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Columbia Plateau Indian Place Names: What Can They Teach Us?

I propose a program for cross-cultural research seeking semantic universals in place-name systems. Over 1000 place-names in the Sahaptin Indian language of northwestern North America are analyzed for syntactic, semantic, and distributional regularities. Comparisons are drawn with Dena'ina Athabaskan, Yurok, and local English place-name systems. Binomial place-names are rare in Sahaptin, though common in other languages. Sahaptin place-names very frequently are descriptive of biological and topographic features of sites. Many Sahaptin place-names describe features of land and water as if in motion. Place-names are sacred in origin; thus no places are named for persons. Quantitative analysis of the spatial distribution of place-names unexpectedly reveals a striking correlation between place-name density and population density which holds for a sample of 14 languages. This appears due to a tendency for an individual's repertoire of place-names to be limited to approximately 500.

Over 1000 Sahaptin Indian place-names have been recorded. A systematic analysis of their syntactic and semantic features helps characterize a Columbia Plateau Indian vision of an indigenous landscape. This land is now carved up by interstate highways, scarred by nuclear waste dumps. It is an expanse now quilted by center-post irrigation systems, its rivers plugged by dams. A faint residue of the indigenous geographical knowledge system is preserved on contemporary maps in scattered anglicized place-names of Sahaptin origin, badly skewed phonetically, their meanings distorted by decontextualization and misinterpretation of their original referential sense. Yet a substantial fraction of

the local Indian place-name inventory, and with it the indigenous *ethnogeography*, has been preserved, whether in the archival notes of an earlier generation of scholars or in the living memories of elders who retain a native command of the Sahaptin language. The present report is an analysis of the extant corpus of Sahaptin place-names, highlighting features of the indigenous geographic naming system both peculiar to this language and culture and shared with other systems with which the Sahaptin data may be compared.

The past decade has seen a resurgence of interest among linguistic anthropologists in the study of place-naming. Scholars working with aboriginal languages threatened by assimilative forces have documented the profound significance indigenous place-names have for traditional peoples, as a framework for cultural transmission and moral instruction, as a symbolic link to their land, and as ground for their identity. Among the most important of these contributions are Keith Basso's studies of Western Apache (1983, 1984, 1988), James Kari's and James Fall's work with Dena'ina Athabaskan (1987; Kari 1989), Julie Cruikshank's work in southern Yukon Athapaskan languages (1981, 1990), Dorothy Tunbridge's Australian aboriginal place-names research (1987, 1988), and Thomas Thornton's recent Tlingit work (1995).

These contemporary toponymic studies are particularistic, whether descriptive or interpretive. I would like to explore here the potential for a comparative *ethnosemantic* analysis of place-name systems. Cognitive anthropologists have pursued systematic cross-language comparisons in such semantic domains as kinship relations, color categories, and folk biological taxonomies. These studies have demonstrated the existence of widespread, if not universal, patterns that structure human understanding within these domains (e.g., Atkins 1974; Berlin 1992; Kay, Berlin, and Merrifield 1991). Such studies have provided significant support for modular theories of cognitive processing (Hirschfeld and Gelman 1994) and help define the "natural" cognitive foundation with respect to which cultural diversity and individual creativity may be more fully appreciated. I believe that this comparative ethnosemantic methodology may fruitfully be extended to the domain of place-names. The present analysis is an initial step in that direction.

The known corpus of Sahaptin place-names is here characterized in terms of syntactic and semantic features that are shown to contrast with comparable conventions of place-naming in Dena'ina Athabaskan and American English, languages for which comparable inventories were available. Many of these syntactic and semantic features have *descriptive force*; that is, place-names may indicate some perceptible feature or meaningful association of the sites named and thus reveal facets of indigenous world view. It is often assumed that words are *arbitrary* signs (e.g., Hockett 1960). This suggests a purely referential (as opposed to descriptive) role for the words of a language. For example, "oak," "red," and "uncle" simply name the entities they classify.

Morphologically complex names, however, may not only designate but may also *describe* certain salient aspects of the entities named. "White oak,"

"fire-engine red," and "great uncle" hint at some special quality of the specific categories they name. But such names are considered single *lexemes*. They require their own dictionary entries by virtue of the fact that they are *semantically exocentric* constructions, that is, their "meaning cannot be deduced from [their] grammatical structure" (Conklin 1969:43). "Great uncle" means something quite different than the semantically endocentric phrase Abraham Lincoln's niece might have used to describe her uncle. But semantic centrality varies continuously between the predictable meaning of a descriptive phrase and the arbitrariness of a simple name.

It is clear that the modifying elements "white," "fire-engine," and "great" in the previous examples are not entirely arbitrary. In each case relevant information about the concepts designated is conveyed by the particular combination of morphological elements within the name. This information constitutes the *descriptive force* of the name. For Western Apache, descriptive force is of the essence in place-naming (Basso 1984:27 ff). Apache consultants remark that, "That place looks just like its name," "That name makes me see that place like it really is," and "Its name is like a picture." Sahaptin place-names are not so evocative, but many do call to mind salient features of the sites named. I propose here a simple typology that may prove useful for analyzing the descriptive force of place-names cross culturally (see Thornton 1995).

I argue also that the *density* of place-names, compared both within and across cultural landscapes, may provide a useful tool for the systematic analysis of the conceptual worlds manifested in systems of place-names. Semantic density is readily interpreted in the case of place-names. One simply delimits a region of space, measures the number of square miles included, counts the number of named places within that region, and then divides the number of named places by the area of the region to calculate the number of named places per square mile, which is the *toponymic density* of that region. We may assume that toponymic density reflects the intensity of cultural focus a region enjoys. Variation between regions within the range of a single speech community presumably reflects differential geographic salience of those regions. Variation between languages in the overall toponymic density of their home ranges reflects the intensity of land use in some sense (Hunn 1994).

The notion of lexical density is readily generalized to nontopographic domains. For example, the density of basic color terms might be defined in terms of the average area of the Munsell color chart covered by each basic term of a language. The Munsell color chart constitutes a representation (non-Euclidean certainly) of the "semantic space" that basic color terms partition (Kay and McDaniel 1978). Likewise one might measure the semantic density of a set of kinship or ethnobiological terms with respect to their respective semantic spaces, each defined in terms of an appropriate "etic grid." For example, a system of descent relations might serve in the case of kinship terms (Atkins 1974), while Linnean taxa have been used for ethnobiological terminologies (Hunn 1975). Semantic densities may be compared cross-linguistically if a common semantic space underlies the relevant terminological contrasts drawn by the languages to be compared.

