
The Northwest Coast

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ALTERNATIVE NAMES

The Northwest Coast is the standard name for the culture area. The main constituent cultures are from north to south, Eyak, Tlingit, Haida, Tsimshian, Haisla, Haihais, Heiltsuk (formerly Bella Bella), Nuxalk (formerly Bella Coola), Oowekeeno, Kwakwaka'wakw (formerly Kwakiutl), Coast Salish, Nuu-chah-nulth (formerly Nootka), Makah, Quileute/Chemakum, Chinookans, Takelma, Alsean, Siuslaw, Coos, and Athapaskans.

LOCATION AND LINGUISTIC AFFILIATION

First coined by European explorers to the region in the late 18th century, "Northwest Coast" is now firmly entrenched in the anthropological literature to describe a culture area extending some 2600 km from Prince William Sound in the Gulf of Alaska, along the coast of British

Columbia, to the California–Oregon border. At the time of contact with Europeans, an estimated 200,000 people lived in the region (Boyd, 1990) making it one of the most densely settled in the Americas north of Mexico (Suttles, 1990). Northwest Coast peoples do not constitute a single biological population or even a series of discrete populations, but are grouped together on the basis of shared cultural practices and geography.

This chapter focuses on the peoples of the more northern area including South East Alaska, Washington, and Oregon in the United States, and British Columbia in Canada. Most of the peoples of northern California were destroyed in violent encounters with gold miners and by infectious diseases by the late 1800s. Although the people of this region have long shared similar cultural patterns which stem from environmental factors, trade, and a system of raiding which involved captive workers, they belong to a dozen different language groupings. Typical of extremely mountainous terrain, cut by major rivers, the

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linguistic differences in the region are profound, and occur at the level of language families. Therefore the classification, conceptualization, and treatment of illness vary quite distinctively throughout the region. The Northwest Coast exhibited the greatest linguistic diversity within aboriginal North America, next to California. Over 40 languages, representing 12 language families, were once spoken on the Northwest Coast. Distribution of these language families, and particularly some discontinuities, indicate a complex settlement history within the region. Athapaskan speakers include the *Eyak*, the northern most Northwest Coast group, and two branches on the lower Columbia and southwest Oregon. The other 11 linguistic families ranging from north to south include: *Tlingit*, *Haida*, *Tsimshian*, *Wakashan*, which includes four major branches—*Haisla*, *Heiltsuk*, *Kwakwaka'wakw* and *Nuu-chah-nulth*; *Salishan*, represented by the *Coast Salish*, *Nuxalk*; *Tsamosan*, and *Tillamook*, *Chimakuan*; and five possibly related families belonging to the Penutian Phylum—*Chinookan*, *Takelman*, *Alsean*, *Siuslaw*, and *Coos* (after Thompson & Kinkade, 1990).

OVERVIEW OF THE CULTURE

Culture and Environment

There are at least 40 different cultures in the Northwest Coast; we describe here the common and the variable features. The Northwest Coast is often described as a "classic" culture area in North America due to its distinctive and rich artistic traditions of monumental wood carving (totem poles) and masked ritual performances of dance and song (See Drucker, 1965; Suttles, 1990). The importance of early anthropological fieldworkers and ethnographic writers (including Boas, Benedict, and Sapir) has also contributed to the visibility of the region and its peoples (Hawthorn, 1965). The Northwest Coast also stands apart as a distinct cultural region based on a number of widely recognized, shared cultural traits. The Northwest Coast peoples were truly maritime, possessing a sophisticated fishing and sea mammal hunting technology, with river-run Pacific salmon of particular importance to many. Coupled with this was an efficient preservation technology for the long-term storage of foodstuffs. These technologies sustained dense population aggregates where people resided in semipermanent or permanent villages, and enabled the establishment of a

system of rigid social ranking and stratification, and the creation of an elaborate art and architectural tradition. Social classes were recognized based on a combination of birth and wealth with chiefs and immediate kin forming the nobility, their followers or commoners, and slaves, who were acquired as property either by capture or purchase. Attention to social standing varied greatly, however, with class distinctions being more pronounced and rigidly maintained among the more northerly coastal groups. The importance of kinship shows a similar north-south trend with kinship ties being most rigidly defined among northern groups. As well, the kinship organization of people in the north is strongly matrilineal, with the importance of ambilineal, and subsequently patrilineal descent increasing as one moves southward.

The coastline of the Northwest Coast region is characterized by a chain of extremely rugged mountains which rise in places to over a thousand meters directly out of the sea. One need only precede a few kilometers inland to encounter even more precipitous mountains, glaciers, and dormant volcanoes rising 3,000 m and more. These mountain ranges are partially submerged in places, creating the many large island archipelagos that skirt the coast of Alaska and British Columbia. The mountains capture warm Pacific air masses transiting from the Hawaiian Islands, and thus receive a heavy annual rainfall along the coast, with major snowfalls in the mountains during the winter. The region is also warmed by the Japanese current and so coastal climates are temperate and very moist, making large parts of the region a true rainforest—the only major one in a temperate region. Summers throughout the region tend to be very dry however, so the Pacific northwest is also the only major rainforest in the world comprised of evergreen trees—pines, cypress, hemlock, fir, and spruce. The deciduous trees are mainly found along rivers and streams and include wide variety of willows. Many fungi are found throughout the region (Suttles, 1990b). A wide variety of plants were collected by all of the peoples of the region and used as medicines and teas.

