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LOWER CHINOOK
ETHNOGRAPHIC NOTES

by

VERNE F. RAY

Indian Arts and Crafts Board



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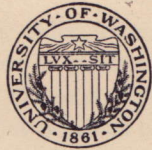
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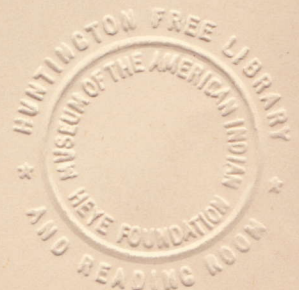
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PREFACE

It has been assumed since the late nineteenth century that the Lower Chinook were an extinct people. In 1890 and 1891 Dr. Boas obtained meager but invaluable ethnographic data from Charles Cultee, thought to be the sole surviving member of the group capable of furnishing reliable information. It appeared futile to hope for subsequent additions to Dr. Boas' data. It was consequently with great interest but slight credulity that I heard reports, while in the Willapa Bay region in 1930, that one or two aged Lower Chinook were yet surviving. Upon further investigation the reports not only proved sound but led to the work upon which this paper is based. Three survivors were found but only two of them were usable as informants. The recoverable data proved discouragingly meager, though extensive enough to furnish a general setting for the culture and answer some of the significant problems. This piece of work is not presented as a complete ethnography in any sense; it pretends merely to make available those gleanings that were obtainable at this late date.

The summer of 1931 together with a part of the summer of 1936 and several brief intervening periods were spent with Lower Chinook informants. All work was undertaken for the Department of Anthropology of the University of Washington. The informants furnishing the information were principally Emma Millet Luscier (qwa'l'wax^u) and Mrs. Bertrand (pa'tra'n). Mrs. Luscier proved to be an extremely intelligent woman and an excellent informant considering the remoteness of the culture. It was she who furnished the bulk of the material. She was still living in 1936, aged about sixty-five.

Mrs. Bertrand was considerably older. According to her daughter, Mrs. Riggs, she was born in 1843. This could not be far from correct. Mrs. Bertrand spoke no English; her daughter interpreted. She was a less facile informant than Mrs. Luscier but her greater age rendered her services of unusual value. Additional information relating to these informants will be found throughout the following pages. See especially the genealogies.

I have leaned heavily upon the earlier sources for supplementary material, particularly in the chapters on material culture. Swan's acute observations and Lewis' and Clark's extensive commentaries have been especially helpful. Of the early fur traders, Franchere is by far the most reliable. Brief observations by Gray, Boit, and Broughton are of peculiar value because these men were the first whites to visit the Chinook (1792). White contact was almost continuous from that time forward; for this reason the student interested in Chinook life should acquaint himself at least superficially with the history of the early years.

In an effort to amplify further the data on material culture I corresponded with all the leading European museums as well as those in America, but the results were almost wholly negative. Apart from the small collection of Chinook specimens at the Field Museum of Natural History in Chicago nothing of consequence was unearthed. The Musée d'Ethnographie of Paris has a few weapons and the National Museum of Washington possesses unsegregated material from the Lewis and Clark expedition but neither of these collections was available at the time.

The phonetic system used herein is that described in *Phonetic Transcription of American Indian Languages*. Not all of the transcribed words are Chinookan; some are Salishan. The only native dialects spoken in the area today are Salishan, though a few Chinookan loan words are still current. Therefore I have seen fit to record whatever term the informant was able to furnish, though preferably the Chinookan form, where it seemed that such a reference might be of value.

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CONTENTS

	PAGE
Preface	29
Introduction	35
The Lower Chinook and Their Neighbors	35
Villages	38
Physical Environment	42
The Pattern of Society	48
Class and Rank	48
Slavery	51
Political Organization	55
Warfare	59
Formalized Warfare	59
Raids	62
Society and the Individual	63
Genealogies and Names	63
Pregnancy and Birth	66
Puberty	71
Marriage	72
Death and Interment	74
The Guardian Spirit Complex	78
The Quest	78
The Spirit Dance	81
Shamanism	85
The Secret Society	89
Feasting and Gift-giving	93
Diversions	96
Games and Gambling	96
Smoking	97
Commerce	99
Trade	99
Transportation	101
Fishing and Sealing	107
Fishing	107
First Salmon Ceremony	110
Shell-Fishing	112
Sealing and Whaling	113
Hunting	116
Vegetal Foods	119
Roots	119
Fruit	121
Stems and Nuts	123
Domestic Life	124
Dwellings	124
Sweat Houses	127
The Domestic Group	127
Preparation of Food	129
Boxes, Bowls and Spoons	130
Basketry and Matting	131
Miscellaneous Implements	135
Dress and Ornament	137
Clothing	137
Body Care, Painting and Tattooing	139

CONTENTS—Continued

	PAGE
Mythology.....	142
Bungling Host.....	142
Wren Kills Elk.....	146
Pheasant, Coon and the Acorns.....	148
Wildcat Rescues his Sister from Bear.....	151
Bibliography.....	157

