetings, both in Olympia and in Seattle. The passage of legislation was also necessary.

Finally the U. S. Health Service developed and adopted uniform standards, and the Health Department of the

State of Washington, with the co-operation of the oyster growers, adopted its shellfish-sanitary manual. Since its inception no disease has been attributed to the consumption of shellfish. It has stood the test of time without change. On September 9, 1954, another meeting was held in Washington D. C., called by the U. S. Public Health Service, to consider the revision and strengthening of the Sanitary Control system. Mr. Dave McMillin of the Olympia Oyster Co., representing the Olympia Oyster Growers Association, and Malcolm Edward and myself, representing the Pacific Oyster interests, were in attendance at that meeting. The final draft, both of the U. S. Public Health Service Manual and of the State of Washington Manual are now being drafted, with the aid and co-operation of the entire oyster industry.

MEANING AND EXTENT OF "SANITARY CONTROL PROGRAM."

Space prevents detailed information on this subject. The fundamental requirements are as follows:

1. It commences at the grass roots, so to speak. The purity of the water in which the oysters are grown. The State, upon application of a grower, takes samples of the water over the applicant's grounds. If found to be pure, fit for the taking of shellfish for marketing, he is granted a State Certificate. This certificate must be renewed annually.

At the same time it is issued the U. S. Public Health Service is notified; this certificate holder is given a number, which must appear on each container in which oysters from the certified beds are packed. This identifies

them even when shipped interstate. Thus, if the oysters are picked up by officials, for inspection to determine whether they have been packed in accordance with requirements, their source may be easily traced.

- 2. The culling houses and opening houses are also inspected. They must meet sanitary requirements and specifications, and be kept clean.
- 3. The opening and washing equipment must be of non-corroding material, such as stainless steel, and be sterilized daily.
- 4. In the washing and packing of oysters clean sanitary methods must be used.
- 5. The health of those working with oysters must be determined to guard against the employment of any worker who might be a typhoid carrier.
- 6. Requirements for adequate and suitable toilet facilities are made.
- 7. The State Department of Health is responsible for the inforcement of the manual, and its officials make frequent checking visits to the shucking plants. They also make tests of the water over the oyster beds to assure its purity.

In fact, the growing, opening, packing and shipping of oysters must be done in a sanitary manner, with sanitary equipment, the entire operation being specifically described in the manual.

11

National Recovery Administration as Applied To the Olympia Oyster Industry

ANOTHER MOMENTOUS PROBLEM WAS CONfronting the Olympia Oyster Industry. In fact, it was confronting the entire country. Many men and women who had been our potential customers were now in the bread line. The savings of many thousands of our more prosperous people were tied up in the banks and building and loan associations, whose doors were closed. Stocks and bonds had greatly depreciated in value. It was a time when the necessities of life were the rule, and luxuries or higher priced foods were out for the masses of our people.

On the other hand, Olympia Oyster growers and packers had been for years carrying on a program of de-

velopment far beyond their earnings, and many of them, including myself, had been borrowing heavily to continue their improvement work. Each individual had his problems. He could eat his own oysters, but he could not eat them all. He must sell some of them to survive. But without customers—what? Everyone was desperate to find a way out.

The Federal Government was desperately trying to find ways and means to recovery. Congress had passed what was called the National Recovery Act. This provided for a National Recovery Administration, whose purpose it was, among other things, to set up reasonable prices for all commodities, industry wide, and adopt rules of fair competition. It was a gigantic effort to give every producer a fair opportunity to keep his product in the market on an equal basis with his competitor. The set up was that each industry should have its own Code, prepared with the aid of the Administrator and adopted, first by the industry then approved by the President.

CODE OF FAIR COMPETITION FOR THE OYSTER INDUSTRY.

On June 16, 1933, the "National Industrial Recovery Act" had been approved by President Franklin D. Roosevelt.

BANG WENT THE GAVEL! Date, August 24, 1933

This meeting of the Trustees of the Olympia Oyster Growers Association, was held on August 24, 1933. President G. W. Ingham, J. J. Brenner, E. G. Brenner, O. C. Hanson, Mr. Van Epps, and E. N. Steele were present. The minutes of that meeting disclose that the preliminary draft of the National Oyster Code was read aloud and discussed. Also, a letter was read from Howard Beach, President of the Oyster Growers and Dealers Association of North America, and one from Dr. Radcliffe, executive secretary of said Association, suggesting that the Pacific Coast Division of the Oyster Industry send a representative to the National Oyster Convention to be held in New York City, at which time it was proposed to adopt a National Code for the Oyster Industry.

In the discussion it developed that it would be advisable to have our industry represented at that meeting to advise them of our problems on the West Coast, that the code adopted be made to harmonize with our needs. It was announced by E. N. Steele, who was at that time President of the Pacific Coast Oyster Growers Association, that said Association felt the same way about it, and he thought it would pay half of the cost. It was moved by J. J. Brenner and unanimously passed that E. N. Steele be selected as a delegate to said convention; that \$400 be provided to pay his expenses, one-half thereof to be refunded by the Pacific Coast Oyster Growers Association. Further that a telegram be sent at once to the President of the United States that "the Olympia Oyster Growers Association was behind the N. R. A. movement 100%, and would co-operate through the National organization."

PREPARATION AND ADMINISTRATION OF THE CODE.

Thus, the Olympia Oyster Growers Association and its members became participants in the great movement of a great people of a great nation to survive and to bring back prosperity in this country.

To give the details of the preparation and adoption of the Code and of its administration would be a long story, so I shall only record the high lights.

I shall never forget my trip to this convention. A few days before I started, the N. R. A. Eagle had been adopted symbolizing the movement. It had been received with great enthusiasm by the people. The press was full of it. Banners showing the Eagle were displayed everywhere along the way. Window displays of the Eagle and announcing the adoption of the N. R. A. by the store or factory were seen in every window. The country was alive with enthusiasm and hope. This cross section of the country inspired me, and gave me material to inspire the convention when I was called upon to address it at its opening meeting. But, after that meeting it was serious business.

The organizing into industry groups, then subdividing into Division groups, was accomplished and finally I found myself where I belonged. For one week I was in that great hotel, which was the headquarters of the convention. I ate there, I slept there whenever I had an opportunity. Long hours were devoted to the work. I did not leave the hotel for one week more than for a quick walk around the block. First, in co-operation with the

oyster growers of the East Coast, those things which applied to the entire industry were settled and adopted. Then the specific provision which applied to the Olympia Oyster and the Pacific Oyster, consolidated under the Pacific Coast division of the Oyster Code, were worked out.

Finally, it was ready for drafting. I returned home and made my report. After receiving the first draft, it was reviewed and finally adopted. I became its administrator. The latter part of September, 1933, the following was received from Washington, D. C.:

"Official recognition of E. N. Steele of Olympia, as a duly elected member of the code authority for the fresh oyster industry has been announced by the National Recovery Administration. Steele was approved as a member for the Pacific Coast section of the oyster industry, which under NRA regulations, is a division of the fisheries industry. Approval of members of the code authority for the North Atlantic, and southern section, also was announced."

This now sounds like a small matter in the history of this industry. But it is not. We lived it for many years. It was a daily concern in our lives. All business transactions were governed by it. Some liked it. Others did not. But, taking it as a whole, by the time it was ended by court proceedings we were again on the way to prosperity. Who can say but that the stabilization of prices and the rules of fair competition during this period was of much value to our own industry as well as to the whole country. At least, we participated in it, and it is a part of our history.

12

Enemies of the Olympia Oyster

I DO NOT APPROACH THIS SUBJECT FROM THE viewpoint of a biologist, but that of an observer.

Star fish are fond of any oyster, but the Olympia Oyster is its favorite.

Man must have some kind of a knife with a blade to open and take the meat from an oyster. Not so with a star fish. Nature has provided it with a more direct method. It first wraps itself around the oyster, or if it is feeding on Olympia Oysters several of them at one time. It has thousands of very small but tough and strong tentacles. These have suction cups on the ends. These, after they are attached to the oyster, begin to pull in such a manner as to be a strain on the abductor muscle of the oyster. It resists and holds its own in this tug of war for a time, then gradually weakens, and the shell begins to open.

The stomach of the star fish, if its victim is a large oyster, protrudes into the shell and entirely envelopes the oyster, devours it, then draws in its stomach and moves on to its next victim. Olympia Oysters being very small, are more easily worked upon, and they are devoured rapidly.