The major rivers of the region (the Stikine, Nass, Skeena, Bella Coola, Fraser, Columbia, and Klamath) and their systems of tributaries as well as even very minor streams are home to many varieties of fish: especially migrant salmon species, eulachon, lampreys, and cutthroat trout. There are still massive sturgeons in some of the larger rivers, although their numbers are seriously depleted, and their size reduced. A wide variety of fish are

also available just offshore (especially many types of cod, halibut, rockfish, herring, and hake) and many varieties of shellfish can be collected (clams, oysters, crabs, octopus). Sea mammals—especially whales and seals—were traditionally hunted; and still are in some locations. Although a large proportion of coastal traditional diet came from the sea, land animals and plants were and are also important foods; these include most large mammals, birds, and bird eggs. Plant foods included a wide variety of berries, a great many root vegetables (over 25), and seaweed. Seaweed covered in recently deposited herring roe is a widespread nutritious delicacy throughout the region (Hopkinson et al., [1990]). Because the migratory salmon species required intensive processing and storage (gutting, drying, and smoking) during very brief annual periods, captives (especially women and children) were often taken in raids and used as labor (Donald, 1997).

Ritual practice and religion throughout the Pacific northwest was complex, and involved masked dancing, feasting, title giving, and property distributions (the "potlatch"). The mythology of the people throughout this region is elaborate and characterized by a belief in distant deities associated with the sun and sky and much more important proximal supernatural beings who co-inhabit the world of forest and beach with mortals. These supernatural beings may cause all manner of problems—including illness—as well as intercede to assist people in their daily lives. Many of these spirits act as guardians of the living and can guide one through life; they are often associated with animals and may appear in animal form. Other spirits are more monstrous and take the form of ogres, dwarfs, and giant man-eating cave dwelling birds. On the very highest peaks dwell "thunderbirds," said to keep lightning in the shape of large reptiles (Drucker, 1965).

To successfully deal with spirits, a person must be ritually "clean" by a combination of fasting, dietary proscriptions, bathing, and the use of purges or emetics. Maintaining ritually cleansed state was a way to stay healthy, to receive good luck, and avoid harm. If in the course of maintaining ritual purity a man encountered a supernatural being, he might receive the gift of a special power. In some groups these powers were associated with success in hunting or warfare; but in many they were associated with the power to heal (Drucker, 1965).

Historical contact wrought many changes to the indigenous peoples of the region, ranging from dislocation and the restructuring of the traditional social structure to outright extinction. Symptomatic of these events has also

been changes in the ethnonymy for a number of surviving groups who have chosen to reidentify themselves by more traditional names from those assigned within the contact period. Among these are the *Heiltsuk*, who were formerly known as the Bella Bella, Kwakiutl have now become *Kwakwaka'wakw*, Nootka are now *Nuu-chah-nulth*, and the Bella Coola are now known as the Nuxalk.

Social Organization

Aside from their linguistic diversity, the ideas of family, ancestry, descent, and kinship differed greatly, though there are similarities across cultural boundaries. Small, localized groups of people formed the principle unit of production and consumption organized around a core of kin defined according to the local rules of kinship. Ownership of resources typically resided with the kin group, whose members associated themselves with specific localities and village sites. Traditional village life included permanent winter villages, which often grew in population size through the winter feasting and ceremonial season to include hundreds of people. In the summer, families often dispersed to annual settlement camps to collect shellfish and hunt.

Among the *Eyak*, *Tlingit*, *Haida*, *Tsimshian*, and neighboring *Kwakwaka'wakw*-speaking *Haisla* on the northern coast, autonomous matrilineal households or lineages formed the basic units of a village. Typically "towns" were comprised of one or more matrilineal lineages. Each lineage was represented by a hereditary chief who acted as trustee of the lineage properties while house chiefs managed the affairs of their own individual houses. With the possible exception of the *Tsimshian*, these northern groups divided their societies into moieties, as a means of organizing relationships between individuals, families, and lineage groups. According to Halpin and Seguin (1990), traditional *Tsimshian* society at the village level was a moiety, like that found among the *Eyak*, *Tlingit*, and *Haida*, and not the four-fold structure commonly reported. The basic social unit was the corporate matrilineage called a "house" whose members, together with affines, children belonging to other lineages, and slaves, occupied one or more dwellings.