FIGURES

1. Map of the territory of the Lower Chinook about 1800.....	37
2. Weapons. (A) Club; (B) Double dagger; (C) Short blade; (D) Long blade.....	61
3. Cradle, board type.....	68
4. Examples of head flattening. (A) Young man; (B) Old man; (C) Woman.....	69
5. Dugout cedar cradle. (A) Top view; (B) Side view.....	69
6. Dugout cradle with hood.....	70
7. Head flattening pad.....	70
8. Elevated box interment.....	75
9. Canoes. (A) "Chinook" or Nutka type; (B) Cutwater type; (C) Double cutwater type, with raised figures.....	102
10. Canoe profiles. (A) River canoe; (B) Sealing canoe; (C) Shovel nose canoe.....	104
11. Paddles. (A), (B), (C) Notched blade types; (D) Type used with shovel nose canoe.....	105
12. Canoe bailers, three types.....	106
13. Digging sticks. (A) For shell-fish, large; (B) For shell-fish, small; (C) For root digging.....	112
14. Horn bowl.....	131
15. Designs from horn bowls.....	132
16. Mat creaser.....	134
17. Mat creaser.....	134
18. (A) Shuttle; (B) Bone mat needle; (C) Wooden mat needle.....	135
19. Basketry hats. (A) With round knob; (B) With conical knob.....	138

PLATES

Emma Millet Luscier.....	Frontispiece
Plate 1. Portrait by Paul Kane.....	161
Plate 2. Interior of a Clatsop house.....	162
Plate 3. Upper: House interior. Lower: Canoe interment.....	163
Plate 4. Upper: House exterior. Lower: Salmon fishing.....	164
Plate 5. Basketry.....	165

TABLES

1. Meteorological Data for Representative Stations.....	47
2. Genealogy of Concomly and Mrs. Bertrand.....	63
3. Genealogy of Emma Luscier.....	64
4. Genealogy of John kəl't'p.....	65
5. Genealogy of Cultee.....	66
6. Genealogy of Willie Andrews.....	67
7. Genealogy of Mrs. Charles Winn.....	67

LOWER CHINOOK
ETHNOGRAPHIC NOTES

INTRODUCTION

THE LOWER CHINOOK AND THEIR NEIGHBORS

The name Chinook is derived from the Salishan term t'sinu'k of the Chehalis dialect.¹ The Chehalis appear to designate by the term a dialect group rather than an ethnic group.² The Chinook themselves had no designation for a larger political unit than the village;³ therefore the application of this name or any other to a group of villages or an area is an arbitrary one, whether it be by neighboring peoples or by the ethnographer.

Yet there is reason to believe that the people of a village or villages on the north side of the Columbia river near the mouth, did use the term Chinook in self-reference in one way or another. All of the early writers speak as if the term were so used, including Captain Gray, commander of the first vessel to enter the Columbia, and his mate, John Boit. The official log book of Gray's vessel contains this entry: "At one, (from its being very squally,) we came to, about two miles from the village, (*Chinouk*,) which bore west-south-west."⁴ In a contemporary journal, Boit writes: "Shifted the ship's berth to her Old Station abreast the Village *Chinoak*, command'd by a chief named *Polack*."⁵ These statements are unequivocal and the name could hardly have been heard from any but the local Chinookan-speaking peoples. Later the same year (1792) Lieutenant Broughton, commanding Vancouver's Tender *Chatham*, explored the Columbia river. Included in his report is this phrase, "the deserted village called by the natives *Chenoke*."⁶ Thus we have a definite confirmation of self-reference. Lewis and Clark corroborate Broughton on this point. In the journal entry for November 15, 1805, Clark states that the Indians of Baker's Bay "call themselves Chinooks," and two days later an entry reads, "the name of the nation is Chin-nook."⁷ These are the first times that the term appears in the journal, though later it is frequently used. It was not until several days after these entries that the explorers were visited by a party of Chehalis Indians (November 21).⁸ The village referred to by Gray, Boit, and Broughton is probably that called *qwatsa'mts* in Chinookan. By the time of Lewis and Clark "Chinook" seems to have had a wider reference. From that time forward the term came to be used in a more and more expanded sense.

These facts seem to admit of but one interpretation: Before the first appearance of the whites the term Chinook had already become established in Chinook

¹Cf. Boas, *Handbook*, p. 563; Boas, *Chinook Texts*, pp. 5 f.; Boas, *Kathlamet Texts*, p. 6; Hodge, pt. 1, p. 272; Pilling, p. v.

²Pilling refers to the use of the term Chinook by Gallatin and comments that "though based upon the speech of but a single tribe, it was adapted by him as the name of a family of languages" (*loc. cit.*).

³See political organization.

⁴Greenhow, p. 435.

⁵Boit, p. 248.

⁶Vancouver, vol. 2, p. 71.

⁷Thwaites, vol. 3, pp. 226, 229.

⁸*Idem*, p. 241. Lewis and Clark refer to the Chehalis as the Chiltz, Chilts, etc.

jargon as a loan word from the Chehalis Salish.⁹ At first it was applied to a single village only; later it was extended to include several adjacent villages; and finally it came to denote all the Chinookan-speaking peoples of the lower Columbia and Willapa Bay. But the term and the successively extended applications were limited to the jargon both in use and in conception.

It seems that such a sequence of events would have developed very naturally out of the circumstances. In attempting to converse with the whites, the natives unquestionably would have used the simplest and most widely understood tongue known to them, the jargon.

As the whites required wider terms of reference than village names, the jargon term might well have been expanded; a Chinookan term would have been more resistant. Lewis and Clark, acquainted with natives organized in tribes and accustomed to speaking of "nations," doubtless contributed to the extension of the term.