Ethnoscience Methods

A primary goal of ethnoscience is to abstract general principles of classification and nomenclature from comparative studies of *whole semantic domains* in a variety of languages and cultures and then to understand cultural diversity against that universalist background. Key steps in this process include:

(1) The researcher should compile an exhaustive inventory of *names* for the elements of a semantic domain, in this instance, *places*. Each name should be accurately transcribed in the native language and analyzed linguistically to reveal its internal structure. This inventory of names should be obtained from a representative group of native speakers and patterns of variation in naming practices among these speakers should be carefully noted to the extent possible.

(2) The researcher should document the *referential meanings* of each name by reference to an *etic grid*; that is, each name should be translated into the terminology of a Western scientific metalanguage. In this instance, translation is primarily a matter of mapping the places named and locating their central points and outer limits. Granted that "the map is not the territory" (Bateson 1979:32) and that maps are cultural artifacts, we may nevertheless employ standard topographic maps as representing significant elements of geographic reality that are of universal relevance. Such maps constitute our *etic grid*.

(3) The researcher should document the broader cultural meanings of places by recording stories illustrative of the roles—material, intellectual, and spiritual—places play in the daily life of the people who know them by name.

(4) The researcher should document named places physically and ecologically in Western scientific terms and document sites photographically to provide a basis for recognizing correlations between naming patterns and possible underlying universal geographic parameters.

Such a database may then be analyzed for patterns amenable to cross-cultural comparison. Patterns may be sought in the formal structure of names, in their semantic relationships to the places to which they refer, and in their distribution across space with reference to topographic, hydrographic, biogeographic, and socioeconomic factors.

The Sahaptin Place Name Inventory

I have compiled to date a gazeteer of 1044 Sahaptin named places (and a somewhat larger number of *place-names*, since a few synonyms and dialect variants are in use). Sahaptin is the linguists' label for a group of mutually intelligible dialects spoken in what is now central Washington and Oregon by Indians resident along the lower mid-Columbia River since first Euroamerican contact (Hunn 1990). Sahaptin dialects are grouped in three regional divisions, as follows (Rigsby 1965):

Northwest Sahaptin, including Yakima, Taitnapam (Upper Cowlitz), and Klikitat dialects; Northeast Sahaptin, including Wanapam (Priest Rap-

ids), Walla Walla, Snake River, and Palus dialects; and Columbia River Sahaptin, including Umatilla, Rock Creek, Celilo, and the Warm Springs reservation dialects. There are several hundred mostly elderly speakers of Sahaptin who still live within their traditional home range; they are among some 13,000 enrolled members of the Yakima, Umatilla, and Warm Springs confederated tribes (as of 1992).

Prior to the 1855 treaties establishing these tribes, there were neither tribes nor nations in the Columbia Plateau. Rather, people lived in politically autonomous villages recognizing the leadership of a headman or headmen whose authority was essentially personal. These villages—and those of neighboring Chinookan, Nez Perce, and Salishan communities—were closely linked by kinship and trading partnerships in an extensive social network. The Columbia Plateau Indian economy was based on gathering roots and berries, fishing, and hunting (Hunn 1990). There is positive evidence of continuous human occupation of the Columbia Plateau by Native American peoples for at least 12,000 years (Mehring and Foit 1990).

The land controlled by Sahaptin-speaking peoples—or shared by them and their neighbors—covered some 45,000 square miles. This traditional territory extended from the Columbia River gorge and the Cascade Mountains south to the margins of the Great Basin and the Klamath country, east to the Blue Mountains, and north to the “Big Bend” region of the Columbia Plateau and to the Wenatchee Mountains. Winter villages and large summer fishing stations were strung along the Columbia River as well as on the lower reaches of the Snake River and throughout the Yakima River basin. Sahaptin speakers were at home on the White Salmon, Klickitat, Deschutes, John Day, Umatilla, and Walla Walla Rivers. By virtue of their close ties with Cayuse and Nez Perce kin, Umatilla and Walla Walla Sahaptin speakers were familiar as well with the Grand Ronde River country in the Blue Mountains generally conceded to the Nez Perce. Place-names that are unambiguously Sahaptin predominate throughout this range. Sahaptin names for places beyond these bounds are rare or absent. Thus the linguistic provenience of place-names provides clear evidence for the boundaries of traditional occupation and use, at least for the past few centuries (see Figure 1).

The Sahaptin homeland encompasses great biological and topographic diversity, a diversity systematically exploited by local native peoples during the millenia of their occupation. Sahaptin named sites range from the 14,410 foot summit of Mt. Rainier to the junction of the Cowlitz and Columbia Rivers within the range of Pacific Ocean tides. Habitats occupied range from the high desert country in the rain shadow of the Cascade range—with as little as 6 inches of annual precipitation—to dense rainforests on the flanks of Mt. Rainier where in excess of 100 inches of annual precipitation is recorded. The highly patterned distribution of named sites across this vast area provides a graphic image of Native environmental perception and use. For example, the dense concentration of named sites at the Celilo Falls fishery shows clearly the pivotal position of this regional trade center (see Figure 2). Other regions within the Sahaptin range appear



Figure 1

The traditional Sahaptin range in the Columbia Basin of Washington and Oregon is indicated by the dark line. Areas within the dotted line were regularly visited by Sahaptin speakers but were not considered part of their territory (Hunn 1990:5). Reprinted by permission.

to be practically devoid of named sites, as the extensive tract of sagebrush steppe between the lower Yakima River and the Columbia below Priest Rapids.

Place-names are fragile cultural artifacts. Body-part terms, which all speakers of a language are likely to share, are more robust. By contrast, place-names are *not* widely shared but are generally restricted to those speakers of the language who live within a few tens of miles of the site named or who regularly visit it. For example, James Selam, my colleague and a John Day River elder, knows over 160 Sahaptin place-names. Only 7



Figure 2

Named sites at Celilo Falls on the Columbia River (Hunn 1990:156–157).¹ Reprinted by permission.

of these are included among the 273 places named in a geographic narrative related by Jim Yoke, a Taitnapam elder (Jacobs 1934–1937). The traditional home ranges of Selam and Yoke scarcely overlap. This composite nature of toponymic vocabularies raises important issues concerning the relationship between individual knowledge and that collective body of knowledge anthropologists style “culture” and highlights the importance of recording lexical data both in terms of collective and individual repertoires.

To preserve the full place-name inventory of the Sahaptin language would require that the traditional geographic knowledge of members of each of dozens of distinct communities be preserved. Unfortunately, this has not been possible. The last surviving elders with firsthand knowledge of many parts of the Sahaptin range have died, taking their knowledge with them.

The major sources for my Sahaptin gazeteer are:

(1) My own lexical files of interviews on a variety of ethnographic subjects collected from 14 native speakers between 1976 and 1993. These files include 281 place-names, 117 of which have not otherwise been recorded. In particular I have been fortunate to have been instructed during this time by James Selam, a John Day River elder born in 1919 and raised along the Columbia River (see Figure 3). I have traveled with Selam to most of the sites he visited with his family in his youth (excepting those now under water behind Columbia River dams).