The *Eyak* represent the northern most Northwest Coast group, and are linguistically related to the Athapaskan family and more remotely to the *Tlingit*. Within the historical period, the neighboring *Tlingit* were to exert considerable cultural influence on this group

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through trade, intermarriage, purchase of lands, or conquest (de Laguna, 1990). To the south, the *Heiltsuk*, *Nuxalk*, *Kwakwaka'wakw*, and *Nuu-chah-nulth* had corporate kin groups, described as "ancestral families," which functioned as crest-holding units based on extended bilateral descent. The neighboring *Haisla* are a northern Wakashan language isolate related to the *Kwakwaka'wakw*, who occupy the upper reaches of Douglas Channel and Gardiner Canal on the inner coast. The *Haisla* resembled the *Tsimshian* in technology and social organization, but maintained a set of secret societies typical of other Northern Wakashans (Hamori-Torok, 1990). The neighboring *Heiltsuk*, and related *Haihais* and *Oowekeeno*, occupy the shores of Queen Charlotte Sound from Price Island on Milbanke Sound to the southern shore of Rivers Inlet and inside channels and inlets. Though neither rigidly exogamous nor matrilineal, both residence and descent among these groups mirrored that of exogamous matrilineal northern groups (Hilton, 1990).

On the adjacent mainland coast are the *Nuxalk*, Salishan speakers who formally occupied a number of permanent villages alongside and at the mouths of major salmon rich rivers and creeks in the Bella Coola valley, North and South Bentinck Arms, Dean Channel, and Kwatna Inlet (Kennedy & Bouchard, 1990). *Nuxalk* society consisted of descent groups who held in common a set of ancestral names and prerogatives based on an origin myth. Though a number of descent groups might share a village site, the household remained the primary social and economic unit. Descent was traced ambilineally while residence was patrilocal which tended to reinforce bonds with the father's side (McIlwraith, 1948).

The *Kwakwaka'wakw* of the Wakashan language family occupy northern Vancouver Island, the adjacent mainland and intervening islands of Queen Charlotte and Johnston Straits. They once consisted of some 30 autonomous groups each consisting of several corporate kin groups or "*numaym*," who were the owners of resource sites, myths, and crests. The southern branch of this language family includes the *Nuu-chah-nulth*, the west coast people of Vancouver Island, and the *Makah* on the Olympic Peninsula within Washington State. Local kin groups linked by ambilineal descent held defined territories. Local kin groups did on occasion unite to form "tribes" and at one point the Northern *Nuu-chah-nulth* formed a number of local confederacies consisting of a series of distinct "tribes" whose ranked chiefs shared a common summer village. Political authority, however,

remained with the local group in the absence of any formal political office for these larger aggregations (Drucker, 1951, 1983).

The salmon rich waters between Vancouver Island and the mainland stretching from Johnstone Strait to the Strait of Juan de Fuca and adjacent Puget Sound are the home of the *Coast Salish*. The *Coast Salish* were similarly bound together by bilateral kinship ties (Duff, 1964). Clusters of villages were so closely identified with each other by virtue of locality, dialect, culture, and intermarriage as to become distinct units and bear a common name (Kennedy & Bouchard, 1990; Suttles, 1990). Like all Northwest Coast groups, the *Coast Salish* recognized three "classes" of people, but the distinction was neither as rigid nor as pronounced as that found among the more northerly groups (Suttles, 1990).

In addition to an enclave of *Coast Salish* (*Tillamook* and *Tsamosan*) and *Chimakean* speakers, a mosaic of smaller language groups, collectively assigned to the Penutian Language Phylum, occupy the coasts of Washington and Oregon. The basic social and political unit amongst these groups, as well as a neighboring group of *Athapaskan* speakers, was the autonomous winter village group, consisting of one or more residence groups of paternally related kin. Residing on the coast and major rivers of southwestern Oregon, this Pacific branch of the *Athapaskan* language family represents the southerly most Northwest Coast group.

Contact, Contagions, and Change

The introduction of various high-mortality, density-dependent diseases, previously unknown to pre-contact populations, contributed in no small measure to the erosion and restructuring of traditional lifeways. Their severity varied from group to group according to their specific contact histories. Some, like the *Haida* and *Kwakwaka'wakw* experienced abrupt, catastrophic population loss. For others the process of depopulation was more gradual. In some cases the outcome was outright extinction of local groups, while in other instances new creative cultural practices emerged to cope with the changes of the period such as nativistic movements like the Prophet Dance. Smallpox proved by far to be the most devastating disease, and in the wake of this contagion, which struck on at least three occasions between the late 1700s and the late 1800s, were a host of other chronic

illnesses. Measles, influenza, whooping cough, tuberculosis, and scarlet fever reached epidemic proportions among an increasingly weakened and vulnerable native community throughout the 1800s. In the case of the *Haida*, the *Nuu-chah-nulth*, and many others, a lethal combination of disease, warfare, dislocation, and stress worked to destroy many family groups with weakened or remnant groups joining more powerful neighbors to create new political structures (Acheson, 1998; Arima and Dewhirst, 1990). For small-scale societies everywhere, catastrophic population losses required, if they were to survive, new social, economic and political alignments.

The concept of "composite bands" and "tribes" as a product of the merging of various like bands due to the "initial shock, depopulation, relocation, and distribution of the early contact period" is certainly not new. Among the *Nuu-chah-nulth*, for example, declining populations and extended warfare throughout the late 1700s and early 1800s worked toward creating or maintaining tribes and confederacies (Drucker, 1951).