Some years starfish are very numerous in the oyster area. One summer I saw an army of them. Many thousands, as they attacked a bed of Olympia seed oysters on the State Oyster Reserves in North Bay. As they devoured their oysters, with the aid of the then incoming tide, they would move on a few feet, settle down and enjoy their next victim. These reserves were not patrolled, so needless to say the State had no seed to sell that year from those reserves.

Starfish have no power of locomotion when the tide is out. So they must move from one hunting ground to another and do their feeding when the tide is in. For that reason they are easy prey for the oyster growers. He can easily see them and destroy them. I remember an experience once when I learned how not to destroy them. I pulled them apart, tearing the fingers of their star from each other, and threw them on the ground. Later I passed that way and found that each of those fingers had lived, and that new fingers were forming on each one of the pieces, where the wound had healed. I later was told that each finger had its own heart and circulatory system.

The oyster growers watched for and destroyed the starfish. Many were used for fertilizer. So, as the years have passed they have become fewer until there are not many seen in Oyster Bay.

DUCKS

Some kinds of ducks are also fond of oysters, and the Olympia Oyster, due to its small size, causes it to say "You are my oyster." Although I have seen them swallow full grown oysters, yet they prefer the smaller seed oyster, or better yet, the single oysters that have been put back on the beds after the larger ones have been culled out for market, and the smaller ones, mostly single oysters, put back to grow. I have seen large flocks of these ducks, often watching from a distance the spreading of these culls, fly to the spot where the oysters had been re-planted. By the time the oyster grower had arrived at his culling house with the scow or float from which the culls had been spread, the ducks would have arrived at their new feeding ground and disappeared in the water. They would come up with an oyster in their bills, swallow it with a gulp, then dive down again for another.

The losses to the oyster growers became very heavy, and a problem. These predators were mostly "Scooters" a duck commonly known as a "coot". They were not generally used as food, as the flesh had a strong fishy taste. But the "Blue Bill" which was classified as an edible duck, or a game bird, also was fond of oysters. Hence, the game authorities prevented the shooting of any ducks, even in protection of our own property.

Finally, the oyster growers of Olympia Bay came to an agreement with the Game Warden that if the oystermen would employ a patrolman who would only shoot to scare the ducks away from the oyster beds he would co-

operate. So on May 25,1914, the Oyster Bay Growers had a meeting and decided to form a new Association to be known as the "Oyster Bay Growers Association." Their principle objects was to establish a patrol to protect their oysters from theft or other predators, meaning ducks.

On July 28, 1914, they adopted a Constitution and By-Laws, which were signed by the following charter members: E. B. Taylor, Mgr. of S. K. Taylor & Son; J. J. Brenner Oyster Co., by J. J. Brenner; E. N. Steele; Olympia Oyster Co., by G. W. Draham, Pres.; Olympia Oyster Investment Co., by G. W. Ingham, Pres.; D. R. Helser; John H. Blass; J. B. Bowman.

This organization employed the ex-deputy sheriff of Thurston County William Vance, as its patrolman. It was maintained until 1925, a period of eleven years; the expense being borne by self assessment of its members.

At one time the Federal Game Warden, who was questioning the legality of shooting ducks out of season, asked that the gizzards of the ducks be sent to Washington, to see if they were eating oysters. Over one thousand were sent, each with information as to the date and time of day, stage of the tide and where killed. These gizzards showed a content of from one to twenty-seven oysters in each one, depending largely on when and where shot. The quantity of oysters per year eaten by ducks was estimated to run over one thousand sacks. Following this experiment, a permit was granted to carry on the patrol.

But upon change of administration the Federal Game Protector challenged it again. He made a trip out here, and the conditions were explained as we took him over

the beds. His contention was that a gas automatic explosion, blasting every fifteen minutes, attached to piling over the oyster beds, would keep the ducks away. A Department regulation to that effect was issued. It was tried out. For the first few days the ducks flew away. When they found it was harmless they became more bold, and in a month they paid no attention to it. So the patrolman began shooting again. He was arrested, but never tried.

Since then, ducks have diminished in number, but are still considered as predators.

CRAWFISH

Crawfish do not eat oysters. Their damage to oysters is indirect. They live in the ground, and are found in the tide flats where the bottom is sandy. They dig in and by some mechanism, apparently the motion of the fins on the side of the body and the tail, they push the sand back as they advance. This accumulates in a little pile where the crawfish entered the ground. The tunnel, about one inch in diameter, extends sometimes ten or twelve feet. The crawfish lines the tunnel, as it digs, with some hard substance.

Crawfish are harmful to oysters in two ways. First, after a dike has been constructed, a crawfish may go down and under the dike. The ground outside the dike being lower, the crawfish, probably to its own surprise, comes to ground surface on the lower side of the dike. The upper dike being filled with water, it begins to flow through the crawfish tunnel. At first it looks like a bubbling spring, but soon the force of the water breaks

down the walls of the tunnel. The flow becomes larger and larger. It makes a noise like a cascade. The water from the upper dikes carries with it a great quantity of soil from the upper dike, as well as the oysters, and deposits the entire mess on the oysters in the next dike below.

Such an experience, and there were many of them, required major repairs, causing expenses and hard labor.

Second, in some more level areas, crawfish are very numerous. Humphrey Nelson, who has a considerable amount of this kind of ground, says there may be as many as twenty crawfish per square foot. In that case, the quantity of sand thrown up, a little pile by each crawfish, becomes a large quantity in the aggregate. The tides flatten out these piles, and gradually the oysters become covered.

The loss became so heavy to many growers that they became discouraged and abandoned their ground. Not so with Humphrey Nelson and his step-father, U. G. Young. They solved it by covering the ground with lumber or plywood, then covering that with three or four inches of gravel. This prevented the sand from coming up; their yield of oysters increased by fifty per cent.

DRILLS

The so called drill is a species of the snail family. The native snail is about one and a half inches long when mature. I have never seen one drilling an oyster, although I have heard it said that they do drill seed oysters. But, a real drill, one that has the equipment and the ability to drill a nice little round hole in the shell of an oyster

and the desire to do so, has been brought into this country with seed of the Japanese oyster, now commonly known as the Pacific Oyster. It is about the same size as the native snail.

This species of drill abound in Japan. It has some power of locomotion when aided by the tide. I have often seen them protrude a sort of foot and give themselves a shove as the tide was moving, then roll forward with the tide for several feet.

It also has limited power of locomotion by using its body in the place of legs. By an outward thrust of the body it pushes itself forward about one-half inch, then it repeats the operation. Its walking distance is limited to a few feet a day, and it cannot walk in mud. But it can move from oyster to oyster, and it does not need to hurry. It takes great care in selecting its next victim. It has an instinct which guides it to an oyster with a thin shell. When it has found its oyster, it then selects the spot where the shell is the thinnest. The thinner the shell the easier to penetrate it.

Due to the drilling equipment, this animal has sometimes been called a "marine dentist". However, before it starts working on its victim I have never heard it whisper in a sympathizing voice, "Now this is going to hurt a little."

The file-like drill is located at the end of a tiny neck which protrudes from the body of the drill. After the drill has bored the hole through the shell, the neck is pushed into the oyster and by use of a suction method the oyster meat is conveyed into the drill as food. If the neck is not long enough to reach all the oyster meat, it with-

draws and leaves the oyster to die. As soon as it dies, its shell begins to open and crabs finish the job.

The Olympia Oyster Growers met this new enemy with their customary fortitude. They employed drill pickers, and in other ways kept them down to where they could get along and live with them, and still produce oysters on a commercial basis.

SLIPPER SHELLS OR CUPS (CREPIDULA)

The slipper shell may be termed as an enemy of the Olympia Oyster, although it does not kill the oyster. At one time Eastern Oysters were brought in from the Atlantic Coast. The slipper shell came with them and thrived here.

It has a shell that when grown, is about two inches across, and holds to shell or rock to which it had become attached by a suction cup. Its body is held into the shell by a sort of foot which hooks under a partition in the shell, just as the foot fits into a slipper. Hence, the name — slipper shell.

The shell is of such quality that the spawn of other animals do not attach to it. But one slipper shell will set on top of another, until there is a half-moon of them, from five to ten inches in length.