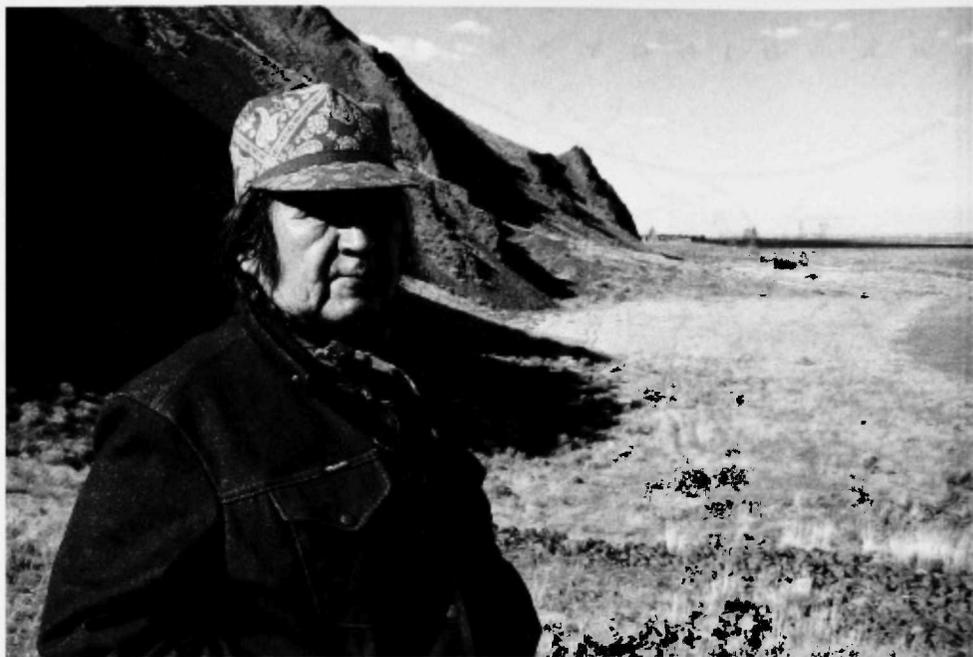


Figure 3

James Selam, John Day River elder, at the base of basalt rimrock below Priest Rapids. Photo by author.

Though I have recorded over 160 Sahaptin place-names Selam learned from his parents, this does not exhaust his place-name repertoire, as he knows many English place-names as well, from "Roosevelt," Washington, where Selam attended high school, to "Tokyo," Japan, where he served as a military policeman during the postwar military occupation. Plateau Indians today rely primarily on English place-names for day-to-day orientation. But traditional Sahaptin names are valued as cultural patrimony.

(2) Melville Jacobs pioneered linguistic research in Sahaptin during the 1920s and published several volumes of texts and analyses (1929, 1931, 1934–1937). The geographic narratives he recorded from Jim Yoke and Lewy Costima in 1927 are an exceptionally rich source of ethnogeographic insights, including some 300 place-names for the Cowlitz, upper Nisqually, Naches, and upper Yakima River basins. His phonemic transcriptions are highly reliable, though many of the names in his lists are imprecisely located and sparsely annotated.

(3) Bruce Rigsby, Virginia Hymes, and Noel Rude, linguists currently active in Sahaptin research, have recorded place-names (37, 24, and 23, respectively) in standard phonemic transcriptions (Hymes 1976; Rigsby 1965, n.d.; Rude, personal comm., 1990–1993).

(4) Verne Ray's published list of Plateau villages (1936) lists many Yakima River localities, with a scattering of place-names for other Sahaptin areas (a total of 97 place-names).

The names in the sources cited above (nearly 50 percent of the total data set) are for the most part accurately rendered phonemically, but they are

highly variable in the amount of cultural information provided. The following sources are often richer in cultural information, but the place-names are given in nonstandard, anglicized spellings.

(5) Click Relander's *Drummers and Dreamers* (1956) lists 123 Sahaptin place-names recorded in the 1950s from Priest Rapids elders.

(6) Robert Suphan's (1974) testimony before the Indian Court of Claims includes a list of 134 Grand Ronde, Umatilla, and John Day River place-names reported by Umatilla tribal elders in the late 1930s in conjunction with a federal government study of Indian fishing sites. These place-names appear to be in the Sahaptin, Nez Perce, and Cayuse languages, and delineate an extensive region shared by Umatilla and Walla Walla Sahaptins, Cayuses, and Nez Percés.

(7) Lucullus McWhorter's unpublished notes (n.d.) include 166 place-names recorded from Yakima elders before 1920. McWhorter had the great advantage of visiting many of the sites in the company of elders born in the 1830s. On one occasion he invited two elderly chiefs to tour the Moxee Valley east of Yakima with him in a friend's motorcar, no doubt a great novelty in 1918, but a technique I have used more recently to advantage.

(8) George Gibbs (Norton et al. 1982) and Henry Abbot (1855) recorded place-names (14 and 17, respectively) in conjunction with government railroad surveys in the 1850s.

The difficulty of divining the appropriate forms of the place-names recorded by Relander, McWhorter, Suphan, Gibbs, and Abbot is due to the fact that the sounds of Sahaptin words are not reliably represented using implicit English spelling conventions. Sahaptin employs a number of consonant contrasts lacking in English, such as glottalized stops and affricates (written here in italics as *t'*, *ts'*, *ch'*, *tʰ'*, *k'*, and *q'*) and distinguishes between palatal and velar stops (*k* versus *q*). Sahaptin uses uvular (*x*), velar (*χ*), and lateral fricatives (*ʈ*) and a lateral affricate (*ʈʰ*), all absent from English. Sahaptin distinguishes just four contrasting vowel positions (*i*, *u*, *a*, and *ɨ*, the last a short, midvowel a bit higher than the *e* of *the*) but treats short and long vowels (*ii*, *uu*, and *aa*) as distinct sounds. Thus there is no neat match between Sahaptin vowels and the baker's dozen used in English. Finally, primary word-stress is relevant to the meanings of Sahaptin words but is rarely noted in the anglicized spellings, though it may affect the choice of English vowel. These authors frequently suggest English interpretations of the names they recorded, interpretations presumably solicited at the time from their Sahaptin consultants. Although such informal "translations" can be misleading, they often provide essential clues as to the descriptive content of the Sahaptin original.

The Linguistic Forms of Sahaptin Place Names

There are no linguistic forms peculiar to Sahaptin place-names, no characteristic morphological elements such as English "-ville," as in Louisville, which reliably mark a name as a toponym. Nor is there a Sahaptin word for "place" or "place-name." Nevertheless, it is clear that the notion of a "place" requiring a name is meaningful to Sahaptin speakers and that

place-names are readily set apart from other terms in the language by native speakers. This raises the methodological question of how an outside investigator can learn to recognize place-names in an unfamiliar language. A first step is to analyze the syntactic and semantic features of native language discourse referring to place.