The move away from matrilineal kinship toward more patrilineal oriented descent observed among the *Haida*, for example, can in part be attributed to severe population fluctuations. The need to restructure social groupings as a result of population decline, coupled with the growth of a market economy, increasing economic cooperation between father and son, and the growing advantages of politically important rank in a father, conspired to break down the matrilineal descent group.

The implications of these trends are equally significant to traditional native experiences with illnesses and medicinal practices, the role of shamans, and religious practices. Shamans occupied an ambiguous position within the community in their role as both caregiver and a potentially malevolent force that possessed unique supernatural curing, divining, or witchcraft capabilities. They also had an extensive practical knowledge of pharmacologically active plants and herbs. The introduction of new, destructive illnesses not readily understood, placed shamans in a particularly precarious position. The discrediting of their role and diminishing value placed on traditional healing practices, and even the outright loss of such cultural knowledge, created a vacuum that gave rise to the messianic movements of the 1800s and enabled the missionary movement to make significant inroads by the late 1800s. The emergence of "revitalization" or "nativistic" movements, such as the Prophet Dance and Shaker religion among a number of coastal groups, underscores

this relationship. But it also demonstrates resourcefulness on the part of the people confronting a new political and economic reality, who sought to relieve the afflictions of mind and body through a creative blend of traditional healing and Christian practices.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Diseases of the Pre-Contact and Early Contact Periods

At least four chronic diseases—viral pneumonia, non-venereal syphilis, tuberculosis, and trachoma—were known to pre-contact peoples of the Americas, but most acute infections rarely involve bone, making the detection of disease among pre-contact populations extremely difficult to detect. The kinds of high-mortality density-dependent infectious diseases common to the Old World are thought to have been absent prior to cultural contact (Boyd, 1985).

Chronic bone infections likely due to tuberculosis or treponematosi, and malignant bone tumors (both primary and secondary) were present among coastal populations (Cybulski, 1990). Of these three disease groups, only treponemal infections, likely a form of endemic non-venereal syphilis, appear in the prehistoric record for the Strait of Georgia and Prince Rupert Harbour (Cybulski, 1994; Skinner, McLaren, & Carlson, 1988). A form of conjunctivitis or trachoma often resulting in blindness and leprosy is documented within the initial contact period, suggesting a pre-contact origin. While known to pre-contact New World populations, the presence of tuberculosis on the coast is so far confined to the historical period, first appearing among the *Nuu-chah-nulth* at Nootka Sound in 1793 (Boyd, 1990).

Cribriform orbitalia (porotic hyperostosis), cited as a possible indicator of iron-deficiency anemia, has been detected in coast-wide prehistoric and historical populations at frequencies of 13–14%. Causes of iron-deficiency anemia are varied, but the low frequency of cribriform orbitalia is seen to indicate a population's successful adaptation to the pathogen load of its local environment, including all fungi, viruses, bacteria, and parasites. Nutritional health among coastal populations generally

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appears to have been stable from 3500 BC to the post-contact period (Cybulski, 1994). Mortality rates, on the other hand, underwent an unprecedented increase with the introduction of a suite of highly infectious diseases following contact.

Described as "the most terrible single calamity" to strike the Aboriginal community (Duff, 1964), smallpox was a reoccurring pandemic resulting in the progressive and catastrophic decline in population from the outset of culture contact. Following in the wake of the major smallpox epidemics of the late 1700s, 1837–38 and 1862–63 were a host of other chronic illnesses, including measles, influenza, whooping cough, tuberculosis, and scarlet fever, that reached epidemic proportions among an unsuspecting and highly susceptible native community (Table 1). Lingering diseases such as influenza, scrofula, and syphilis, observed among later native populations, can also be inferred for the early contact period.

By far the deadliest of all the "virgin soil" epidemics to strike the Northwest Coast was smallpox, which appeared in cycles as a result of contact with outside carriers and a sufficiently large enough population of non-immunes for the disease to take hold and spread. The disease afflicted people of all ages, and not just successive generations of children, which had the effect of fragmenting families and dissolving kin groups. Caring for the ill was thus made much more difficult and mortality rates soared.

Historical accounts provide indisputable evidence of smallpox on the coast by the 1770s, appearing among the *Haida*, *Ditidaht* (*Nuu-chah-nulth*), the *Coast Salish*, and the *Chinookan*. It struck the *Tsimshian* in 1795 and the *Coast Salish* again a few years later. Though the severity of these early outbreaks can only be inferred in the absence of detailed population records for this period, it is reasonable to expect a catastrophic population decline equal to (if not greater than) the population losses of the late 1800s. Trade, warfare, and even attempts to escape an outbreak spread the virus rapidly. For the period 1835 to 1890 the number of lives lost on the coast is estimated to be in the realm of 62%, and possibly as great as 90% (Boyd, 1985, 1990, 1994) (Tables 1 and 2).