These animals may eat the same food as oysters. In some beds at times may take up as much room as the oysters. When the oysters were taken up to cull for market, the slipper shells were culled out, but caused extra expense for culling and disposing of them.

TRADE WASTE

All of these enemies of the oyster have been met by the oyster growers, and kept within bounds, by persistence and hard work. But during these years the population of the west has been increasing, and with it industries have been creeping in, building their processing plants upon our shores, and using our waters as a sewer in which to dump their waste. Many of them are making use of the timber resources which surround our waters. In the beginning our waters were clean and pure. The East Coast and its industrial centers had their trade waste, but in the beginning the growers had no thought of those conditions ever existing here. The shores of our inland waters were sparsley settled. Those with vision of the future could not have foreseen the present conditions. Industries with trade waste have slowly but steadily closed in upon us. They now threaten to do that which should never be permitted in a country such as ours: Cause the destruction of our God given natural resources, our oysters, clams, sea foods, and all eatible marine life. This subject is of such grave importance that it will be covered in a separate chapter. (See Appendix A) It will also be referred to in the chapter covering the decline of the Olympia Oyster industry. May we hope that the decline may not mean the death. We hope for proper control of trade waste which would mean that co-existence may result; the survival of both natural resources and industry.

13

State Oyster Reserves

THE EARLY LEGISLATURES, AFTER THE STATE of Washington attained statehood, were made up of pioneers. They must have appreciated very much our natural resources, and especially the native oyster. It is always easy to view and appraise the wisdom of legislation from the standpoint of history from results of said legislation. In the case of oyster legislation by our pioneer legislatures it is difficult now to see how it could have been improved. We owe a debt of gratitude for the wisdom, fairness and practical manner in which it was treated and covered by legislation meeting the needs of that day, and the years to come.

First, they passed the Callow Act, which has been previously referred to. This basic law gave those who had, prior to March 26, 1890, occupied oyster land and

cultivated, and continued to cultivate oysters thereon, the right to purchase, at a low price and on easy terms, the oyster land they were cultivating, limited to forty acres. Then the Bush Act was passed, not requiring previous occupancy. This was followed by a law setting aside and reserving from sale, certain tideland that had not been purchased. These areas were and still are known as "State Oyster Land Reserves."

Laws were then passed creating a State Oyster fund, into which went any moneys received from the sale of oysters and oyster seed, and legislative appropriations for the use of the State Fisheries Department in the development of the State Oyster Reserves were made from those funds.

Realizing the importance of the oyster growers being able to secure seed the State Fisheries Department entered into the era of the development of the Olympia Oyster industry by using the system of diking and grading certain parts of said reserves which were known to be located where a natural set of seed was abundant.

This was fortunate, for it was soon learned that this species of oysters would only grow in certain limited areas, which I have mentioned; also that seed could not be moved successfully except between certain areas where the water was the same in salinity and mineral content. Some oystermen had good ground for growing and fattening their oysters, but no seed ground. Hence, it was necessary to get seed at a reasonable price to continue their development. This was done while L. H. Darwin was Fish Commissioner between 1921 and 1931.

The State first developed by diking and grading the

Oyster Reserve in Oakland Bay. This proved to be the best seed ground of any they have ever developed. The seed could be moved successfully from these Reserves to any oyster ground in Oyster Bay, Mud Bay, Little Skookman Bay or South Bay.

The seed set in the Oakland Bay Reserve dike was tremendous. I have heard Dr. Kincaid say that he thought it was the heaviest setting ground, and the most reliable set, of any place in the world. He has visited about every oyster producing country and is fully informed on their oyster production. I, myself, have examined these beds year after year in the early days, and found the dikes filled with seed. Each spring the State would sell thousands of bushels of seed to oyster growers. Then they would again cultch the beds with shell, and in two years it would produce another large crop of beautiful seed. This continued until the pulp industry came to Shelton. The said beds are now entirely non-productive.

Other reserves were improved at Clifton, Mason County, but were less valuable. The set was not as heavy, and the water conditions different than in southern Puget Sound. After many unsuccessful attempts to move the seed, it was abandoned for Olympia Oysters, and later leased for Pacific Oyster culture.

In some places, especially in the Hood Canal district on Puget Sound, the State Fisheries Department maintains reserves for the use of the public, and permits a limited take of oysters per person for their use.

14

State Oyster Laboratories

THE EARLY PIONEERS IN THE OLYMPIA OYSTER industry had to learn the hard way the secrets concerning the propagation and culture of their product. They had to learn by observation, and by trial and error. They had no oyster biologist or oyster laboratories for many years. But, although they learned from observation when and where the oyster larvae set, and what areas produced the best marketable oysters, yet they had a keen interest in the scientific and biological problems.

About the year 1930 the oyster growers succeeded in arousing the interest of the State Department of Fisheries and Game; Charles R. Maybury, Director, and Charles R. Pollock, Supervisor of Fisheries. A plan was worked out under which they secured the loan from the staff of the United States Bureau of Fisheries of A. E. Hopkins,

an eminent aquatic, Biologist. Through co-operation of the oyster growers a laboratory was fitted up in the cove in Oyster Bay adjoining the oyster beds of Harley Post. An assistant to Dr. Hopkins was furnished, Mr. H. H. Adams.

This laboratory was conducted from the spring of 1931, continuing through 1935. Its primary purpose was to make an analysis of spawning activities and setting habits of larvae with reference to environmental conditions. By developing such information it was hoped that oyster growers might be assisted in the catching of sufficient seed oysters to restore and expand the industry.

This laboratory was close to the beds of this writer. Those years of patient and very scientific study were of the deepest interest to every Olympia Oyster grower, and of great value to the industry. The oyster growers cooperated in the work, furnished boats, assisted in taking samples, and in any other way they could. The Olympia Oyster Growers Association had many meetings with Dr. Hopkins, and each one was made to feel that he was a part of the operation. When it was completed and Dr. Hopkins was sent to other fields of investigation, each oyster grower felt a deep sense of appreciation for his fine accomplishment.

Dr. Hopkins, at the termination of his work, made an exhaustive report of his studies, which was published by the U. S. Department of Commerce, Bureau of Fisheries, under the title "Experimental Observations on Spawning, Larval Development and Setting in the Olympia Oyster, Ostrea lurida," by A. E. Hopkins, Bulletin No. 23.

In a foot note, after expressing his thanks to the state

officials for their co-operation and assistance. he made the following comment: "It is a pleasure to express my thanks to the growers of Olympia Oysters, all of whom have willingly given every possible assistance. I am particularly indebted to J. J. Brenner, E. G. Brenner and D. I. Ginder, of the J. J. Brenner Oyster Co.; Ole Hansen and J. S. Waldrip, of the Olympia Oyster Co.; G. W. Ingham, Olympia Oyster Investment Co.; E. N. Steele; Charles Brenner; W. J. Waldrip; J. B. Bowman; J. H. Post; and the late Minnie Blass.

"A large part of the credit for this work is due to H. H. Adams, who served during 5 years as a most capable and efficient field assistant."

This work was so efficiently and completely done that from that time on it has been accepted and followed as the last word on the subject covered.

Dr. Hopkins recently passed away, after many years of scientific service in other oyster growing areas on the East Coast and the Gulf of Mexico. Recent mention of Dr. Hopkins and a forceful commemoration to his ability was published. The statement was made by another eminent biologist, one who is well qualified to appraise the work of another scientist working in the same field. It was made by Thurlow C. Nelson, Ph., D., D. Sc., Biologist, N. J. Division of Shell Fisheries, reporting proceedings of the Oyster Growers and Dealers and National Shellfisheries Convention held in Miami Beach, Florida, in August, 1956. Speaking of progress in oyster culture in Florida since establishment of the Division of Oyster Culture in 1947, I quote:

"Legislation to effect this was drafted with the aid of

the late Dr. A. E. Hopkins, an outstanding service to the southern oyster industry which climaxed the contributions of one of the world's foremost oyster scientists."