Sahaptin is an agglutinative, polysynthetic language. Most Sahaptin words are decomposable into smaller elements, often single syllables, each of which contributes in some measure to the meaning of the whole word (Jacobs 1931). Another feature of Sahaptin that affects the structure of place-names is that it is "verb-centered." In comparison with English, much more of the semantic force of a sentence is built into the verb and there is less reliance on independent nouns, pronouns, adjectives, adverbs, and prepositions to convey meanings. For example, the seven-word English sentence "He set up my tent for me" is rendered in Sahaptin by two words, a complex verb followed by a simple noun: *i-shapá-tuti-yay-sha-na-ash* [*i*- 3rd singular subject pronoun + *shapá*- causative + *-tuti*- stands up + *-yay* benefactive + *-sha* progressive aspect + *-na* past tense + *-ash* 1st singular (object) pronoun] *niit* [house/tent] (Rigsby, in press).

Much of the information conveyed in the English sentence by independent pronouns and prepositional phrases is conveyed in Sahaptin by affixes attached to the verb stem. In addition, subtle adverbial senses that modify the quality of the verb's action are readily incorporated within the Sahaptin verb stem. Thus Sahaptin place-names may capture a complex sense of motion hard to express in a single English word. To cite just one example, a cliff site north of Priest Rapids along the Columbia River over which deer were driven was called *xa-txa-m-chan-wi-t-ash*, which is composed as follows: *xa*- 'suddenly' + *txa*- 'involuntarily' + *-m*- 'toward the speaker' + *-chan*- 'directed motion' + *-wi*- 'down, below' + *-t* [active participle] + *-ash* [purposive]. This brief introduction to Sahaptin syntax gives us some basis for appreciating the expressive power evident in many Sahaptin place-names.

We may distinguish three broad categories of Sahaptin place-names on the basis of how they are composed. The first type of names includes those consisting of simple stems; the second type includes names consisting of a stem with one or more suffixed elements; and the third type includes names composed of two or more separate "words."

Given the agglutinative nature of Sahaptin, it is perhaps not surprising that the third type of place-name is rare. There are no more than 40 such cases (about 4 percent). By contrast, well over half the English place-names in Washington State are compounds. Most English compound place-names are "binomials," that is, they are structurally analogous to prototypical plant and animal names such as "black oak" or "white-tailed deer," composed of a "head" term naming a superordinate generic category, such as "oak" and "deer," modified to specify which species of oak or deer is intended. Binomial place-names include a generic topographic term, such as "mountain," "river," or "town," with a specifying attributive, as in "Table Mountain," "Columbia River," and "New York City." A compilation of 1222 Washington State place-names (Phillips 1971) contains 627

topographic binomials (51.3 percent; of these, 472, or 38.6 percent, are written as two or more separate words). There are just 32 such terms in the Sahaptin corpus (about 3 percent) and 17 of these look suspiciously like recent coinages based on English models. This is not due to any paucity of general topographic terminology in Sahaptin, as is indicated in Figure 4. One well-known example is the Sahaptin term for the Columbia River, *nch'i-wána*, literally 'big river'. (More commonly Sahaptin compound place-names are possessive constructions, such as *k'amamul-nmí támtax* 'bald eagle's head', for a mountain in the John Day River headwaters.)

This avoidance of binomials is also evident in Sahaptin plant and animal names (Hunn and French 1984). An aversion to the use of binomial names for plants and animals appears to correlate with hunting and gathering economies (Brown 1985). But it must be noted that Dena'ina Athabaskans, likewise hunters and gatherers, make extensive use of topographic binomials; in fact, 62.7 percent of their place-names are of that form (Kari and Fall 1987). This peculiarity of Sahaptin place-naming practice may prove to be attributable to unusual aspects of Sahaptin syntax rather than reflecting some law of semantic evolution.

The second type of Sahaptin place-name includes noun or verb stems marked by suffixes (445 cases). Four suffixes are commonly used with nouns in this context: *-ash* 'place of' (133 cases); *-pa* the general locative 'at' 'on', or 'in' (71 cases); the possessive suffix *-nmí* (45 cases); and the stative suffix *-i* (98 cases). These suffixes are not unique to place-names but may

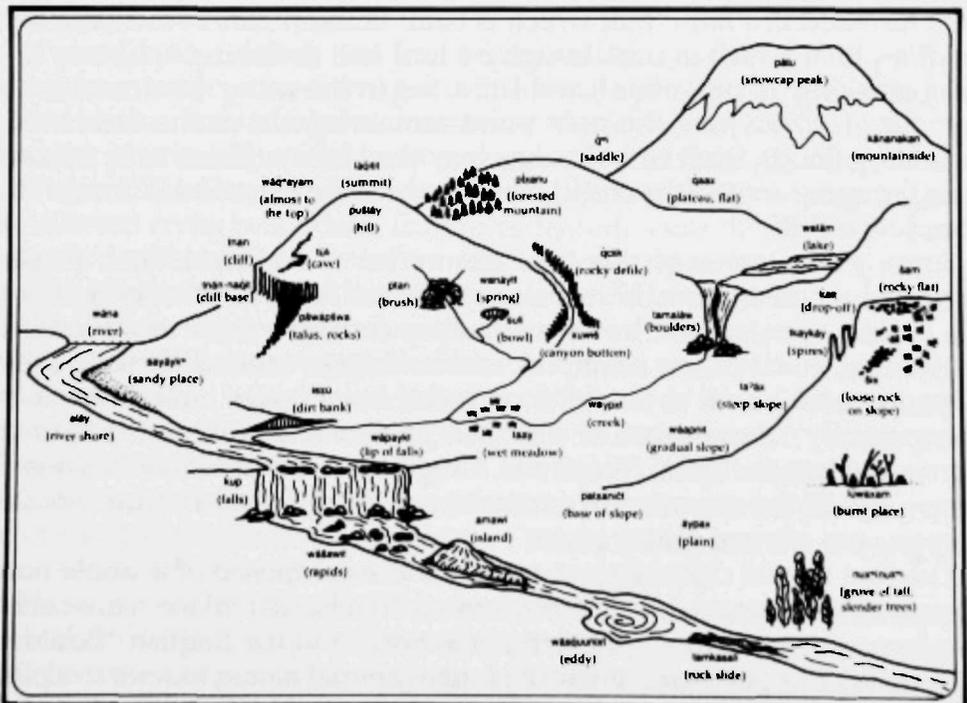


Figure 4
Sahaptin topographic terminology (Hunn 1990:92). Reprinted by permission.

be used in other contexts. Examples from the present place-name inventory include *ayáy-ash* 'rainbow-trout place' and *pák'ink-ash* 'place of the barrier' (compare *tmí-sh-ash* 'chokecherry tree'); *ishnípsh-pa* 'at water birch[es] (*Betula occidentalis*)' and *watám-pa* 'at [the] lake'; *tsxlimay-nmí* 'of sword fern (*Polystichum munitum*)' and *x'iyaytsh-mí* 'of [the] sweat lodge'; *xstú-wi* 'has freshwater clams' and *amá-wi* 'has island[s]'. In some instances two or more of these suffixes may be employed jointly, as in *alashík-ash-pa* 'at [the] turtle place'.