Within the first quarter of the 19th century another epidemic, variously identified as smallpox, measles, or simply "the mortality", was reported among the *Cowichan* on southern Vancouver Island (British Colonist, 1862). On the North coast, smallpox reappeared among the *Tsimshian* at Fort Simpson in the early autumn

of 1836, spreading north to the Nass by December and by the spring of 1837 had reached the *Haisla*, *Haihais*, *Heiltsuk*, and *Nuxalk* in the south (Boyd, 1990; Tolmie, 1963). Hudson's Bay Company officials maintained that the epidemic claimed a third of the population on the North coast, which corresponds closely with recent estimates based on the detailed work by Boyd (1985, 1990) (Table 2), while the *Haida*, *Nuu-chah-nulth*, and *Kwakwaka'wakw* were seemingly spared.

The measles epidemic of 1848, and a subsequent outbreak of smallpox in 1862, spread throughout most of the coast with the possible exception of the *Nuu-chah-nulth*. The *Ditidaht*, a subgroup of the *Nuu-chah-nulth*, however, were struck by smallpox in 1853 and again in 1874 along with the Central *Nuu-chah-nulth* around Barkley Sound (Boyd, 1990; Drucker, 1951). This, and the increased presence of tuberculosis and respiratory diseases, pushed the population to a low of 1605 in 1939 (Duff, 1964). Their immediate neighbors to the north, the *Kwakwaka'wakw*, suffered a second outbreak of measles in 1868 (Boyd, 1985). The 1862–63 smallpox epidemics, while only marginally affecting the Central *Coast Salish*, due in part to the widespread use of smallpox vaccine around missions and white populated areas, devastated the Northern groups. From a preepidemic population of 6,693 around 1840, the *Haida* numbered just 741 in 1881, reaching a low of 588 in 1915 (Canada Census, 1881; Duff, 1964). For the same period, the *Tsimshian* experienced a decline approaching 35% due to the combined impact of the 1848 and 1868 outbreaks of measles and intervening outbreak of smallpox in 1862–63. The *Tlingit* had fallen to 4501 in the same period, representing less than a third of their estimated pre-contact population. The *Haihais* were reduced to just one village site by 1870, having vacated all their villages for a former seasonal camp at Klemtu (Hilton, 1990). The same pattern was repeated among the *Heiltsuk*, who united at the one settlement at Bella Bella by the 1870s (Olson, 1955). Of the more than 45 known *Nuxalk* villages inhabited in 1793, they numbered half that by 1889 and had declined to three when McIlwraith (1948) conducted his fieldwork in 1922–24. At the end of the 1800s there was a comparable decline in the number of *Kwakwaka'wakw* villages and kin groups with only 19 *Kwakwaka'wakw* of some 30 "tribes" surviving in just a handful of communities (Codere, 1990).

The scale of destruction in terms of population loss is only part of a complex picture concerning the impact

Table 1. Coastal Population History

	Pre-contact projection (Boyd 1990)	1780 (Mooney 1928)	1829 (Green 1915)	1835 (Tolmie n.d.)	1836-41 HBC Census (Douglas n.d.)	1858 (Duncan n.d.)	1881 Canada Census	1889	1890 (Canada 1891)	1895 (Canada 1896)	1896 (Canada 1897)	1906 (Mooney 1928)	1930
TLINGIT	14,820	10,000			9,880				2,075	1,333			4,462
TSIMSHIAN	14,500	5,500											
Nishga					1,615 (1,625)	2,500		726			782	814	
Coast Tsimshian			5,500		2,815 (2,827 ^b ; 2,495 ^c)	2,352		1,869			1,364	1,383	
Gitksan						2,500		1,462	1,119	1,087	1,071	1,130	
Southern Tsimshian			3,000	1,225	1,429			284					
HAIDA	14,500	8,000							438	364	354	599	
Masset					3,291 (3,285 ^c)		315	445					
West Coast					1,086								
Skidegate					2,316		426	285	292	229	244		
HAISLA	1,200				409		233	364	392	393	377		
HEILTSUK	4,500	2,700		1,628 ^a	1,834 (2,871 ^b ; 1,628 ^c ; 1,250)		662	481	415	578	533	852	
NUXALK	3,000	1,400		1,940	509		491	378	204	340	340	288	
KWAKWAKA'WAKW	19,000	4,500		8,500	32,460 ^d (40,998 ^d)		2,252	1,900	1,797	2,853	1,639	1,257	
NUU-CHAH-NULTH	8,000	6,000		7,500	7,093 ^a		3,593 (3,613 ^c)	3,093	3,084	2,834	2,750	2,159	
COAST SALISH													
Northern	4,000	3,100		5,025				1,012	868	813	770	567	
Central	14,000	17,400			8,216			5,899	5,364	5,309	4,640	3,658	
Southern/Southwest	24,399	9,300											
CHEMAKUAN	780	900											
PENUTIAN SPEAKERS	11,990	8,600											
ATHAPASKAN (Lower Columbia; Oregon)	8,640	7,500											
Bands not visited													8,522

Some discrepancies in the figures exist due to differences in identification and ethnolinguistic grouping as well as calculation errors in some of the original tables. Entries prior to the mid-1830 are estimates only.

^aDouglas, 1856; ^bKane, 1859; ^cMartin, 1848; ^dCurtis, 1915; ^eDominion of Canada 1882:164.