In the early nineteenth century Chinookan-speaking peoples occupied both sides of the Columbia river from the mouth to about fifty miles above (see map, figure 1). At that point the Klatskanie, an Athabaskan-speaking people, held the south bank for a short distance, while the north bank belonged to the Cowlitz. It has been generally assumed that the Chinook speech was continuous along both sides of the river from the mouth to above The Dalles, but specific names, descriptions and locations of Klatskanie and Cowlitz villages were furnished by Mrs. Luscier, who declared that they were not merely recent encroachments.¹⁰

In addition to the river territory, peoples of Chinookan speech also held Willapa Bay including the northern shore. Before 1850, when the Chinook numbers were already thinning, Chehalis began to drift into the northern bay region. This resulted in a great confusion among early writers as to what people held this territory.¹¹ But Chinook chiefs continued to represent the various villages¹² and to the native mind it remained Chinook territory without question. My informants were unanimous and emphatic on this point, including Chehalis now living at Bay Center.

As intimated, the Salish-speaking Chehalis adjoined the Chinook on the north. To the east lay the Athabaskan-speaking Kwalhiokwa (called *sxula'umc* by the Chehalis; the Willapa by Gibbs). They occupied the uplands of the Willapa Hills, approaching the bay no closer than the fork of the Willapa river.

⁹This of course requires a pre-white origin for the jargon, and at the same time lends strong support to the arguments for such origin. It is true that the bulk of the voluminous literature treating Chinook jargon favors a post-white origin but these judgments have come preponderantly from amateurs or non-linguists (for bibliography see Pilling). Gibbs points out that Vancouver's officers in 1792 found many Nutka words understood at Grays Harbor and adds that "On the arrival of Lewis and Clark at the mouth of the Columbia, in 1806 [*sic*; read 1805], the new language [jargon], from the sentences given by them, had evidently attained some form" (quoted in Pilling, p. v). Alexander F. Chamberlain writes (in Hodge, pt. 1, p. 274) "there can be no doubt that the jargon existed as an intertribal medium of communication long before the advent of the whites." Dr. Melville Jacobs, who has made the most careful and extensive recent study of the jargon (see Jacobs, *Notes*, and *Review*) expresses complete conviction that the jargon long antedates the whites (personal communication).

¹⁰See villages, following. Cf. Thwaites, vol. 3, p. 295; vol. 4, p. 213.

¹¹Summarized in Spier (*Tribal Distribution*).

¹²The last chief of the last remaining native village on the north side of Willapa Bay, to'q, was Chinook; see villages, following, and genealogy, table 3.

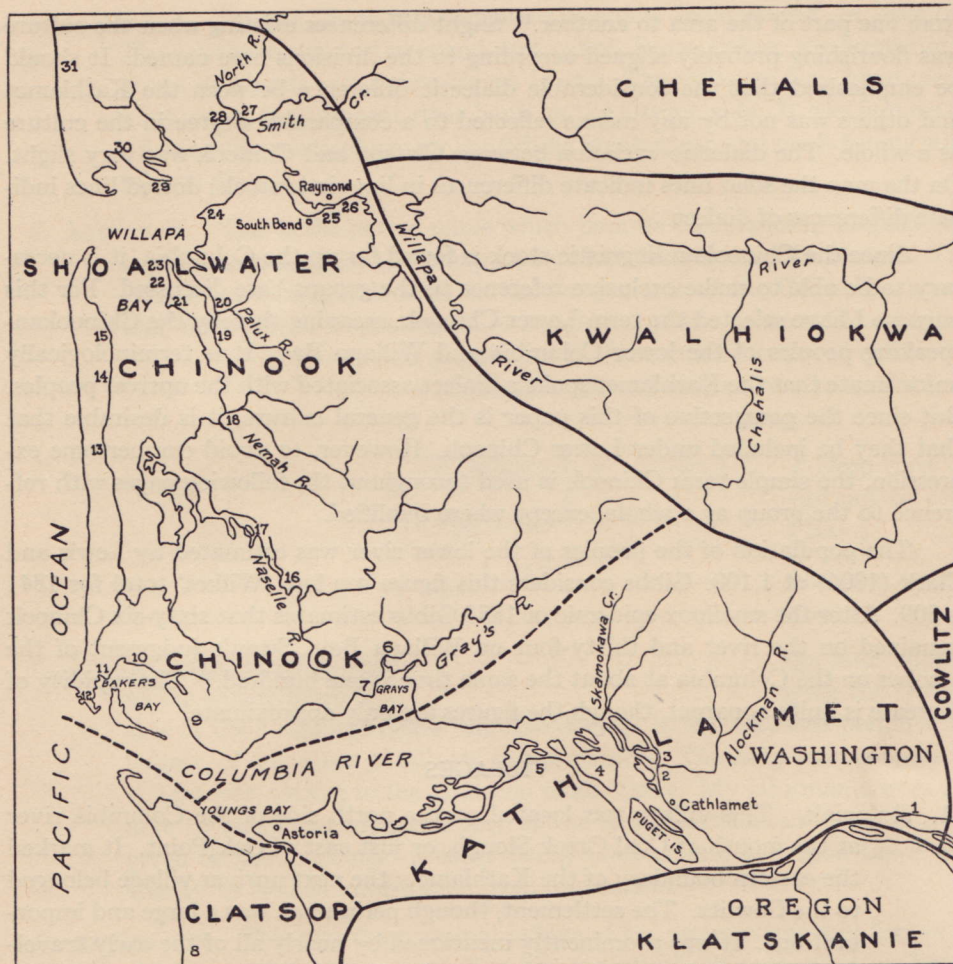


FIG. 1. Map of the territory of the Lower Chinook about 1800. Figures represent villages; see list in text. Solid lines indicate linguistic stock boundaries; broken lines indicate dialect boundaries.

The Chinook on the south side of the river near the sea have been known as the Clatsop, after the name of one of their villages. To the south of them were the Salish-speaking Tillamook. The exact boundary between the two is not known but it did not lie far south of the map border.