In all of these cases, the stem to which the locative suffix is attached indicates a characteristic feature of the site, often calling attention to some resident plant or animal, topographic peculiarity, or characteristic activity at the site. I will analyze the semantics of descriptive place-names in more detail below. Many Sahaptin place-names of this second type are derived from verbs by adding one of the following suffixes: active participle *-t* (72 cases), medio-passive participle *-sh* (43 cases), passive participle *-i* (related to the stative suffix discussed above), or transitivizing *-k* (18 cases). The verb stems from which these place-names are derived may describe the flow of the current in a river, the action of a spring, the "sweep" of the landscape, or some activity of people or animals characteristic of the site. Examples include *yáwashimlíi-t* 'thing [a rock] sitting in the water' (a fishing site at a rapids); *páxutakyuu-t* 'heads joined' (a gap in the ridge at Union Gap south of Yakima where the opposite bluffs appear to be leaning out toward one another); *txápmi-sh* 'that which suddenly goes forth', an allusion to a large landslide (the contemporary Yakima Indian Reservation town of Toppenish is a corruption of this native term); *títs'a-s* 'sticks out' (an overhanging rock formation); *q'lún-i* 'that which is bald' (a mountain with a bare top); *wáxtk-i* 'that which is cut through by [an] axe' (a fishing site); *waq'áq-k* 'frog croaking' (a mountain); and *lalíi-k* 'set in the water' (a mountain the summit of which was the only point remaining above the waters of a legendary flood). Such verbal nouns may then take suffixes, as in *wilawáy-k-ash* 'jumping across [the creek] place' and *xatxamchanwí-t-ash* 'for driving [deer] off a cliff'.

Some place-names of this type are verbs in an impersonal, present progressive conjugation (17 cases). Such names are semantically similar to the preceding examples, but as verbs they convey a more vivid sense of movement. To cite a few examples: *xáslik-sha* 'goes around', descriptive of a bend in a trail; *wíit'ak-sha* '[sliding rocks] break twigs'; *xátkap-sha* 'leans unexpectedly', descriptive of a stretch of unstable soil; and *wáapmi-sha* 'comes out into the open' (Wapinitia, Oregon, is a corruption of this name), descriptive of the sensation of a traveler emerging from a narrow wooded canyon onto a broad grassy plain.

The first formal class of place-names, those composed of a single noun stem, includes many which are *polysemous*; that is, such place-names serve also to name some thing, property, or action, as in the English "Boulder" [Colorado]. The polysemous use of plant or animal names to refer to a place is very common (85 cases). Examples include *ch'alách'a* 'maidenhair fern (*Adiantum pedatum*)' (note that another place is called *ch'alach'a-nmí* 'of maidenhair fern[s]'); *ptis* 'muskrat[s]' (*ptis-as* 'muskrat place' also occurs);

nʃshxt 'greasewood (*Sarcobates vermiculatus*); and *tawshá* 'big sagebrush (*Artemisia tridentata*)'. Such names may also be reduplicated to indicate plurality (12 cases): *tawshá-tawsha* 'lots of big sagebrush' and *tíshpun-tishpun* 'many black-widow spiders'. (Such expressions could also be used to name significant biological associations.)

A Semantic Analysis of Sahaptin Place-Names

Places named for plants or animals are most often named for organisms that characterize the site by their presence, whether by virtue of their abundance, economic value, or distinctive rarity. These are *metonymic* associations (of which synecdoche is one representative trope). In only a few cases is the symbolic association *metaphorical*, that is, based on perceived resemblance. One example is a site on the shore of the Columbia River above Priest Rapids, in central Washington, called *ayk^ws* 'cottontail' (*Sylvilagus* sp.), because rapids here caused the surface of the river to form whitecaps that looked like a bunch of cottontails scurrying away.

If we consider all examples in which a plant or animal is explicitly implicated in a place-name, we arrive at a total of 76 places named for 60 different animals (including 20 species of mammals, 17 of birds, 12 of fishes) and 125 named for 69 different plants. Nearly 30 percent of all animals and plants named in Sahaptin are involved in place-naming. The fact that plant references outnumber those to animals provides indirect support for the argument of some cultural ecologists (Hunn 1981, 1982) that plant resources harvested by women were at least as important as the animal resources harvested by men.

If we add place-names that refer to parts of plants or animals, or products made from those parts, or to signs of an animal's presence and characteristic animal behaviors, as well as human activities and artifacts employed to harvest, process, or store plants and animals and their products, we find that over 250 (more than 22.5 percent of all Sahaptin place-names) may be considered *ecologically-based*. Examples include *ʔnʔn* 'horn'; *chyawnu-nmí* 'of gills'; *ayk^ws-nmí tánawt* 'cottontail's burrow'; *tápaas* 'torch of split cedar twigs'; *q'iyak-áwas* 'for gaff-hooking'; and *tamanchata-ní* 'basket trap'.

What factors determine *which* plant or animal is singled out to characterize a site? Places are named not only for plants or animals of exceptional economic value. In some cases the name is that of an organism without economic significance. For example, a high meadow near Mt. Adams in the Cascade Mountains of Washington is called *kalamát* 'yellow pond lily (*Nuphar polysepalum*)' though local Indians did not use the plant and it is scarcely characteristic of such places. I suspect the pond lily is enshrined here because it is "out of place" and thus memorable.

Places are sometimes named for plants and animals because of a mythological, rather than empirical, association. Such cases are usually recognizable because the plant or animal name has the suffix *-áy* attached, which is a mythic "title" (33 cases). For example, there are places named *tiskáaya* 'Skunk [of myth]' and *spilyáy* 'Coyote [of myth]'. (A regular skunk is *tiskáy*, and a regular coyote is *spilya*.) The name memorializes a mythological

drama acted out at that place in which the mythological animal/person named played a key role.