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Table 2. Projected North Coast Population Losses from Smallpox, 1836–37

Group	Pre-epidemic population	Post-epidemic population	Total loss	%
Tlingit	9,980	7,255	2,725	27
Nishga	2,423	1,615	808	33

of these diseases on coastal populations. These losses not only posed a threat to the stability and continuity of social institutions through the loss of cultural knowledge, but the occurrence of these diseases also posed a direct challenge to traditional religious beliefs, placing even greater duress on the community. Demoralization itself undoubtedly worked to compound the clinical impact of the epidemics. At the same time we see evidence of a creative accommodation by the native community to new circumstances that drew on traditional medicinal practices and beliefs.

MEDICAL PRACTITIONERS

The practice of 'medicine' embodied an array of ideas and concepts along with highly practical and effective remedies and treatment. Alongside the skillful practical treatment of injuries such as fractures and wounds, there is a long history on the Northwest Coast of shamanic practices, which invoke the spiritual both as the cause and in the treatment of the suffering.

Shamans

Shamans act as a medium for the supernatural, possessing unique curing, divining, or witchcraft capabilities acquired through birth, visionary experiences, contact with some form of supernatural force and, in some cases, through vocational training. Among most Northwest Coast groups a person who received healing powers had to apprentice with an established shaman in order to learn to control his newfound powers. The period of apprenticeship varied, but normally ended with a major healing performance. Illnesses cured by shamans were (and are) of essentially three types: soul loss, spirit disease, and spirit or object intrusion. Shamanic practice is now much reduced, but elements of it can be found in many groups,

and some much respected shamanic practitioners can be found throughout the region.

Traditional Ethno-Biological Knowledge: Herbalists

Shamans also possessed an extensive knowledge of pharmacologically active plants and herbs. Herbal healing is seen, however, as somewhat distinct though not entirely separate from the magical or supernatural healing practices by shamans. This distinction between "ritualists" and "herbalists" is near universal in the region. Certain plants were considered "personal property" while other medicines, such as the cascara bark laxative, were universally known (Bouchard and Turner, 1976). The Green or Indian hellebore of the Lily Family (*Veratrum viride*), for example, had widespread use in North America for curing wounds and alleviating toothaches (Vogel, 1970). An extremely poisonous plant due to a combination of toxic alkaloids, hellebore was widely known to coastal peoples for its medicinal properties "as a blistering agent, local anaesthetic and decongestant, and internally as a physic" (Turner, 1978). The effectiveness of many herbal medicines, however, was dependent on a level of secrecy about the type of plant used and its application, and in practice most treatments combined herbal use with shamanism.

As privately held secret knowledge, plant remedies retain potency and also secure some respect and power for those who maintain the knowledge. Much of this practical knowledge was lost over generations confronting severe depopulation from waves of epidemic diseases like smallpox, tuberculosis, influenza, and pneumonia. Confidence in shamans to be able to deal with these terrible epidemics has also meant a loss of knowledge in dealing with psychological anguish.

Today, many people with plant knowledge confront a difficult ethical dilemma; if they choose to share their knowledge the plants upon which they depend may become desirable commercial commodities and be overharvested (as happened with Pacific Yew in the treatment for breast cancer). Losing control over traditional knowledge therefore may not benefit local people and may harm their environment. Yet local indigenous people often wish to assist a wider humanity with their knowledge. As well, the efficacy of teas and decoctions may vary greatly between locally prepared and ritually administered herbs and synthesized commercial preparations.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The treatment of externally caused injuries, such as fractures, dislocations, wounds, skin irritations, and the like was highly practical and effective. The use of splints to set fractures, for example, was universal and included the steps of straightening and use of pain-allaying medicine. Evidence of the cauterization of teeth to alleviate severe periodontal disease and trephination in accordance with the surgical principle of fracture decompression, is cited for pre-contact populations. Drawing on the affected part effectively treated snakebites and the cleaning of wounds. Such a practice extended to the treatment of internal ailments attributed to supernatural agencies or spirit intrusion.

Generally, disease was the result of either a human or supernatural agent, though natural causes could be considered. Acts such as sorcery, taboo violation, disease-object intrusion, spirit intrusion, and soul loss called for culturally prescribed treatment by a shaman. Confession often forms part of the treatment, serving as a powerful catharsis in helping to alleviate sickness due to broken taboos.

Soul loss is often associated with what could be glossed as depression, possibly including a degenerative disease as well. Although soul loss does not kill its victims immediately, it can be lethal if the soul is not retrieved in a reasonable period of time. Only the most experienced shamans treated (and continue to treat) soul loss. In traditional ceremonies the shaman, or his spirit helper, retrieves the lost soul. Often the shaman brings the soul back to the person in a bed of eagle down; he may also have to struggle against many hostile spirits to return the soul to the person. In our experience soul loss is often associated with people whose close friends and relatives have recently died in a sudden and unexpected manner—indeed, the departed may wish the individual and come to live with them in the realm of the dead. Spirit diseases are generally associated with ritual impurity and the afflicted individual may either become possessed by the spirit itself, contract a fatal disease, or become contaminated by the spirit. Although some shamans have claimed to be able to treat spirit illnesses, most appear to have regarded them as terminal. Spirit and object intrusion is associated with belief in witchcraft: malevolent spirits or shamans hired

by others or acting on their own can send illness producing objects (bone slivers, etc.) into a person's body. The shaman, in a dramatic performance, removes these objects. This kind of classic shamanic performance transforms a person from the subject of hatred by unknown spirits or people into the object of community concern and assistance. It is in essence restorative whereby sick individuals become the focus of family and community concern.