On the map are indicated the regional names Clatsop, Chinook, Shoalwater Chinook, and Kathlamet. These are not all of the same order or origin. Clatsop is a customary term of distinction; Chinook indicates the region to which reference is usually made by the unmodified term; Shoalwater Chinook is primarily a convenient geographic distinction; Kathlamet is first of all a dialectic division.¹³

These groups together form a single ethnic unit. Cultural differences from group to group were very slight. Constant intercourse and intermarriage occurred

¹³See Boas, *Kathlamet Texts*.

from one part of the area to another.¹⁴ Slight differences existing when the culture was flourishing probably aligned according to the divisions here named. It should be emphasized that the considerable dialectic difference between the Kathlamet and others was not by any means reflected to a comparable degree in the culture as a whole. The dialectic variation between Clatsop and Chinook was very slight. On the map the solid lines indicate differences in linguistic stock; dotted lines indicate differences of dialect.

Since the Chinookan linguistic stock is found far up the Columbia, it is necessary to be able to make exclusive reference to the groups here discussed. For this purpose I have selected the term Lower Chinook, meaning thereby the Chinookan-speaking peoples of the lower Columbia and Willapa Bay. It is terminologically unfortunate that the Kathlamet spoke a dialect associated with the upriver peoples. But since the perspective of this paper is the general culture, it is desirable that that they be included under Lower Chinook. However, to avoid cumbersome expression, the simple term Chinook is used throughout the following pages with reference to the group as a whole, except where qualified.

The population of the peoples of the lower river was estimated by Lewis and Clark (1806) at 1,100. Gibbs considers this figure too low. Wilkes' total for 1841 is 509. After the smallpox epidemic of 1853 Gibbs estimates that sixty-six Chinook remained on the river and thirty-four on Willapa Bay. Swan's judgment of the number on the Columbia at about the same time is one hundred.¹⁵ The rapidity of decrease is quite apparent, though the figures are only approximate.

VILLAGES

1. *ka'naiak*. This village was located on the north side of the Columbia river at the mouth of Coal Creek Slough, or just east of Oak Point. It marked the eastern boundary of the Kathlamet; the next upriver village belonged to the Cowlitz. The settlement, though peripheral, was a large and important one. It was prominently mentioned by nearly all of the early travelers. It owed its popularity to the excellent hunting and fishing in the vicinity. The name is found in many variant renderings; Gibbs' spelling, *Cooniak*, is perhaps most common.
2. *lo'xumn*. The north side of the Columbia, opposite Puget Island, was the site of this settlement. It was near the mouth of a small stream now called Alockman (Alochaman) creek, after the village name. It was noted for its beaver and otter hunting grounds and for its fine fishing.
3. *wa'qaiya·qam*. This Chinookan village name provided the modern term *Wahkiakum*. The settlement was located across Alockman creek opposite village number 2, about two miles north of the modern town of Cathlamet. It was moved to the site now occupied by Cathlamet around 1810, perhaps because of a fire.¹⁶ This was a large winter settlement. It was the home of Emma Luscier's father's father.

¹⁴See genealogies.

¹⁵Gibbs, *Report*, pp. 463 f; Swan, p. 110.

¹⁶Strong, p. 82.

4. *tā'nās ilu'*. This is a Chinook jargon name meaning "little ground" or "island." The reference was to the island now called Tenas Ilahee, the largest of a group of islands just below Puget Island. The villagers may have made joint use of the adjacent river bank on the Oregon side. It was famous as a fishing site, particularly for line fishing for sturgeon and smelt fishing with rake or dip net.
5. *kała'amat*. This is the native name which became Cathlamet in English corruption, and supplies the group and dialect designation, Kathlamet. The village was formerly located on the Oregon side of the Columbia, about four miles below Puget Island or roughly opposite modern Skamokawa. Around 1810 the remnant population of this settlement moved across the river, joining the residents of village number 3 at their new site. Not long before it had been a large and influential permanent village.¹⁷
6. *mo'qwəl*. This was a large winter settlement at the mouth of Deep river on Grays Bay. (Grays Bay is in the Columbia river; it should not be confused with Grays Harbor on the Pacific, north of Willapa Bay.)
7. *se'αqwəl*. The site of this village was the north bank of the Columbia, a short distance below village number 6. It was an all-year settlement.
8. *la'tcəp*. This was the village which supplied the name Clatsop, later applied to the entire group of Chinookan-speaking peoples occupying the Oregon side of the Columbia below the Kathlamet. It was but one, perhaps the largest, of a number of villages in the vicinity. The early writers speak of it, however, almost to the exclusion of all others. My informants were unable to recall the names of any of the lesser settlements. The location given on the map, near present Camp Clatsop, is based upon Lewis and Clark¹⁸ as well as information from informants.
9. *qwatsa'mts*. This was the principal village of the group commonly known as the Chinook. It was situated at the mouth of Chinook river on Baker Bay, north side of the Columbia. A number of small satellite villages were clustered around it.¹⁹
10. *wa'lɣat*. This fishing camp was situated at the mouth of the stream which now bears a corruption of its name, Wallicut river. This is the north side of the Columbia, about a mile northeast of the present Ilwaco. Fishing from the sand bar here was highly productive.
11. *no'sqwalaku*, "where the trail comes out." Modern Ilwaco occupies the former site of this village. Ilwaco was named after the last chief of the village, *iluwaku'*.
12. *noxsxa'itmɔs*. This was a fishing site located where Ft. Canby now stands on Cape Disappointment. Fishing was excellent here at extreme low tide.