Space will not permit a review in detail of this report. It is fully supplemented and illustrated by pictures and graphs. Anyone interested in the detail of the work, can secure a copy from the Superintendent of Documents Washington, D. C. But I feel that it has such basic value and interest to those who may read this article that I should copy from it the following findings:

- 1. Grounds on which Olympia Oysters are grown are surrounded by dikes to retain a few inches of water over the oysters at low tide. The maximum range of tide at this place is about 20 feet, the average about 14 feet, and most grounds are located between the minus 2 foot and plus 4 foot tide levels.
- 2. Average water temperature varies between a winter low of 6 to 9 degrees C. and a summer high of 18 to 20 degrees C. In summer the temperature is highest when the tide is low, and the shallow water often reaches 30 degrees C. while during winter low tides occur at night and a temperature as low as about -2 degrees C. has been recorded.
- 3. Salinity of the water on the oyster beds at high tide varies, in Oyster Bay, between about 26 p.p.m. in winter and about 29 p.p.m. in summer; in Mud Bay the range is about 27 to 29.5 p.p.m. Salinity of the surface water, however, is subject to greater variation.
- 4. Hydrogen-ion concentration varies throughout the year from a pH of 7.7 to 7.8 in midwinter to about 8.4 in late spring. It is probable that prolific growth of algae in

spring, in the presence of fertilizing substances brought in by the winter rains, account for the high pH at this time.

- 5. Market-size oysters bear broods of 250,000 to 300,-000 larvae. The number of larvae per brood depends generally upon the size of the maternal oyster.
- 6. Generally each oyster produces one brood per season, but in some years as many as 50 percent bear second broods while in other seasons as few as 75 percent of the individuals spawn as females. Abortions of embryos frequently occur, however.
- 7. Spawning of functional females begins in the spring when the minimum, or high tide, temperature reaches 12.5 degrees to 13 degrees C.
- 8. Most broods of larvae are produced during a period of about 6 weeks at the beginning of the spawning season, though an occasional gravid individual may be found as late as October.
- 9. An average period of 10 days is required for development within the branchial chamber from the time the eggs (diameter, 100u to 105u) are extruded from the gonad until straight-hinge veliger larvae (length of valves, 180u) are discharged.
- 10. As compared with oviparous species, development of the larvae of O. lurida is very slow, and the age of the various stages may be stated approximately as follows: 1 day, blastulae; 2 days, gastrulae; 3 days, trochophores; 4 days, straight-hinge veliger larvae completely enclosed by valves 110u-120u long; 10 days, veliger larvae with valves 180u-185u long.

- 11. The free-swimming period is 30 or more days in length and varies from year to year, probably according to water temperature.
- 12. Larvae set most frequently on an horizontal surface, while fewest catch on upper horizontal surfaces. A definite relationship exists between angle of surface and number of spat caught.
- 13. This setting behavior of larvae is not due to a directive influence of light but to the swimming position whereby the larval foot projects upward.
- 14. A special type of manufactured spat collector, designed to take advantage of these habits, is now in use commercially.
- 15. In Oyster Bay the setting season consists of two distinct periods, 6 to 8 weeks apart. Secondary periods of setting may occur between these two or after the second.
- 16. Setting seasons in Oakland Bay and Skookum Inlet are similar to those in Oyster Bay. In Mud Bay seasons are shorter and maxima occur at different times.
- 17. Times of maximum frequency of setting fall within periods of spring tides when tidal range is greatest.
- 18. On cultch suspended from floats most spat are caught at a distance of 1 to 2 feet from the surface. This appears to be one reason why high grounds catch the most seeds. Floats filled with cultch are now being employed commercially to take advantage of these results.
- 19. Few spat are caught at low tide, most when the tide is about half high. Frequency of setting appears to be associated with swiftness of current.
- 20. Setting of larvae begins in the third tidal period following that during which spawning starts. Setting

later in the season appears to depend upon larvae remaining in the water from earlier spawning as well as upon larvae resulting from late spawning."

After Dr. Hopkins finished his work the laboratory work was carried on by the State of Washington, Fisheries Department. One of these laboratories was located at Burley Lagoon, Gig Harbor, Washington. A new and well equipped laboratory was recently constructed and is now in use, located near Quilcene on Hood Canal.

The State has also maintained a laboratory during a part of each year at Nahcotta, Willapa Bay, to serve the Pacific Oyster growers of that area in their biological problems.

15

Effect of Introduction of Pacific Oysters On Olympia Oyster Industry

THE HISTORY OF THE PACIFIC OYSTER (Ostrea gigas) to this date is another story. Yet, in completing this story of the Olympia Oyster it is necessary to explain briefly its relationship and effect upon the Olympia Oyster industry.

During the early years, prior to 1921, the Eastern Oyster (Ostrea virginica) had been shipped into the west, both in the shell for transplanting purposes, and as fresh opened oysters. The transplants were not a commercial success either in Willapa Bay or in Puget Sound. The waters on our coast are so different from those on the Atlantic Coast, that there was great mortality, and the oysters that lived did not grow or fatten satisfactorily.

As to the opened fresh oysters, while many people coming from the east preferred them, yet transportation in those days was slow and refrigeration methods poor. About the only Eastern oyster coming into the Puget Sound country came during the Christmas period, when a group of wholesalers would join in the shipment of one or more refrigerated car loads. But as the Olympia Oyster became more popular, and production increased to where demands could be supplied, heavy losses were sustained by spoilage of part of the car load shipments before they were disposed of. Therefore, the need was felt for another type of large oyster that was more hardy than the Olympia Oyster, that did not require the high state of cultivation necessary to grow the Olympia Ovster, and that could be grown on our own tide flats where the native or Olympia Oyster were in abundance.

Briefly, after some experimental test plantings, it was found that seed from Japan of species Ostrea gigas, could be successfully grown here. The first commercial plantings were made in Samish Bay in 1921. At first, these oysters were accepted very slowly on the markets. There were none planted in the Olympia Oyster areas for many years. The Olympia Oyster remained the favorite, even though the price was much higher. Finally a few test plantings were made and in 1936, these oysters had grown to maturity and spawned. A set of seed took place, mostly along the upper side of the diked areas. Any that had caught among the Olympia oysters were culled out, and those above the dikes were disposed of. There has been no set since that time in southern Puget Sound, either on or near the Olympia oyster beds.

As heretofore pointed out, the Olympia oyster has a very delicate organism, and is susceptible to environmental changes. Recently, as the trade wastes have reduced the Olympia Oyster population of the beds, portions of them have been planted with more hardy Pacific oysters hoping that they may survive and enable the oyster grower to continue to operate. If the Olympia Oyster should become extinct, the Pacific oyster will cover the areas which have been so carefully, laboriously, and at such a great expense, built up by its pioneers, especially adapted for the Olympia Oyster. These developments. so important to the culture of the Olympia Oyster, the grading and diking, are of little value to the culture of the Pacific oysters, as they seem to thrive exposed to the elements.

So I would conclude that the Pacific oyster has had no detrimental effect on the Olympia Oyster, but does stand by as a substitute in case the decline of the Olympia Oyster should continue into its extinction.

16

Decline of the Olympia Oyster Industry

I APPROACH THIS SUBJECT WITH THE SAME realistic attitude that I approach old age. It has come about so slowly, yet so surely. I am sure my old time friends and colleagues join me in this; the years have been filled with work but that work has meant satisfaction and happiness. The development of the Olympia Oyster as related herein constituted many challenges during the younger years of our lives. We were in those years always able to let out another link, so to speak, take on the extra work it involved, and through co-operative effort, meet the challenge. But as we have increased in years, the subject of our life's work has declined. The reason for this decline may be as futile to relate as the reason for old age. Yet, this historic story of an industry, a natural heritage given to the people by God for their good and pleasure, would not be complete without it. It was entrusted into the hands of those I have written about, to develop, protect, and hand down through posterity to future generations. In reporting our management of that trust, and that the decline has not been the fault of said trustees, I shall set out the facts.

I have already stated that from time to time pests, enemies of the Olympia Oyster, have appeared and how these pests have been treated as a challenge, the same as pests of upland crops. They have been kept down or destroyed. The star fish, the cup or slipper shell, the drill, caused a lot of work, but were overcome to an extent that they did not materially reduce the size of the crops.

The oyster growers feel that the decline has been caused by pulp mill waste from the mill at Shelton. To substantiate this belief a separate article has been prepared, citing authorities by biologists standing high in their profession and appearing in Public Documents, which co-ordinate with the opinion of the oystermen acquired by experience and observation. It will be found at the conclusion of this thesis. Appendix A.

As to the decline of the Olympia Oyster industry, I refer to a bulletin No. 49-A, published by the State of Washington in April, 1949. It was prepared by Donald L. McKernan, Vance Tartar, and Roger Tollefson, State Oyster Laboratory, Gig Harbor, Washington, and is entitled "An investigation of the decline of the Native Oyster industry of the State of Washington, with special reference to the effect of Sulfite Pulp Mill waste on the Olympia Oyster (Ostrea lurida).