Aside from, though often combined with these practices, is the widespread medicinal use of plants and plant products. Commonly utilized plant medicines throughout the region include various rejuvenating teas made from aquatic plants that grow in streams; treatments for relief of pain obtained from tree bark (willow, as the source of aspirin is known) or especially Devil's Club root (Turner, 1982). Diuretics created from stinging nettle teas are widely used. Bark preparations taken from a wide variety of trees are also used for respiratory, digestive, gynecological, and dermatological ailments throughout the area. Tree barks have also been used to treat fevers, diabetes, kidney problems, sore eyes, and hemorrhaging, and also as general tonics. In most cases, infusions or decoctions of barks are used. The medicines are drunk or applied externally as a wash and are particularly well described for Coast Salish people on Vancouver Island (Turner, 1990).

As well, at least 20 species in *Ranunculaceae*, the buttercup family, are reported as having been used medicinally by 19 different groups of native peoples in British Columbia and adjacent areas. These species are known to contain the skin-irritating, blister-causing compound, protoanemonin, in their fresh state and it is probably the active principle involved in many of these medicinal applications. Most groups utilized the plants as external poultices for boils, cuts, abrasions, and other skin sores. Other disorders treated with anunculaceous species include: muscular aches, colds, and other respiratory ailments (Turner, 1984). The slime from slugs, which numbs skin surfaces and serves to protect the animal from predation, also appears to have been widely used as a topical anesthetic.

Many plants or plant products used on the Northwest Coast have made their way into Western medicine, and include a variety of laxative, diuretic, emetic, and febrifuge drugs (Vogel, 1970). Examples include sarsaparilla (*Aralia nudicaulis*) used by the Nuxalk and the *Kwakwaka'wakw* for stomach pains.

Health through the Life Cycle

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The use of Oregon grape root (*Berberis aquifolium*) as a bitter tonic among the *Kwakwaka'wakw* was adopted by Europeans. Cascara bark was similarly valued by Europeans as a tonic and laxative long recognized by coastal peoples (Boas, 1932; Turner, 1975; Vogel, 1970).

An array of medicinal treatments was added to an already formidable native pharmacopeia to cope with introduced diseases, including smallpox, whooping cough, tuberculosis, and syphilis. Attempts to arrest these diseases, however, met with little success. One of the cruelest ironies for a community exposed to new contagions was the universal use of sweat baths as a panacea for most diseases. Certain plant medicines were felt to be most effective when taken in the sweathouse. The use of steam baths to fight febrile infections such as smallpox, however, only exacerbated the illness and aided in its spread. Complications arising from this practice, such as pneumonia and pleurisy, greatly increased the probability of death.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Birth traditionally necessitated the seclusion of both mother and father and enforced dietary restrictions throughout the Northwest Coast. Infants have also long been regarded as particularly vulnerable to illness through the machinations of malign spirits, including ghosts, which may cause sickness. Twins were often thought to be special people but there is little evidence of their receiving special treatment except among the *Nuxalk* where Kennedy & Bouchard (1990, p. 331) report that during the 1970s it was believed that twins resulted from the spirit of Salmon entering the body during pregnancy. In later life *Nuxalk* twins also had to be careful not to offend the spirit of the Salmon, but were said to be able to induce salmon runs. Likewise the birth of people with defects, while felt to be unfortunate, does not normally lead to poor treatment. In British Columbia death from congenital anomalies among infants is actually slightly lower for Native populations than the rest of the province (Foster et al., 1995, p. 69). Infanticide and abortion were originally reported by McIlwraith (1948, pp. 702–712) among the *Nuxalk*, and is suggested for the *Tillamook* as well (Seaburg & Miller, 1990, p. 564). These practices appear to have been associated with the disgrace of

illegitimate births in the past. The practices, however, are not widely reported throughout the region. The extent of breastfeeding is unknown for the region although Aboriginal midwifery and its revival after colonial suppression is well described in British Columbia among coastal peoples (Benoit & Carroll, 1995).

Infant care ideally takes place within extended families, and children often spend a great deal of time with grandparents, and "aunties" and "uncles" of their own clan. Sudden infant death syndrome is disastrously high in many Northwest Coast groups and well documented in British Columbia but is often associated with older birthmothers among Native people, rather than younger ones as is more common in the general population (Foster et al., 1995, p. 70). Adolescent pregnancy is currently relatively high as are the numbers of low birth weight babies (Foster et al., 1995, p. 58).

The umbilicus was traditionally treated with great ceremony, as well as early childhood belongings—especially the cradle and infant clothing. The belongings of children who die are often ritually burned, often on an isolated strand of beach. When newborns die in hospital ritual destruction may include sonograms, clothing, toys and the like and can be very helpful to grieving mothers. Ritual purification, through bathing in private ceremonies for parents ended their seclusion, and is still practiced in modified form in some groups today.