A quite different principle of association is most often involved in polysemous anatomical terms. Anatomical place-names are typically *metaphorical* (27 cases), alluding to a resemblance between some physical feature of a site and the shape of the organ for which it is named. For example, a popular place-name that crops up repeatedly in scattered localities is *núshnu* 'nose'. These name prominent rock outcroppings. A tendency to *embody* the landscape is suggested by frequent references in contemporary Sahaptin prayers to "Mother Earth" (Hunn 1991). This tendency is vivid and graphic in place-names such as *naysh-ta-nmí ts'íxas* 'Swallowing Monster's anus', a small depression in a basalt cliff above the spot in the Columbia River where mythic Coyote destroyed this monster by blowing it up. A rock tentatively identified as "Stein's Pillar" along the Crooked River in central Oregon is known in Sahaptin as *k'usi-nmí wiyítway* (or *k'usi-nmí tw-ash*) 'horse's penis'. One elderly Indian woman recalled that in passing this place as a child she was deeply embarrassed and turned her head away to avoid staring at it (Rigsby, personal comm., 1993)! Satus Mountain, south of White Swan on the Yakima Reservation, is called *cháynatsh* '[the] groom'. The sensuous slopes of this gentle peak are envisioned as a young man with a wife on each arm, one of whom holds her baby (see Hunn 1990:96).

A second major semantic category of place-names includes those that are *topographically based*. These may be divided between those descriptive of terrestrial features (65 cases) and those that describe hydrographic features (119 cases), including shoreline features (61 cases) and aquatic features (58). These names may also be distinguished in terms of their focus on *properties* (45 cases of "adjectival" names), which include names referring to visual, aural, tactile, and olfactory properties; on features as *entities* (70 cases of "nominal" names); or on *motion* (69 cases of "verbal" names). Examples of each of these types are given in Table 1.

Topographically descriptive names may also involve metaphor. For example, *sk'in*, literally 'cradleboard', is the name of a distinctively shaped rock that stood at the lip of Celilo Falls in the Columbia River. It was blasted away to prepare a footing for the railroad bridge there. The cradleboard-shaped rock was Coyote's cradleboard, an allusion to a myth in which Coyote defeats the five Swallow Sisters who have dammed the Columbia River at this point, depriving upriver people of their salmon (Beavert 1974:34–37). He outwits them by turning himself into a baby strapped to a cradleboard floating down the river. His cradleboard lodges against the sisters' dam, they rescue him, adopt him, but leave him unguarded as they go dig roots in the hills nearby. He assumes his true form and rips their dam apart before they can return and stop him. This is how Celilo Falls came to be, and the cradleboard rock was a reminder. *Sk'in* also named a populous and influential village established at the foot of Celilo Falls, on the north shore within sight of the rock. People associated with the original inhabitants of this village—described by Lewis and Clark in 1805 (Moulton

Table 1
Sahaptin topographical place names

	Terrestrial (65 cases)	Hydrographic	
		Shoreline (61 cases)	Aquatic (58 cases)
Adjectival (45 cases)	<i>q'tít-aas</i> 'hard place' <i>maqáft</i> 'yellowish'	<i>kis</i> 'stinking' <i>lik'á</i> 'bent'	<i>k'ttu-lí</i> 'swift one' <i>muk-múk</i> 'muddy'
Nominal (70 cases)	<i>túli</i> 'cave' <i>q'mít</i> 'rocky defile'	<i>p'na</i> 'rock bowl carved by current' <i>amá</i> 'island'	<i>q'up</i> 'waterfall' <i>watám-pa</i> 'at lake'
Verbal (69 cases)	<i>wa-lúuk</i> '[land] soars up like bird' <i>tawayawish-nmí</i> 'of landslide'	<i>pá-wan-kyuut</i> 'rivers join' <i>tama-wáyk-ash</i> '[rocks] laid across place'	<i>i-mútk'k-sha</i> 'it bubbles' <i>wápay-k-t</i> 'water accelerates downward'

1988) as containing 17 longhouses—are known as *sk'in-tá-ma* 'people of sk'in', and these are the "Skin-pah" band of the Yakima treaty of 1855.

This illustrates how a place-name with a quite specific referential meaning may be used also in an extended sense to refer to a region for which the specific site is a focal point. Such extensions of reference are rare in Sahaptin usage but are very common when Indian place-names are adopted as standard English designations. The following local rivers have English names derived from Sahaptin: the Klickitat, Umatilla, Walla Walla, Palouse, Yakima, Satus, Toppenish, Tieton, and Wenatchee. In each case the original native term referred only to a specific rock formation, fishing site, or village on the river so named, not to the river itself, which generally was left unnamed. A similar disregard of the essential "thingness" of rivers is noted as well for the Dena'ina (Kari and Fall 1987), the Yurok of Northern California (Waterman 1920), and Australian Aboriginal geographers (Tunbridge 1987).

Perhaps the most striking semantic contrast between Sahaptin and English place-names is the distinct aversion in Sahaptin to naming places after people, a very popular customary practice in American English. Judging by a sample of Washington State place-names (Phillips 1971), approximately half (49.7 percent) of English place-names are *biographical*. By contrast, there are just two examples in the entire Sahaptin corpus, and these are certainly recent inventions modeled on English. There are a small number of Sahaptin places named for mythological "persons," such as *an-yáy* 'Sun Man' and several rock formations called *t'at'at'íya* 'soft-basket woman ogress', a "dangerous being" of the myth age who stole babies and who seduced unwary travelers into fatal sexual encounters.

Place names like "Pittsburgh," "Jonestown," or "Washington" are simply unthinkable for a person raised in a traditional Plateau Indian community. Plateau Indians did not name places for people for one very good reason: people do not name places, period. That is Coyote's responsibility. In the geographic text Jacobs recorded from Jim Yoke in 1927 (Jacobs 1934–1937), it is Coyote who travels along, naming each place, and establishing in law that certain plants and animals will live at each place and that the people will harvest them there. This aversion to personalized place-names is not unique to Sahaptin-speaking Indians. Kari and Fall describe a similar attitude among the Upper Cook Inlet Dena'ina of Alaska. In Dena'ina Athabaskan, places are "almost never named after people, for that would be an overt insult to the ancestors"; furthermore, new place names are never coined by individuals (Kari 1989:142).

Sahaptin personal names have a certain sacred quality about them. One avoids speaking the name of deceased relatives for a respectful period of time following their death, and while they live one does not use their names to address them casually. Indian personal names—except for nicknames—are inherited from one's ancestors in a ceremony marked by ritual gifts. With the name comes something of the person who had once borne the name, particular inclinations, weaknesses, or powers.

It is in keeping with this reverence for names that Indian people do not presume to invent place-names. In fact, some contemporary elders feel that Sahaptin place-names should not be revealed to outsiders. Bobby Tamalwash, of Priest Rapids, resents the fact that Relander published such names (1956). His father and uncle took pains to instruct him in the names of places near his home and in the stories behind those names. Tamalwash believes that that knowledge should be passed on to his own descendants and to no one else. Selam disagrees, believing it is essential that this traditional knowledge be preserved, even if of necessity in the alien medium of the printed word.