In his introductory remarks the author expresses indebtness to Drs. W. M. Chapman and A. H. Banner, as well as to Messrs. John Glud and Lief Wahl for making

available their unpublished manuscripts; also to W. J. Waldrip for important data; to Professor Trevor Kincaid and others.

Under title "Recent Decline of the Native Oyster Fishery" they give data showing the production of Olympia Oysters from 1910 to 1946 inc. This data was secured from actual production records of the growers and shippers, and confirmed by the statistics of the fisheries. This data I have also confirmed by the use of the records in my possession, during the many years when the Olympia Oyster Growers were advertising and paying assessments on a bushel or sack basis by its members. I believe them to be substantially correct.

In 1910, the production was about 24,000 bushel. In 1915, it had increased to 36,000 bushel. In 1916-17, there was a very heavy freeze. The beds were then only partly under dikes, and the loss was heavy. Production went down in 1917 to about 18,000 bushel. From then on to 1924, there was a steady increase to approximately 50,000 bushel. It remained rather constant until 1926. From 1926 to 1932 it declined to 19,000 bushel, only 43% of the peak in 1924. From 1932 to 1936, it had climbed up again to about 25,000 bushel. From that time to the end of 1946 there was a decline to the 1910 level of 16,000 bushel.

The story from that time on, I have secured from the records of the principal growers, as well as my own personal contact with the industry. It remained fairly steady, on an average, although there were ups and downs of a few hundred bushel. until 1948 when there was a decided downward trend. By 1952, it had decreased to about 7,500 bushel, and during 1955, to about 3,500 bushel.

Although the demand for Olympia Oysters has been so great that the price has gone up to \$25 or more per gallon, yet the industry has operated at a loss during the past several years. A float load of oysters that formerly would cull out 18 to 20 bushel of good marketable oysters has in recent years only yielded from one to two bushel of poor quality oysters. The load consists principally of shell of dead oysters. Meats of the live oysters are poor.

The set of seed is very poor. There is no place where seed can be had, as this is the only place in the world where this species grow. The prolific State Reserve beds in Oakland Bay have been entirely destroyed.

The Fisheries report above referred to, printed in 1949, predicted serious trouble ahead. Their careful investigation eliminated by facts therein set out, all other factors than one; Sulfite Pulp Mill Waste. Oyster growers have felt in their hearts that this was true, and have been fighting for better controls of this waste for some twenty-five years.

In conclusion, I must say that The Olympia Oyster industry is very sick. In fact it is, at this writing, on its death bed, unless the knife that is stabbing at its heart can be removed. Those who love the Olympia Oyster, and who grew it still have hope. In nature there is always survival; no such thing as extermination of species by nature. But trade waste is man-produced poison. There must also be progress in industry. But man has been given intelligence to find ways and means to prevent the trade waste from destroying the natural resources so that all may survive and live together.

17

Other Oystermen I Have Known

AS HAS BEEN STATED, OYSTER BAY HAS BEEN from the beginning, the heart of the Olympia Oyster industry.

The Indians recognized that fact. Oysters abounded here in their native state. The tide flats were rather level, were well protected from the storms, and the oysters were easy to get. Therefore most of the natural beds had been occupied and claimed by Indians at the time of the passage of the Callow Act by the first State legislature. This qualified them as the purchasers of the Oyster land they were occupying.

Appearing there, we find their names, or the English names they had adopted on the original Plats of Oyster land in the office of the State Land Commissioner. Olympia Jim, Mary Olympia Jim, Dick Jackson, Sandy Wohaut, James H. Tobin, H. R. Weatherhill (whose wife was an Indian), J. A. Gale, Jack Slocum, Jim Simmons, and C. William Krise. Many of these Indians were personally known to me. So far as I can learn all of them have passed on. They were then people of the older generation and knew little or nothing of the industrial methods of the whites, and were not able to cope with them. Most of them soon sold their oyster beds and moved to their Indian Reservations; some to Squaxin Reservation, others to the Yakima Reservation, or elsewhere.

A few Indians were employed as oyster workers. For the most part they performed their work in a satisfactory manner when supervised. They were good boatmen, and very skilled in handling oyster floats with a pole. But in hunting or fishing season they would lose interest in their work; their eyes would turn toward the woods or down the Bay toward the fishing grounds. They would yield to the impulse to follow the life of their ancestors and no matter how important the work you were doing they would slip away without notice.

The Indians kept leaving gradually, and it was only a few years until they were practically gone. Charley Johns and his wife Mary, their son, Delbert, and his children and Jamison Peters, son of Joe and Molly Peters, are, I believe the only Oyster Bay Indians who have continued to work in the oyster industry to the present time. They were replaced mostly by the Japanese, who took readily to this work and were very satisfactory.

Dick Jackson was an interesting old Indian. For years

he lived on the land adjoining his oyster beds. After he sold his oyster beds, he went into the chicken business. The difficulty these people had in adjusting themselves to modern methods is illustrated by his failure. One day he told me, "Chickens no good for Indian. White man chickens get all time more, get much eggs; Indian chicken die, get no eggs. Oyster better for Indian. All time muk-a-muk (food)." So he retired to Squaxin Island Reservation where he could dig clams and catch fish. The last time I saw him I said, "Well, how are you today, Dick?" His answer, "Oh fine, only all time sick."

Sandy Wohaut, whose oyster beds I acquired after his death, gave me a bit of Indian lore. At the south end of his beds a narrow but deep gorge extends back into the upland. It has rather a level bottom, a fine bubbling spring, and alder trees. He said that when the Yakima Indians declared war on them all the Indians of Oyster Bay would come there, hide in this ravine until the raid was over, living on oysters and clams. They must have done that for many years, for I took many scow loads of oyster shell from there rotting with age, and spread them on the oyster beds. They proved to be good cultch.

I have already given the story and life of the early pioneers of Oyster Bay. It would not be a complete history of the Olympia Oyster without mention of others, who from time to time, have come into the picture; the younger generation. For instance, J. J. Brenner took his son, Earl G. Brenner, into his firm, after he returned from service at the end of World War I, about 1918. Earl gradually assumed his place of leadership. In turn Earl's two sons Earl R. and John, also took their place in the

firm. J. J. Brenner is still president, while each of the younger generations are officials of the corporation and perform the more active duties. They are all capable and highly respected by their fellow oystermen and fellow citizens. They have inherited fine qualities of thrift and natural ability from their ancestors.

Dave McMillin, a biologist and former scholar of Dr. Kincaid, formerly with the State Fisheries Department, is now General Manager of the Olympia Oyster Company, and B. L. Taylor, President of the Pacific Coast Oyster Growers Association, is Sales Manager. These young men are taking over the operation of the largest company in the oyster business in Puget Sound, in a very able way.

Any old timer will remember J. Y. Waldrip. He was one of the first to file on Oyster Land. When I first knew him, he was manager of the oyster beds for the Olympia Oyster Company, and was affectionately called "Old Joe." His son J. S. Waldrip has been closely connected with the Olympia Oyster business for many years, and was mentioned by Dr. Hopkins, Biologist, as being of much help to him in carrying on the experimental work for the Fisheries Department mentioned elsewhere. His son Nat is associated with him at this time, operating the land formerly owned by Jesse Bowman and family.

Will Waldrip, a cousin of J. S. Waldrip, was also an early employee of the Olympia Oyster Company. Later he puchased and operated the Weatherill beds. These beds have again changed ownership, are owned by Louise C. Wachsmuth of Portland, Oregon, and are operated by Ellison Brothers.

The Olympia Oyster Investment Co. of which Dr. G. W. Ingham was President for so many years, has now been consolidated with the Olympia Oyster Company, and his son, Dr. Reed Ingham, is president of that company.

Many others during the years have come and gone. I have briefly mentioned those who have been the back bone of the Olympia Oyster industry in Oyster Bay. In the decline of that industry some owners and operators of oyster land, in an effort to use the land to the best available advantage, have recently substituted the Pacific Oyster.

IN MUD BAY — ELD INLET

Mud Bay, in my judgement, ranks second in importance in the bays where native oysters were found in abundance, and in the place its oystermen and oysters have taken in the Olympia Oyster industry.