Adolescence

Seclusion of girls at puberty accompanied by dietary restrictions is traditional and premarital sex has long been frowned upon throughout the region. In many areas where potlatch ceremonies and feasting continues, a major public ceremony for the daughters of high status chiefs may take place announcing their changed status as a mature woman, ready for marriage. Boys throughout the region did not have a traditional feast to announce their arrival at manhood but often went on quests to obtain a guardian spirit. This practice made them vulnerable to potentially dangerous supernatural powers. Some features of this quest still survive throughout the region and include ritual bathing in the sea during the early morning. Visits to hot springs and arduous hikes or canoe trips are also relatively commonplace along with travel to cities, or distant relatives, and friends. Elevated causes of "external" death among young people throughout the region include motor vehicle road accidents, suicide,

drowning, poisoning, homicide, fires, and falls. Reliable data on these exist for British Columbia, especially (see Cooper, 1995; Foster et al., 1995, p. 74).

The Aged

The aged are widely respected for their knowledge, and if they are especially wise and known for their rectitude they are designated as "elders" throughout the region. Because early mortality is commonplace, and the Native population bears a young profile due to high birth rates, there are not a large numbers of elderly people in the Native population of the region. However, serious degenerative illness is commonplace among those seniors who survive into old age, and it increasingly centers on Non Insulin Dependant Diabetes Melitus (NIDDM), and all its *sequelae*, including limb loss, organ damage, heart disease, and blindness (Heffernan, 1995). Rates of autoimmune diseases are also elevated for Native populations on the Northwest Coast, especially rheumatoid arthritis and systemic lupus erythmatosis.

CHANGING HEALTH PATTERNS

The most important factors associated with health and illness among Aboriginal people throughout the region is related to economic poverty and a history of political and religious subordination. Following in the wake of waves of epidemic diseases which obliterated cultural knowledge and greatly reduced population sizes, surviving children were sent to residential "schools" in the United States and Canada as part of a policy of assimilation in both countries. These were run by Christian religious denominations. At these institutions children were systematically stripped of their culture and language, inadequately fed non-traditional foods, and separated from cultural traditions during the winter ceremonial period. It has now been documented that abuse, both physical and sexual, was appallingly widespread. The impact of residential institutions on dietary change associated with rapidly rising rates of diabetes is well described for British Columbia's coastal populations (Hopkinson et al., 1990).

Impacts on health as a result of these trends have been far reaching. Death from digestive system diseases (associated with alcohol overconsumption) is excessively high for many groups, and gastrointestinal cancer rates are

also especially high, as are neoplasms of the female reproductive system, and blood/lymph. Premature death from Ischemic heart disease, cerebrovascular strokes, and cardiomyopathies are also higher than for base populations throughout British Columbia. Mortality from infectious diseases, especially those affecting the respiratory system are uncommonly high and affect many age groups; these include: pneumonia, influenza, asthma, pulmonary fibrosis, and tuberculosis. Septicemia and viral hepatitis rates are also elevated, as are HIV infections, especially in urban areas such as Vancouver (Foster et al., 1990). No systematic comparative epidemiological or vital statistics data appear to have been published for American jurisdictions, where socialized medicine is not available, and statistical data are not comprehensively compiled.

Traditional belief emphasizes that death is associated with dangerous ghosts, whose powers include those which may make the living seriously ill. The great epidemics of the past, and current high mortality from many causes have certainly provided a steady supply of ghostly spirits for over a century. Throughout the region the dead were traditionally disposed of in myriad ways: by suspension in trees, in mortuary boxes set atop memorial poles, in caves or in canoes suspended on scaffolds, or by cremation. After the creation of missions, cemeteries were widely used and stand in sad testimonial to the loss of young lives during the waves of epidemic diseases that struck many Native villages throughout the region. Many gravestones are those of children. Today both burial and cremation are commonplace, along with a major memorial ceremony for high status and chiefly persons where the title is passed on and where the participants receive gifts of food and clothing.

The last half of the 20th century also witnessed a massive migration into cities throughout the region and consequently Anchorage, Vancouver, Victoria, Seattle, Bellingham, and Portland all have large populations of Native People. These populations come from the Northwest indigenous groups but are also migrants from other areas including the interior plateau, the Arctic, the Canadian prairies, American Middle West and the Southwest. The traumas—physical and psychological—associated with epidemic diseases, residential institutions, urbanization, and poverty are also deeply connected to a loss of traditional lands and water. The destruction of forests, salmon streams, pollution from mining and paper mills, and a great reduction in marine resources have all contributed to widespread despair,

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impoverishment, high rates of stress related illnesses, and deaths associated with substance abuse and addiction. Attempts to deal with these problems are now quite extensive (Stephenson & Elliott, 1990) and include the use of innovative and traditional healing techniques (Harris, 1990; Wade, 1990), diets (Hopkinson et al., 1990), and a shift in decision-making over health planning to local Native communities (Modeste et al., 1990; Read, 1990). However, ceding control over health care by paternalistic federal powers in both the United States and Canada has proved frustrating, and difficult to achieve.

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