Patterns of the Distribution of Names on the Land

What gets named in Sahaptin are *places where things happen*, places where people fish, gather roots and berries, hunt, and camp. Rather than name each mountain, they named places in the mountains where they would go to dig roots, pick berries, hunt mountain goats, or encounter spirits. Rather than name each river, they name village sites, campsites, and fishing places along those rivers. Thus plotting the distribution of named places in Sahaptin is one means to appreciate the ecological niche occupied by local Indian peoples.

To delineate such patterns more precisely, we need to be able to measure the density of place-names. In general, we may define *lexical density* as the ratio of named categories of a domain to some definable measure of the semantic space "spanned" by a given set of such lexical categories. It is a relatively simple matter to define the space occupied by a set of place-names. We may measure toponymic lexical density in terms of place-names per square mile.

We may use this measure to evaluate the distribution of the more than 1000 recorded Sahaptin place-names in terms of ecological factors relevant to regional settlement patterns. For example, the central importance of rivers as cultural "arteries" is readily apparent in the heavy concentration of named sites along major streams. No fewer than 58.5 percent of all named sites were located within a half mile of a primary, secondary, or tertiary stream. These strips represent just 4.6 percent of the total land area occupied. Waterman notes a similar pattern among the Yurok of northern California. "The spots which are 'named' are to be found, in the great majority of cases, along the edge of the stream. . . . The independent names crowd at the edge of the water" (Waterman 1920). But a secondary Sahaptin emphasis on naming huckleberry and hunting sites on the high Cascade drainage divides is also apparent for groups exploiting montane areas. For example, Yoke and Costima named 69 "huckleberry site mountains" and mountain-goat hunting camps, in addition to the 156 riverside camps and fishing sites they listed for the Cowlitz and upper Nisqually basins (Jacobs 1934-1937).

For the entire Sahaptin range we have 1,044 named places in 43,417 square miles for a density of 0.024 named places per square mile. I have performed a similar calculation on Kari and Fall's (1987) Upper Cook Inlet Dena'ina catalogue of 711 named places in an area given as 26,500 square miles. The density is 0.027 per square mile. Is this close similarity just coincidence, or have we stumbled upon a human universal, what we might whimsically call a "lexical saturation point"?

Unfortunately, I suspect this very close correspondence in overall densities between these two Native American language areas is more apparent than real. First, our suspicions are aroused by the rather wide range of densities within the Sahaptin area, which vary from 0.0863 names per square mile for the Cowlitz basin to a figure scarcely over 5 percent of that (0.005) for the lower Snake River basin, and not much greater (0.007) for the John Day River basin. What might cause such a wide discrepancy in lexical densities? Are the lower Snake River and John Day River basins so much less "culturally significant" than the Cowlitz area? I doubt it, as a much simpler explanation is apparent.

The Cowlitz basin was Jim Yoke's home. Yoke was raised there in the mid-19th century, in an area that to that point had been little affected by the rising tide of Euro-American immigration. Jacobs recorded in Yoke's own words a traditional geographic account of Coyote's travels in which Yoke named the significant places of his world. Although this account certainly did not include all the place-names Jim Yoke knew, it likely represents the majority. Thus the toponymic density calculated for the Cowlitz basin should more closely represent the actual extent of traditional geographic knowledge before white intrusion than what I have calculated for the lower Snake and John Day River basins. My sources in the latter cases are much further removed from the precontact state of knowledge.

Taking Jim Yoke's place-name inventory as a standard by which to judge the degree to which our inventories of Sahaptin place-names elsewhere approximate an authentic traditional state of knowledge allows us to

estimate the loss of cultural knowledge as a consequence of Euro-American settlement. Judging by that standard (approximately 265 named places in 4,400 square miles), we should expect 2,600 rather than just 1,044 named places in the full Sahaptin range. By this reasoning, some 60 percent of the total Sahaptin repertoire has been lost.

Lexical density calculations also provide a systematic basis for cross-language comparisons. In a sample of 12 languages from native North America, Mexico, the Pacific Islands, and Australia, I discovered a strong correlation between the lexical density of place-names and the population density of the associated society. This preliminary finding with details concerning the data sources and methods on which it is based has been published elsewhere (Hunn 1994). I have since added two cases to the initial sample: Tlingit (Thornton 1995) and Ifugao (Conklin 1980). These additional cases sustain the initial correlation. Pearson's r for the logarithms of place-name and population densities for all 14 cases is 0.95; that is, 90 percent of the variance in place-name density is accounted for by population density (Figure 5).

I believe this correlation may be attributable to individual psychological constraints on information processing. My reasoning is as follows: The land area personally familiar to individuals is inversely proportional to the population density of their society. For example, a hunter-gatherer ranges over a much larger territory than a subsistence farmer, and a hunter-gatherer in the far North or in an extremely arid region ranges more widely than a hunter-gatherer of the temperate zone or of a coastal region, in order to gain a livelihood. Yet the number of place-names individuals in each society might be expected to learn and use in the course of their lives seems roughly equal based on the limited evidence available. In each case, individual toponymic vocabularies fall within the range 300–700 (Hunn 1994).

Exactly this central tendency, "nature's Fortune 500," characterizes the number of basic plant and animal categories a knowledgeable folk taxonomist might be expected to name (Berlin 1992:96–101). Five hundred appears again as the central tendency for the population of Australian Aboriginal "dialectal tribes," according to Birdsell's controversial analysis of Australian hunter-gatherer groups (1970). Is there some unifying thread tying these three cases together?

I believe there is and that the common factor is a general limitation on the size of specific domains of cultural knowledge transmitted within an oral tradition. I do not propose a fixed limit on the size of any particular domain. Clearly, individuals may commit substantially larger lists of words to memory (see Colby 1966:15). But the domains that appear to exhibit a "natural" limit of approximately 500 semantic elements are, one might say, *semantically rich*. Each place-name is an entry in a mental encyclopedia. Knowledgeable consultants can readily describe hundreds of places in meticulous physiographic detail, enumerating locally occurring plants and animals and elaborating on each place's personal, social, political, historical, and mythic significance (see Basso 1984; Cruikshank 1981; Jacobs 1934–1937; Kari and Fall 1987; Thornton 1995; Tunbridge 1988). The same could be said of plant and animal names. Each name indexes an