As in Oyster Bay, a number of the original applicants for oyster land titles were Indians. The names of Little Charley, Mud Bay Lewis, Mud Bay Tom, Mud Bay Charles, George Leshi, Mollie Peters, and Kate Charley, appear on the original plats in the state land office.

Likewise Indians all sold their oyster land to the white pioneers, and have long since passed away. Mollie Peters and her husband Joe retained their oyster land and have continued to operate it or lease it to others until their death. Their son Jamison and family have operated these beds to the present time.

J. J. Brenner Oyster Co. and the Olympia Oyster Company have owned and operated extensive beds in conjunction with their holdings in other bays. Their part

in this story has already been told, but there are others in Mud Bay that I have known and desire to mention.

Way back in the beginning of our history of the Olympia Oyster, Charley Brenner and his brother J. J. Brenner, became interested in the native oyster. They were among the first, if not the first, to see a future for this small but delicious bivalve. That was back in Territorial days. The United States Government owned the title, but the Indians had possession. So Charley and Jack formed a partnership and acquired possession of a tract of oyster land from an Indian, on the west side of Mud Bay.

Jack told me this story of their first experience in the oyster business. After examining the beds they decided they needed more seed on their ground. They knew of the abundance of seed in Oakland Bay. But how to get them to Mud Bay was the problem. There were no roads connecting these bays in those days. The only means of transportation was by water. There were no boats other than Indian canoes and row boats. There were no motor boats or power other than the strong muscle of man. They knew how to use a push pole, for they had rafted logs. So they built themselves two log floats and although the distance was long and the currents hazardous, they decided to undertake the voyage. They loaded the log floats with ovster seed, and with the aid of the currents and wind, and their push poles where they could reach bottom, they made the trip. It took three days, but they finally arrived in Mud Bay and the oyster industry was on its way.

Charley Brenner filed on oyster land on the East side

of Mud Bay. He developed it by use of a fine system of dikes, grew a good oyster, and continued to operate it until his death. His family still operates it.

Mud Bay was never the seed producing ground that Oyster Bay was. Years later than the incident above related, J. J. Brenner Oyster Company acquired their holdings in Oyster Bay. It was very good seed ground. I have often seen their long string of scows loaded heavily with oyster seed from their own beds, move out of Oyster Bay, towed by their own power boat, to be planted on their beds in Mud Bay. What a difference a new mode of transportation has brought about.

History records that Michael T. Simmons was among the first pioneers to settle in this region, and that Christopher Columbus Simmons was the first white male child to be born West of the Columbia River. It is therefore of interest to know that several of his relatives have become interested in oyster production in Mud Bay.

M. C. Simmons, a pioneer oysterman on the west side of the bay, was one of these. He died many years ago, but his widow carried on. Then their son Dudley continued until his death. Those beds are now owned and operated by Hershel H. Adams. On these beds are still found the Olympia Oyster, about the last in Mud Bay. ZaZa Simmons, another pioneer oysterman, is also related. He has been for many years an oyster grower and packer on Mud Bay. His shucking plant is located near his oyster beds.

The Ellison Brothers, Ray and Newell, are also related to the pioneer Simmons family through marriage. In 1924 they purchased a small tract of Mud Bay land

from the granddaughter of M. C. Simmons. Through industry and hard work they covered the mud with gravel from the beach, diked the land and planted Olympia Oysters on it. They soon erected a small opening and packing plant on the shore. They have prospered, and as they have prospered, they have increased their oyster beds in Mud Bay and acquired beds in both Oyster Bay and South Bay. At the same time they have remodeled their plant, which is modern, sanitary, and convenient, ranking among the best.

Ellison Brothers have struggled to prevent the decline of the Olympia Oyster, but gradually they have found it necessary to substitute the Pacific Oyster on some of their ground. In 1955, they harvested only 812 gallon of Olympia Oysters and 35,000 gallon of Pacifics.

Bob Bowers, son-in-law of Ray Ellison, became manager of Ellison Brothers after World War II. He and both Ellison Brothers have been leaders in the struggle to prevent pollution of oystering waters in Mud Bay, where the Olympia Oyster has declined until, unless something happens soon to restore the waters to their natural state, final extinction will have to be recognized.

IN OAKLAND BAY.

I have already spoken of the pioneer days and of some of the pioneers of those days, Joe Deer and family, Thomas O'Neil and family, A. L. McDonald and wife Margaret. Also of the important part the State Oyster Reserve of Oakland Bay has taken in the history of the industry.

Others have also operated Olympia Oyster beds there.

I have in mind my good friend James Mitchel, who for many years lived on the Narrows. Also Lawrence Gosser, who still lives above the Narrows; and George Yoshihara and family, who at one time had a well diked and heavily producing bed. All of these have had to abandon their beds. Not only the Olympia Oyster, but Pacific Oysters as well, have been wiped out by trade waste.

I have not spoken of the "Narrows" as an oyster producing area. The "Narrows" divides the upper and the lower parts of Oakland Bay. The waters are swift either on an incoming or an out-going tide, and although deeper than the other oyster ground, the conditions were ideal for the setting of seed. Tongs were used to remove the seed and oysters. In the early days, vast amounts of them were taken from these waters.

Recently I have received new evidence in regard to this. Angus O'Neil, son of pioneer oysterman Thomas O'Neil of Shelton, made available a copy of a special edition of the Mason County Journal. Grant Angle pioneer publisher, was then editor of the Journal. It bore date of August 11, 1905.

A full page was given to the Olympia Oyster industry and its importance to Mason County.

Several pictures illustrated the industry. One picture shows the Narrows. Sixteen oyster boats can be seen, each containing tongers for oyster seed.

Statistics are quoted showing that at that time 20,000 sacks, or 40,000 bushel of Olympia Oysters were being marketed from Mason County annually, besides many thousand sacks of seed oysters from the Narrows and other State Reserves. Further that several hundred men

were employed in the industry.

Above the "Narrows", when the tide is out, to this day can be seen the remains of many old dikes. This shows the result of dreams that did not come true. This system of grading and diking was done by early pioneers whose names I never knew. But it is evident that the dikes silted with fine mud and sand, that oysters did not do well, and that the owners became discouraged and abandoned them. It illustrates that conditions must be right to grow Olympia Oysters with success. If not, much hard work and expense will be wasted. This was true in many other places where native oysters were not found and artificial methods were used. The pioneers had to learn the hard way, the trial and error method.

IN LITTLE SKOOKUM BAY.

Little Skookum Bay is a long and narrow Bay, extending in a northwesterly direction into Mason County. It divides from Oyster Bay at Old Kamilche. The tidal waters run swift in places; in other places it widens out. Here the tide flats are more level and adaptable to the cultivation of oysters. Likewise, other natural conditions, such as salinity, water temperature, and oyster food, were always favorable both for seed setting and the growing of a good Olympia Oyster.

Native oysters were found there by the first pioneers. Ulyssus (Les) Young and Dan Lynch were the early pioneers of that bay. Dan Lynch passed away in the early days. His two sons, Dan and Jerry took over the oyster beds. They have both died, and the beds have been divided between Dan Lynch, Jr. and his sister, Mrs. Frank W. Bishop.

Les Young owned oyster land near Old Kamilche. Also a beautiful upland tract near the beds where he built his home. The bay widens out at his place into a cove, where there were native oysters. When the diking and leveling era arrived he, in common with other oystermen, began to think of expanding his oyster land area. He was faced with a very difficult problem; much more so than in those areas in the upper waters of Oyster Bay and Mud Bay where the tide flats were level. But Les was a hardy pioneer, and a lot of hard work did not discourage him.

In planning this development, he did a wonderful job of engineering. The results showed that he had much knowledge of tidal flow and of the effect of the winds and storms. Also of the dike level necessary to get best results. One of his greatest problems was to construct the dike in such a way that the silt or mud would not collect behind the upper dike, and so the currents would flow over the beds in such a way as to deliver food to the oysters. These problems were caused by the contour of the cove.

To accomplish these things it was necessary to put in a long, curved, high dike. In fact, it was too high to construct with any material used in those days, so he made use of the nearest thing at hand — a sort of clay, gravel and mud. Other oystermen predicted it would wash out, but Les was sure of its holding qualities. He also knew how the tide current flowed, and from whence the winds came. (See picture).