¹⁷Cf. Strong, pp. 81 f.

¹⁸Thwaites, vol. 3, pp. 273 f., 282 f.

¹⁹Cf. Swan, p. 102.

13. nu'pætstci, "lots of grass." This settlement stood at the present site of Nahcotta, on the peninsula opposite the mouth of Nemah river. Nahcotta took its name from a village chief, na'kati.
14. tse'yuq, "yellow hammer." This was a large winter village situated where Oysterville is now found, on the peninsula north of Nahcotta.
15. kalawa'uus. This was an important clam-digging site on the peninsula at Oysterville Point. Camps were maintained for both digging and drying of clams.
16. ni'sæl (Naselle). This was a large, all-year settlement on the Naselle river where it enters the arm of the bay. It was noted for sturgeon fishing and as a hunting base.²⁰
17. læpi'l'so', on nuqa'læmil' island. The island on which this camp was situated is found in an arm of the bay below the mouth of Naselle river, near Johnson's Landing. It was a temporary settlement only.
18. ma'x^u. The mouth of Nemah river, below the present town of Nemah, was the site of this village. It was the place called "Mar'hoo" by Swan.²¹
19. Quer'quelin. This is Swan's oft-named village, located at the mouth of the Querquellin river which flows into the Palix river from the south, near the mouth of the latter.²²
20. toq'pi'lüks (Palix). This village, at the mouth of the Palix river, was the most important of the settlements on the small peninsula now occupied by Bay Center.²³
21. ya'kam'noq. This was a small community situated at Sandy Point, three miles south of Goose Point. The latter is the extreme northern point at Bay Center. Winter settlement.
22. natsxwæiso'q. The small camp of this name was found on the bay west of the town of Bay Center. In Curtis' orthography it is Núshwutsuk.²⁴
23. namla'iaks. This was a small village and burial ground located at Goose Point.
24. xwa'xots. The former settlement called Bruceport was the site of this important winter village. It was about three miles north of the mouth of the Palix river. (Swan's Whar'hoots.)²⁵
25. Que-lap'ton-lilt. Swan names this village and locates it at the mouth of the Willapa river.²⁶

²⁰Cf. Spier, *Tribal Distributions*, p. 31.

²¹Swan, p. 211; cf. Spier, *loc. cit.*

²²Swan, p. 211.

²³Cf. Swan, *loc. cit.*; Spier, *idem*, p. 30.

²⁴Cf. Curtis, vol. 9, p. 173.

²⁵Swan, p. 211; cf. Spier, *loc. cit.*

²⁶Swan, p. 211; cf. Hodge, pt. 2, p. 955; cf. Curtis, *loc. cit.*

26. tsxe'Isos. On the Willapa river, between South Bend and Raymond, is the former site of this settlement. (Curtis : Tshe'Iso.)²⁷
27. xa'kəlc, "small river." This winter camp was located at the mouth of Smith creek on the northeast shore of Willapa Bay.
28. naxumə'nc. This was a large settlement on the west side of North river at its mouth on the north shore of Willapa Bay.²⁸
29. nu''kaunf.²⁹ The site of this village is now occupied by Tokeland. The latter took its name from the famous village chief, to'q. The settlement was large but occupied principally in winter.
30. na.'mstcats.²⁹ This place, located between Tokeland and North Cove, was occupied principally during the winter. The site is now called Georgetown.
31. nuwi'lus. This village, situated on the coast where Grayland now stands, was the northernmost Chinookan village.

The following villages were non-Chinookan and do not appear on the map.

32. iia'tskanai (Klatskanie). This name referred both to the village and the river at whose mouth it was located. This was the principal point where the Athabascan-speaking Klatskanie touched the Columbia river. The settlement was large and thriving, being noted for salmon fishing but more particularly for the deer, elk, bear, and beaver hunting nearby. The village was most populous in winter.
33. mənse'la'. This Cowlitz village, located where Longview, Washington, now stands, was well known for its fishing grounds.
34. awi'mani. A Cowlitz village at the mouth of Coweman river, south of Kelso, Washington.

Boas names and locates the villages of the Kathlamet as follows: "The Wā'-qa-iqam of Grey's Harbor [Gray's Bay]; the Lā'cgənɛmaxix· about opposite [old] Cathlamet (on the north side); the KLā'ecalxix·, at the present town of Cathlamet; the Lā'qalala, about three miles above Oak point on the north side of the river; the lctā'mēctix·, half a mile below the mouth of the Cowlitz river; the Lākjalama, at Kalama; the Tē'iaqjōtcoē, three miles above Oak point, on the south side of the river; the KLā'gulaq, two miles below Rainier; and the KLā'moix·, at Rainier." (Boas, *Kathlamet Texts*, p. 6.)

Two other villages on the river are also named by Boas: Tcakwayā'lɣam (Chakwayalham), below Pillar Rock on the south side of the Columbia; and Lā'legak (Tlalegak), a shorter distance below Pillar Rock. (Hodge, pt. 1, p. 232; pt. 2, pp. 762, 890.)

²⁷Curtis, *loc. cit.* Cf. Spier, *loc. cit.*

²⁸Villages 28-30 do not accord with Curtis (*loc. cit.*).

²⁹Salish name.