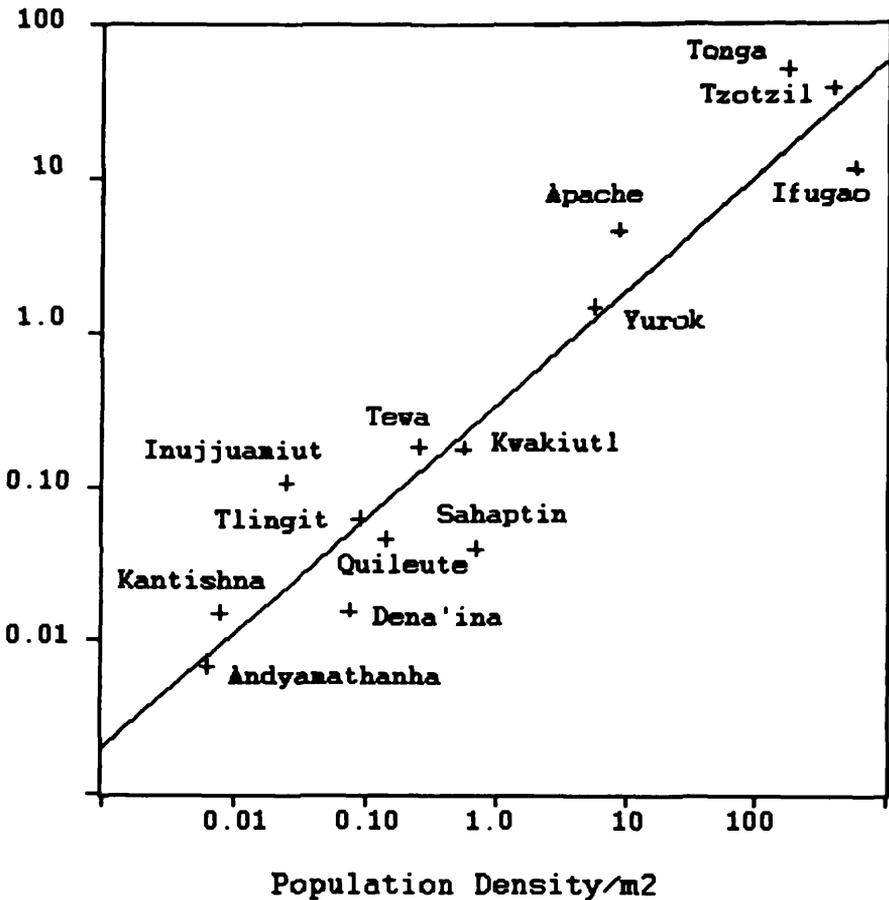


Figure 5

The relationship between population density and the density of place-names for 12 subsistence-oriented societies.

extensive body of knowledge of phenology, ecological and taxonomic associations, and uses characteristic of each named plant and animal (Hunn 1982). Birdsell's "dialectical tribe" may tend to approximate 500 for the same reason. Five hundred may approach the practical limit of the number of persons an individual may presume to know well, that is, by name, kinship connection, and in terms of a personally relevant history of interactions. Beyond this pale people may more often be known in terms of collective stereotypes. In sum, certain semantically rich domains, including those of places, plants and animals, and persons, may be characterized by memory "formatting" that reflects a universal cognitive strategy for managing complex clumps of information.

Summary and Conclusions

I have argued for a renewed interest in place-names as storehouses of cultural information about people's relationships with the land. I describe procedures for documenting place-naming systems for the purpose of cross-cultural comparison, defining descriptive force and lexical density as bases for such comparison. I describe a corpus of all known place-names in the Sahaptin Indian language of the Columbia Plateau and offer some preliminary comparisons with a collection of place-names in the Dena'ina Athabaskan language of Cook Inlet, Alaska, and with a Washington State gazeteer. I recognize common syntactic and semantic types within the Sahaptin corpus, noting certain striking contrasts between Sahaptin and either Dena'ina, English, or both. First, the conspicuous Sahaptin avoidance of binomial place-names is documented in contrast to both Dena'ina and English. This parallels the equally strong Sahaptin aversion to binomial plant and animal names (Hunn and French 1984) and might be attributed in part to Sahaptin's polysynthetic syntax. I demonstrate the central role of semantically complex verb stems, which gives to many Sahaptin place-names a vivid active quality less apparent in Dena'ina or English.

Prominent semantic relationships include a preference for place-names descriptive of characteristic features of the site, most often ecological or topographic. Nearly one-quarter of Sahaptin place-names refer to plants or animals present at the sites, a figure essentially identical to the Dena'ina figure of 25.2 percent but substantially greater than is found in our sample of English place-names (6.6 percent). Among topographical place-names, that is, those descriptive of local features of the land or waters, the prominence of hydrographic features—119 versus 63 highlighting terrestrial features—complements the notable affinity of Sahaptin place-names for water. Statistical analysis of place-name distributions provides clear evidence of culturally distinctive land-use strategies and settlement patterns.

Sahaptin rejects *biographical* place-names, that is, those named for historical individuals, an aversion shared by the Dena'ina. This is in stark contrast to the English immigrant's decided preference for such names. Nearly half of our English sample of Washington State place-names are biographical.

An unexpected finding of this study follows the application of the notion of lexical density to cross-linguistic comparisons. In a sample of 14 languages from native North America, Mexico, the Pacific Islands, and Australia, I have discovered a powerful correlation between the lexical density of place-names and the population density of the associated society. To fully explain this striking regularity will require additional research. But the correlation may be attributable to individual psychological constraints on information processing.

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1. James Selam named and located these sites in 1987. His family belonged to the community at *sk'in*; so he claimed limited knowledge of the fishing places on the Oregon side. He described how he and other children (in the 1920s) used to fish at *tfts'as*, one of his family's sites. The village of *sk'in* was built on the rocks above the sandy beach at the foot of the falls on the Washington side. The village was named for a rock formation at the lip of the falls that resembled a cradleboard, associated with the story of Coyote's destruction of the Swallow Sister's dam, which blocked the passage of salmon here in the Myth Age. This rock was destroyed during the construction of the railroad bridge shown in the photograph. The *wala-wála* area was a high-water fishing site. At *tayxayt-pamá* 'for spearfishing', a bed of pale flat stones under clear water facilitated spearing migrating salmon. At *sapwilalat-pamá* 'for set-netting' the river fell 8 to 10 feet. Fishermen tied their large-hooped set-nets at the base of the falls in order to catch the leaping salmon. Drying sheds were set up in summer on *amá-wi* 'has island' (later known as "Big Island"). At *áwxanaych-ash* 'standing at the edge place', seven men stood in a line dipping into the rushing current. The whole island was subsequently known as "Standing Island." In early days fishermen swam across to *shwáych-ash* 'swim-across place'. A dipnet on a 20-foot pole was needed to reach the current here. The rock *atúim* [from the sound of the rushing water] stood at the lip of the falls. It came to be known as "Albert's Island" after a family that used it in the 1930s. A favored place for harvesting "eels" (the Pacific lamprey, *Entosphenus tridentatus*) was the narrow channel called *pách'p-ash*. Old Lady Rock (*tmáma*) was tabooed.

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