It required a tremendous amount of material both for the dike and the long deep fill behind it. This was all

done by hand labor, loading on log floats or scows from the shore, polled out and dumped at high tide. Finally it was leveled up, the dike closed and oysters planted. Les produced a fine oyster as long as he lived and his stepsons, Herbert, Humphrey and Arthur, have cultivated oysters there to this day.

The J. J. Brenner Oyster Co. also owned and developed oyster land in that bay, and still operates them.

IN NORTH BAY.

North Bay was not extensively developed in the early days, and a large part of it was set aside by the State as an oyster reserve. Those who did try to develop it had great difficulties, and the quantity of oysters shipped from there was relatively small.

The streams flowing into this Bay are small, but in the rainy season they overflow. They wash silt and sand down over the beds which covered the oysters.

Finally Humphrey Nelson, of Little Skookum Bay, largely solved this problem by constructing an artificial current system which flushes silt out of the dikes. He also successfully used lath, covered with a thin coating of cement, and suspended above the bottom. Olympia Oyster seed set on this and in a short time the lath disintegrated and the oysters dropped onto the ground. He grew some good oysters where others had failed.

IN SOUTH BAY.

South Bay had but a small area where Olympia Oysters thrived. That part was developed. Harry Allen owned and operated the beds for some years, then sold to Everett (Pete) Maynard. Pete has a few Olympia Oysters at this time.

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Olympia Oyster Peculiarities.

THE AVERAGE PERSON WOULD NOT KNOW ONE Olympia Oyster from another if they saw them in the shell. Yet, there is a difference; each locality produces an oyster that is slightly different. This difference was soon learned by customers who bought them in the shell. They could look at an oyster and tell the ground on which it was grown. This was very important to them, for some oysters opened easier than others, and some oyster beds produced oysters that were fatter than others; had more meat content. A hard shell oyster was a better shipping oyster, but took longer to open. From a fat oyster the customer got more oyster meat per bushel or sack.

The appearance of the oyster meat was also a factor. The oysters grown on beds in one locality have a very

dark rim or mantle; from another locality the mantles are much lighter in color. Each customer had his preference. Many famous oyster houses where Olympia oysters were served advertised the special quality of the oysters they served because they came from a certain selected oyster bed. This made it difficult for the grower or packer when the trade became too particular. But when production began to decline and Olympia Oysters became scarce, these difficulties disappeared. Then the question asked by the customers was, "Can you supply us with Olympia Oysters?"

Yes, each oyster has its own personality.

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Benefactors

F. W. MATHIAS

SOME PEOPLE JUST DO THINGS BECAUSE THEY love to do them. Others because they have a financial interest in what they do. Such is the relationship between F. W. (Mat) Mathias and the Olympia Oyster. He has never owned or operated an Olympia Oyster bed nor had any financial interest in the packing or distribution of them. Yet, he has contributed generously of his time and energy.

Mat was Secretary of the Olympia Chamber of Commerce for thirteen years. Before he came here, he was a booster for Olympia Oysters because he was fond of them as a food. When he accepted the said position in 1941, he took up as his keynote the advancement of Olympia's expansion by the use, in all the city's publicity, of the

phrase "Olympia, the home of the Olympia Oyster." This received popular approval, and many an article was written and published in magazines and newspapers which gave extensive advertisement to both. Mat joined the Olympia Oyster Growers Association. He attended our meetings regularly, and helped us to solve our problems. He served on many important committees. He has a sense of compatability and diplomacy, balanced with good judgement. Although he had no financial interest he paid his dues, performed important duties requiring travel expense without remuneration.

This continued, not only during the boom days of the industry, but during its decline to the present time. He has fought for the protection of the natural resources of our state, our oysters, clams, fish and other sea food, but especially the Olympia Oyster. He contends that the balance of nature in our waters must not be disturbed, and that trade waste, especially sulfite liquor, should not be permitted to enter our public waters. He has served on our Pollution Committee for years.

The Olympia Oyster industry owes Mat Mathias a great deal for his unselfish and very able service.

TREVOR KINCAID, SC. D., PROFESSOR EMERITUS, UNIVERSITY OF WASHINGTON

and Consultant Washington State Dept. of Fisheries

This is another man who has been deeply interested in Olympia Oysters most of his life, but has had no financial interest in them. He has had a long and illustrious career in the University of Washington, as is witnessed by his title. He has risen to the top. When he retired

he was recognized as an eminent biologist authority throughout the United States. The Olympia Oyster was one of his favorite subjects. He graduated hundreds of students from his department. Many of them have bebecome well known biologists for other states, some for the Department of Fisheries of the United States Government or the Fish and Wild Life Department. Several have found their place with the Washington State Department of Fisheries. Others have become employed in the oyster business in this state. Many of these biologists have devoted themselves to oyster biology in this state to the Olympia Oyster. So directly and indirectly, Dr. Kincaid has had a tremendous part and influence in that industry.

I have been told by those who attended his lectures that they were something to look forward to. He had a keen sense of humor, and a fitting story to illustrate each point. This was true also in his public speaking. I have many times joined his audience in laughter. I can well remember the first time I saw Dr. Kincaid. It was about the year 1905. I was driving a horse and buggy near the Harry Weatherill oyster bed. Looking through the woods, I saw a young man with a pole in his hand; on the end of the pole was a net. His heavy black hair was disheveled: he wore no hat: he was waving the pole wildly in the air as he ran through the woods. Somewhat concerned, when I arrived at the Weatherill home I told Mr. Weatherill of the incident, and asked if there was a wild man in their vicinity. He laughed and replied, No, that is young Kincaid; he is just catching butterflies." He, at that time, lived in Olympia, where his father was a Doctor. Dr. Kincaid was for some years the City Health officer. It was long after that when I met Trevor as a biologist, teaching in the University. From that time on, he has been a close and beloved friend.

He was not only a close friend of the Olympia Oyster, but of those who were engaged in the Olympia Oyster industry. He not only lectured about the Olympia Oyster but wrote many articles about them for publication. His advice was eagerly sought and followed by the oyster growers.

FINALE

In closing, I wish to acknowledge and express my appreciation to those who have assisted me in this attempt to give a true and complete history of the Olympia Oyster industry.

I also wish to apologize for any errors or lack of clarity in composition. To consolidate fifty years of history of an industry as complex in its activities as that of the Olympia Oyster, with a balance of importance given to each of its problems, and keep within reasonable limits as to length, has taxed my memory and ability.

I also wish to extend my deepest appreciation to the Olympia Oyster Growers Association and to all those engaged in the industry for the friendship I have enjoyed through the years. Also the honor they have bestowed upon me by so many times delegating me as their representative in matters of great importance to the industry mentioned. These things have inspired my best efforts, enriched my life and given me happiness.

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APPENDIX A

The Olympia Oyster and Pollution

THIS CHAPTER WILL TREAT ONLY WITH THE pollution agents discharged into lower Puget Sound as industrial waste and their deleterious effect upon the Olympia Oyster with the resultant decline in the Olympia Oyster industry.

To Olympia Oyster growers today, and the old timers before them, it is evident that pollution is the principal cause of the depletion of these delicious bivalves.

Before the white man appeared on the scene, these oysters had flourished for centuries in this, their native habitat. Early white settlers harvested the wild crops for over 40 years until the diking system was developed and vast stretches of tide flats were transformed into tidal pools. With the advent of the diking system, the pro-

duction of Olympia cysters increased annually and from 1924 to 1928 an average annual yield of 48,000 bushels was attained. (1)

In 1927, a sulphite pulp mill was constructed in Shelton, Washington. The mill was located along the city's water front and the wastes from the pulp manufacturing process were discharged into Oakland Bay. Pulp production at this mill averaged 45,000 tons annually until 1934, when production was increased to 60,000 tons annually.

By 1943, production had risen to 74,000 tons annuallv (1). It is estimated that during the first years of operation, the mill discharged 280,000 gallons (2) of waste liquor daily into the water of Oakland Bay. This was in addition to an estimated 12 million gallons of "white water" containing bleaching compounds and other chemicals. The results of this dumping of pollutants into oystering waters came swiftly and were devastating to the Olympia Oyster Industry. In the period between 1927 and 1933 Olympia Oyster production declined 57% from the 1926 peak to a low of 19,000 bushels. Between 1931 and 1934 the pulp mill disposed of its liquor into Goose Lake, a small body of water west of the city of Shelton, and in settling ponds on Scotts Prairie nearby. A temporary trend toward recovering oyster production began in 1934 and reached 23,000 bushels in 1936. This small recovery peak was nullified when waste sulphite liquor began finding its way from the Goose Lake area, down Goldsborough Creek into the waters of Oakland Bay.