Further transcriptions of village names of the Lower Chinook, by Boas, Sapir, and Olson, are brought together in the following list :

Common name	Chinook Name	Chehalis Name	Source	Village*
Kalama	lak lala'ma		Sapir, in Spier, <i>Tribal Distribution</i> , p. 24	
Skilloots (mouth of Columbia river)	Sgu'lus ?		<i>Ibid.</i>	
Cooniac	Qa'niak		Boas, in Hodge, pt. 1, p. 341	1
Wahkiakum	wakXa'ikEm		Sapir, <i>loc. cit.</i>	3
Cathlamet	Kala'met		Sapir, <i>op. cit.</i> , p. 23	5
Clamaitomish (in Gray's Bay)	TIEma'itEmc		<i>Ibid.</i>	
Clatsop	la'tcIEp		<i>Ibid.</i>	8
Gitlapshoi	Gitā'pō-i	nu'pōtstcl (Luscier)	Boas, <i>op. cit.</i> , pt. 1, p. 493	13
Oysterville		Tsā'djukkw	Olson, in Spier, <i>Tribal Distribution</i> , p. 31	14
Naselle, Nisal	Gitā'lelam	Nisál	Boas, in Hodge, pt. 2, p. 75	16
Nemah	Ne'ma	Māx	<i>Idem</i> , pt. 2, p. 54	18
Nayakolole	Nayā'qōlōlē	Q lwē'qolēn	<i>Idem</i> , pt. 2, pp. 47 f.	19
Palix, Palux	Gitlā'tlpe'leks	L !pe'leqc	<i>Idem</i> , pt. 2, p. 195	20
Wharhoots	Nixwā'xōtse	xwā'xōts	<i>Idem</i> , pt. 2, p. 938	24
Quelaptonlilt	Niā'ktxixupenēqē	Kulā'ptēn'ēt	<i>Idem</i> , pt. 2, p. 338	25
Willapa	Gitā'xwila'pax, Gita'xwilapax	xwila'pāx	<i>Idem</i> , pt. 2, p. 956; Boas, <i>Kathlamet Texts</i> , p. 5	
Killaxthokle (probably on Willapa Bay)	Galā'qstxoql		Boas, in Hodge, pt. 1, p. 688	
Kwalhiokwa	TkulXiyogoā'ikc	sxula'umc (Luscier)	Boas, <i>Kathlamet Texts</i> , p. 5	

Spier has thoroughly sifted the extensive but confusing data from early sources relating to village locations on Willapa Bay. (*Tribal Distribution*, pp. 29-31.) Several of the groups identified find a ready correlation with villages included in the preceding lists, but others are distinctly supplementary. Consequently, the two sources should be used in conjunction.

PHYSICAL ENVIRONMENT

The Chinook habitat was dominated, not by the Pacific Ocean, but rather by two great connecting bodies of water, the Columbia river and Willapa Bay. The river bisects the territory from east to west; the bay in the opposite direction. The river is several miles across at the mouth and even wider a few miles inland. It forms the largest drainage in western North America. For the entire length of Lower Chinook territory it is a "drowned" river, that is, the tide is felt the entire distance, and much further. Willapa Bay is deceptive as it appears on the map. The older name, Shoalwater Bay, properly characterizes it. At low water great expanses of tide lands are exposed so that the peninsula is virtually connected with the mainland. This is especially true south of Bay Center.

It was on these bodies of water that most of the villages were located and that most travelling was done. Far from being barriers, they actually facilitated communication. Travel from the river to the bay was not by the ocean route, but via Naselle river, with a short portage.

The Columbia bar was a formidable obstacle. Though the natives crossed it frequently, they did not do so more often than was necessary.³⁰ Wilkes comments: "Mere description can give little idea of the terrors of the bar of the Columbia: all who have seen it have spoken of the wildness of the [marine] scene, and the incessant roar of the waters, representing it as one of the most fearful sights that can possibly meet the eye of the sailor."³¹

Almost all of the territory occupied by the Lower Chinook lay within the physiographic province of the Willapa Hills. Its characteristics are outlined by Landes:

The Willapa Hills represent a gap or break in the long profile of the coastal chain. They have a maximum elevation of 3,000 feet and are therefore distinctly lower than the Olympics to the north and have a lower elevation than the mountains of the Oregon coast line, south of the Columbia. The Willapa Hills are sometimes described as a part of the Olympics but the two areas differ widely in both their geologic history and topographic origin. The bed rock of the Willapa Hills is composed almost wholly of tertiary sandstones and shales, but little metamorphosed, with a considerable quantity of basic igneous rocks. The strata have been folded and the tilted beds now stand at varying angles. Erosion has produced sharp ridges and deep valleys, the topographic features representing the effects of stream action when applied to rocks of varying degrees of hardness.

A radial arrangement of the rivers and valleys is in some evidence in the Willapa Hills, although the drainage is chiefly to the west and the south. The hills are almost everywhere soil covered and in no instance do they rise above timber line. The best developed river system is that of the Willapa and its tributaries. Between the headwaters of the Willapa and Chehalis rivers there are several low divides. On their southern margin the Willapa Hills rise from the Columbia rather abruptly but on the north they gradually merge into low foothills bordering Chehalis valley. On the east they rise by slow degrees from the general level of Puget Sound Basin and on the west they decline until they merge into a belt of low sand dunes along the sea.³²

This entire region, both coastal and upland, belongs to the Humid Transition plant life area. The Douglas fir (*Pseudotsuga mucronata*) is by far the most characteristic tree of the area as a whole. This tree varies in size according to soil conditions, but under favorable circumstances it reaches a height of 200 to 300 feet, thus dominating the landscape. The type locality for the Douglas fir is the mouth of the Columbia river. It is almost absent, however, in a narrow strip along the coast including the sand dunes mentioned above. Here the Sitka spruce (*Picea sitchensis*) takes its place. The spruce was perhaps of greater importance than the fir from the native point of view, both because of its ready availability around coastal villages and because it furnished important materials used in manufactures, particularly in basketry.

Plants associated with the Douglas fir in the uplands prominently include the shrub salal (*Gaultheria shallon*) and Oregon grape (*Berberis nervosa*, *B. aquifolium*), and shrubs or trees of Scouler willow (*Salix scouleriana*). A rank growth of bracken

³⁰See transportation.

³¹Wilkes, vol. 4, p. 293.

³²Landes, pp. 9 f.

fern (*Pteridium*) is also characteristic. Commonly the fir forests are of such density that the sun fails to enter. Here the salal and Oregon grape give way to a thick ground covering of mosses and shield fern (*Polystichum munitum*). The red huckleberry (*Vaccinium parvifolium*) is likewise found in this habitat.

In the valley bottoms the red alder (*Alnus oregona*) is associated with the giant cedar (*Thuja plicata*). Of lesser importance are the white fir (*Abies grandis*), large leafed maple (*Acer macrophyllum*), Oregon ash (*Fraxinus oregona*), and cottonwood (*Populus trichocarpa*). The maple and cottonwood often occur in groves. Where the bottom lands are excessively wet are found dense thickets of willows, crabapple (*Pyrus diversifolia*), and vine maple (*Acer circinatum*). Here, too, grow the devil's club (*Echinopanax horridum*), salmon berry (*Rubus spectabilis*), fetid currant (*Ribes bracteosum*), and the red-berried elder (*Sambucus callicarpa*).

Oaks (*Quercus garryana*), from which the Chinook gathered acorns, are not common but do occur in the occasional gravelly prairies. In Chehalis territory they are more abundant. The black pine (*Pinus contorta*) often borders the prairies.

The pine recurs along the sea shore in the lee of sand dunes or where the sand does not shift. The trees form dense thickets but seldom exceed thirty feet in height. Sand dunes occur only on the coast, not along the inner shore of Willapa Bay. The coast sands support a considerable variety of plants which flourish in such soil.

Every species mentioned above, with the possible exception of devil's club, was of marked economic importance to the Chinook. The variety of uses which these raw materials served is illustrated throughout the following pages. These species represent, of course, only a small percentage of those used by the Chinook, but the fact that virtually every dominant plant was subject to extensive utilization is of especial importance. Further, each species is represented in this area by a vast number of individual plants. Thus the supply of raw materials was abundant; exhaustive use of dominant species was not forced by limited occurrence. The term dominant is, of course, relative. The natives of the deserts of eastern Washington had available a larger number of distinct species of plants than did the Chinook. But there even the dominant species are relatively rare in occurrence, with exceptions, and most plants flourish through but short periods each year. Seasons are much longer in western Washington and many important plants are available throughout the year. Furthermore, the flora of the Humid Transition area is adapted to greater effective use, on the whole, than that of the Arid Transition or the Upper Sonoran zones.³³

The fauna of the Chinook habitat was likewise rich and varied, including land, fresh water, and marine life. The Willapa Hills harbored many large mammals of marked economic value. Primary in importance in native life was the deer, of which two varieties were found. The Columbian blacktail (*Odocoileus columbianus columbianus*) is the larger of the two, a buck of good size weighing about 200 pounds. The second was the Columbian whitetail, or flagtail (*O. virginianus leucurus*), which weighs perhaps one-fifth less than the blacktail. The mouth of the Columbia river is the type locality for both, but the whitetail seems to have been the more common in the valleys, the blacktail in the mountains.

³³Piper, pp. 40-47.

The Olympic elk, or Roosevelt elk, (*Cervus canadensis roosevelti* Merriam) was formerly abundant, and second only to the deer in importance to the Chinook. They frequented open valleys as well as the forest. A large bull of this species may weigh 1,500 pounds. Moose and antelope were not known in the region.

Both the Washington showshoe hare (*Lepus americanus washingtonii* Baird) and the Oregon brush rabbit (*Sylvilagus bachmani ubericolor*) were available and were hunted for their flesh and for their pelts which were used in making blankets. The showshoe is much the larger but was rarer; the brush rabbit is equally fine as a food animal.

The local squirrel is the orange-bellied chickaree, or Douglas squirrel (*Sciurus douglasii douglasii* Bachman) with the type locality near the mouth of the Columbia. It was sought for food purposes, as was the Townsend chipmunk (*Eutamias townsendii townsendii*). The latter is a large species, adults averaging ten inches in length. Townsend recorded Chinookan names for both (squirrel: ap-poe-poe; chipmunk: quis-quis).

The dusky bushy-tailed wood rat (*Neotoma cinerea fusca* True) was common but it is uncertain whether the Chinook sought this mischievous animal for its flesh or not. Early writers mention robes of wood rat pelts in use by the Chinook³⁴ but it is quite possible that the skins were rather those of the mountain beaver (*Aploodontia rufa rufa*).³⁵ The Oregon coast muskrat (*Fiber zibethicus occipitalis* Elliot) was present but apparently not common.

The Pacific coast beaver (*Castor canadensis pacificus* Rhoads), a fine large species, was exceedingly abundant in the lower Columbia valley. Captain Gray's ship *Columbia* carried away 300 beaver skins after but ten days on the river. The beaver was of value to the Chinook not only for its fur, but for its flesh as well.

The mountain beaver belongs to a family (*Aploodontiidae*) distinct from the beaver proper. As mentioned above, they were of great importance to the native for their pelts, but their flesh, though not choice, was yet not discarded. They were available in plentiful numbers.