⁽¹⁾ Washington State Fisherier Bulletin 49-A

⁽²⁾ U. S. Fisheries Bulletin No. 6 ___ 1931 (Page 177)

Experimental oyster plantings in Oakland Bay, financed by the pulp mill, had been producing some oysters during the period of dumping the liquor to Goose Lake; but when the liquor began returning down Goldsborough, these experimental beds were wiped out and the experiment was given up as a failure.

The Washington State Oyster reserves, which prior to the advent of the pulp mill, had been producing two-year-old Olympia Oysters for seed were never again able to furnish seed and to this day produce nothing. Thus, an important source of revenue has been lost to the state.

The following table and quotations from Washington State Fisheries 36th and 37th Annual reports throw much light on the condition of the State Oakland Bay Oyster Reserves.

Year	No. of Sacks	Selling Price
1925	3,467.4	\$6,934.80
1926	1,368.1	\$2,736.20
1927	1,894.2	\$3,788.40
1928	2,239.3	\$4,478.60

"According to the general custom in handling the seed in Oakland Bay beds, after the 1927 seed was sold from the upper dikes, the 1926 catch of seed in the beds close to the narrows was moved into the upper dikes and this seed in turn produced the two-year-old stock sold in 1928. The lower beds left open for the setting of spat in 1927 did not produce any seed and again last season, 1928, no set developed, likewise in 1929; to date indications point to another barren season. Mill operations were not fully underway in 1927 until after the usual oyster

spawning period but the absence of any spawning in 1928 and the indications for a barren season in 1929 have indicated that the wash water and considerable diluted liquor discharged from the Rainier (1) plant into Oakland Bay might be the contributing factor which is upsetting oyster spawning conditions of the state owned reserves and private oyster beds." (2)

Experiments with Olympia Oysters and sulphite liquor were carried out by the U. S. Bureau of Fisheries in 1930, at the request of local oystermen, under the direction of Dr. A. E. Hopkins, recognized the world over as one of the most brilliant acquatic biologists available. Dr. Hopkins summary states in part, "The dilution at which sulphite waste liquor toxicity ceases, when long periods of exposure are considered, cannot be stated. Only complete exclusion of liquor from oyster producing waters can be considered as safe." (3)

Waste sulphite liquor contains also certain wood sugar components which provides nourishment to a chain diatom that grows naturally in the waters of Puget Sound.

This diatom (Melosira Borreri) normally "blooms" or grows heaviest in the early springtime when nutrient matter is conveyed to the Puget Sound waters by heavy spring rains. When fed by waste sulphite liquor this diatom will develop abnormally throughout all four seasons. These growths have at times gathered in some

⁽¹⁾ The name was later changed to "Rayonier"

⁽²⁾ Washington State Fisheries Annual Reports Nos. 36 and 37

⁽³⁾ U. S. Bureau of Fisheries Buttetin No. 6 - 1931

Olympia Oyster dikes to a depth of 6 inches. Entire beds of Oysters have been smothered by a heavy, brown blanket of Melosira, which dense growth Biologist Harvey C. McMillin describes as indicating a disturbed condition of the water in which it normally grows in small amounts. (1)

In view of the terrible losses of Olympia Oysters, many Olympia growers sued Rayonier for crop and tideland damage caused by waste sulphite liquor. Out-of-court settlements were made amounting to thousands of dollars, most of which the oystermen re-invested in improving their oyster ground in the mistaken belief that pollution would be abated. The citizens of Shelton contributed at least \$150,000 dollars to pay damage settlements for the pulp mill when the mill threatened to close its doors. These citizens have never been reimbursed for their contributions to the pulp mill cause.

Wartime conditions resulted in temporary closure of the mill in August 1943. It remained closed until October 1945, when it re-opened and ran at a reduced scale, burning the great bulk of its liquor in a newly constructed evaporator disposal unit. (2) By fall of 1945 the Olympia Oyster beds were beginning to look more productive, the seed catch each year was looking better and the oystermen at last looked forward to an oyster production sufficient to fill their many orders. Pulp production at the mill began once more to climb and with the increased production came an increase in the pollutional load discharged to Oakland Bay. In 1948, production at the mill

U. S. Fisheries Bulletin No. 6 — 1931
 Washington Fisheries Bulletin 49-A

was doubled and the State Reserves in Oakland Bay, which had started a comeback, were again wiped out.

Oystermen in adjacent bays began to experience heavy mortalities in the lower dike levels and even the clams began to come up out of the ground and die on the beaches.

In 1949, the State Fisheries Department published Bulletin 49-A which contained data on a study conducted by State Shellfish Biologists over a period of two years on the effects of sulphite waste liquor on Olympia Oysters. The summary of their findings is presented below:

- "1. During the period of 1927-1945 an unusual decline occurred in the Olympia oyster fishery of southern Puget Sound. There were years in which young oysters failed to set in areas where a regular spatfall had previously been the rule. Gallons of meats obtained per sack of unshucked oysters decreased during this period by 25 per cent. The mortality of mature oysters increased from 10 to 20 per cent (normal) to 30 to 50 percent and higher. Finally, the over-all production of the industry fell to 43 per cent of its previous value.
- 2. A number of possible causes of this decline were investigated and found to be inadequate to explain any but a small fraction of this alarming decrease. Sulphite pulp mill waste alone appeared to offer a sufficient cause.
- 3. Accordingly an experiment was performed to test the lethal effect over a long period of time of very low concentrations of from 13.0 to 128.9 parts per million of S. W. L. in flowing sea water for 575 days. In that time mortalities range from 98 per cent in the highest concentra-

tion to 70 per cent in the lowest, while two controls showed death of oysters amounting to 52 and 53 per cent respectively. Statistical analysis of these results indicated an undeniable correlation between the mortality of the oysters and concentration of S. W. L. even at these low concentrations; concentrations at least as low as 13.0 ppm. are inimical to continue Olympia oyster culture.

- 4. Tidal current studies showed that fresh mill wastes from Oakland Bay could reach any of the oystering areas in lower Puget Sound within a period of a few days.
- 5. It is concluded that pulp mill wastes originating at Shelton, Washington, were the most probable cause of the alarming decline in oyster production noted above for the following reasons:
- A. All other possible factors were investigated and were found not to have constituted sufficient cause for the depletion of the fishery.
- B. The time of pulp mill operation is correlated with the period of decline; the shut-down of the pulp mill was followed by definite improvement in oyster sets and fatness of mature oysters.
- C. Concentration of S. W. L. as low as 13.0 ppm. were experimentally demonstrated to have indisputable deleterious and lethal effects on Olympia oysters.
- D. Tidal currents showed that pulp mill pollution from Oakland Bay could reach Oyster Bay on one tide and other oystering areas within a few days. It is obvious that Oakland Bay itself would become polluted.
- 6. A modification of the Pearl-Benson test is presented, consisting essentially in the application of photoelectric calorimetry to the reading of the treated samples

together with a method of minimizing the effect of varying natural water color.

- 7. Employing this method of analysis a comprehensive study of the waters of the region was made during the period of mill closure. The data gathered will make possible accurate determinations of very low concentrations of S. W. L. if present in the future.
- 8. It is recommended that no S. W. L. be permitted in Olympia oyster waters since the hypothetical threshold of tolerance lies between concentrations of zero to 13.0 parts per million.
- 9. Provided this pollutant can be kept from the waters of southern Puget Sound, the native industry should-with proper management practice--recover and yield considerable greater annual harvests of oysters than has been possible during the past twenty years." (1)

As this is written, Olympia Oyster production has declined to an all time low. It is estimated that 1957 production will be less than 1,300 bushels with practically no production possible in 1958.

The Washington State Pollution Commission is reporting sulphite liquor concentrations over Olympia Oyster beds and in practically all the waters of lower Puget Sound. These concentrations are correlated directly with the operation of the Shelton pulp mill. Unless firm decisive action is taken by responsible state authorities within the next few months, the Olympia Oyster will go on down to virtually complete extinction and another of our great natural resources will be lost for all time to come.

(1) Washington State Fisheries Bulletin No. 49-A