The yellow-haired porcupine (*Erethizon epixanthum epixanthum* Brandt) was not common but served as food when available.

Two types of cat were relatively common, the Oregon cougar (*Felis concolor oregonensis* Rafinesque), also called mountain lion and panther, and the Oregon bobcat (*Lynx rufus fasciatus* Rafinesque). Both were valued by the Chinook, not only for their warm furs but as well for food. The cougar is a large animal, reaching eight feet or more in tip to tip length and 150 pounds in weight. The bobcat is only a fraction of this size, seldom weighing more than twenty pounds.

Another common animal was the timber wolf (*Canis lycaon gigas*), a large species, weighing about a hundred pounds. The cascade red fox (*Vulpes fulvus cascadenis*) was found throughout the territory.

³⁴E.g., Henry (Coues, p. 749); Ross, p. 91; Franchere, p. 243. Cf. Thwaites, vol. 3, p. 242. Boas writes of groundhog blankets (*Chinook Texts*, pp. 220, 231, 262), but there are no groundhogs, or woodchucks, in Chinook territory. Again the mountain beaver is doubtless indicated.

³⁵Cf. Coues, p. 749.

Fur animals given little attention by the Chinook were the weasels (*Mustela longicauda saturata* and *Mustela cicognanii streatori*). The larger type (*saturata*) was probably quite rare; the other is very small. The mink (*Lutreola vison energumenos*) was relatively plentiful; also the martin (*Martes pennanti pacifica*).

The western otter (*Lutra canadensis pacifica*) played a great role in native economy. Not so with the skunks (*Mephitis occidentalis spissigrada* and *Spilogale phenax latifrons*), though they were common enough. The local racoon was the northwestern (*Procyon lotor pacifica*).

The Olympic black bear (*Enarctos americanus altifrontalis*) was considerably exploited by the natives. The grizzly bear did not occur in the region.³⁶

The marine life of the area was even more significant to the natives than the land forms. The Columbia river and Willapa Bay constituted unsurpassed fishing and sealing grounds. The Columbia has produced more salmon than any other river in the world.³⁷ This fish was of primary importance to the natives, but sturgeon, trout, smelt, herring, and flatfish played each an important economic role. In addition, sea mammals including the seal, porpoise, and whale were extensively utilized.³⁸

The nature and profusion of the flora and fauna suggest an equitable and humid climate. A glance at the accompanying table (Table 1) will confirm this impression. Mean minimum temperatures do not exceed seventy-two degrees F. The mean annual temperature stands at fifty to fifty-one degrees F. Thus the temperature is characterized by a very small range about a temperate mean.

Precipitation, however, is extreme. As indicated in the table, the annual rainfall varies between fifty-nine and eighty-three inches, but measuring stations have not been maintained until recently in the wettest parts of the area. For example, near the mouth of the Naselle river the annual rainfall has exceeded one hundred inches several times during recent years, sometimes reaching 140 inches, with a third of the amount falling during a single month.⁴⁷ Thus it can well be understood that the natives favored the dryer spots for winter villages. Less than a half of one per cent of the precipitation comes in the form of snow, the normal annual fall not exceeding four inches.

Considering all of the factors discussed above, it appears probable that few areas of the world could have provided a more desirable habitat than that occupied by the Chinook.

³⁶Bailey, *passim*.

³⁷Cobb, p. 37.

³⁸See fishing and sealing.

⁴⁷Fisher.

TABLE 1.³⁹
METEOROLOGICAL DATA FOR REPRESENTATIVE STATIONS IN CHINOOK TERRITORY

Data	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'al
		Mean Temperature ⁴⁰	North Head ⁴²	42.1	43.0	45.2	47.5	50.9	54.8	57.2	57.6	56.5	52.9	48.2
	South Bend ⁴³	40.2	42.4	44.8	48.4	53.4	57.2	61.4	61.6	59.0	52.2	46.5	41.8	50.8
Normal Precipitation ⁴¹	North Head	8.78	7.45	5.56	4.14	2.95	2.28	0.96	1.05	2.99	5.01	8.45	9.48	59.10
	South Bend	12.71	9.75	8.81	6.32	4.22	2.91	0.97	1.55	3.72	6.77	12.42	13.20	83.35
Station	Mean Minimum Temperature ⁴⁴	Mean Maximum Temperature ⁴⁴		Normal Annual Snowfall ⁴⁵ (inches)	Normal Yearly Distribution ⁴⁵				Prevailing Wind ⁴⁶					
		Jan.	Aug.		Rainy Days	Clear Days	Partly Cloudy	Cloudy						
North Head.....	37.5	54.4	45.4	62.6	2.6	190	64	91	210	North				
South Bend.....	34.6	50.4	47.4	71.8	4.0	183	116	115	134	Southwest ⁴⁶				

³⁹Day, *Normals of Precipitation*; Marvin and Day, *Normals of Daily Temperature*; Fisher, *Climatological Data*.
⁴⁰North Head: 34-year period; South Bend: 35-year period. Temperature figures represent degrees Fahrenheit.
⁴¹North Head (combined with Ft. Canby): 50-year period; South Bend: 36-year period. Figures indicate inches.
⁴²On the west side of Cape Disappointment, two miles north of the Columbia river; elevation, 211 feet. Near village number 12.
⁴³See map, Figure 1; elevation, 150 feet. Near villages numbers 25 and 26.
⁴⁴Landes, pp. 28-31.
⁴⁵Compiled from *Climatological Data*; 15-year period.
⁴⁶East wind is almost as common.