

North Plateau Linguistic Diffusion Area¹

Haruo Aoki

University of California, Berkeley

Introduction

This is a preliminary cross-genetic linguistic study in the northern Plateau area. Areal studies of phonological systems in the Pacific Northwest have been already attempted by Jacobs (1953) and Haas (1969^a:84-9) among others. Boas (1911) made repeated references to areal features of the Pacific Northwest in his introduction to the Handbook of American Indian Languages. The linguistic relationship between Salish and Sahaptian was briefly discussed by Suttles and Elmendorf (1963:46). This paper is to modestly expand their efforts with specific reference to the eastern members of the Interior Salish and Nez Perce.

Historical background

At the time of Euro-American contact in the early nineteenth century, the territory occupied by the Nez Perces extended from the Bitterroot Mountains on the east to the Blue Mountains on the west, between latitude 45° and 47° (Spinden 1908:172, Schwede MS). Their neighbors were, the friendly Sahaptin² to the west, the Salish to the north, the hostile Blackfoot and others beyond the neutral zone of the Bitterroot Mountains to the east, and the most hated

Thank you for your
kind help. Rip this
tribble where Lin
bring.
Haruo

northern Uto-Aztecan to the south. The Nez Perce and Sahaptin languages are genetically related constituting the Sahaptian family (Aoki 1962). Of the rest with which Nez Perce has no proven genetic relationship, the Salish seem to have maintained the longest contact. After referring to the relatively recent date of the Athapaskan entry in the Northwest, Suttles and Elmendorf wrote, "Salish contact with Wakashan, Chimakuan, Penutian, and perhaps Kutenai is, ^hHowever, likely to have been of long standing. We must expect considerable interinfluence, and it is also among those stocks that the most probable remote genetic connections of Salish are to be sought" (1963:46).

We might now take a closer look at the nature of Salish-Nez Perce relationship in the past. According to Spinden, Spokane and Coeur d'Alene were traditional enemies of the Nez Perces (1908:173). But there was some trading between them. Teit mentions that Coeur d'Alene obtained some dentalium and abalone from the Nez Perces, who in turn obtained them from those along the Columbia River near the Dalles, and that there was some trading of other items between the two tribes (1930:113). There were some, though infrequent, wars between the Nez Perces and Coeur d'Alene (Teit 1930:125) and also at least one in the late eighteenth century with Sanpoil (Teit 1930:258f).

At a later date, possibly after the introduction of

horses in the area, the Coeur d'Alene and Nez Perce started to hunt bison east of the Rockies, the former starting earlier than the Nez Perces. On such occasions, both tribes passed through Pend d'Oreilles and Flathead territories, and went first at the invitation of the Flathead (Teit 1930:305f). Because of a check by eastern tribes, some Flatheads moved west and resettled among the Nez Perces. Later, there were inter-tribal bison-hunting parties made up of Flathead and Nez Perce. This alliance of western tribes checked the western and southern movement of the Blackfoot and the western movement of the Crow (Teit 1930:317-9).

Intermarriage

As a result, there was intermarriage between Flathead and Nez Perce. In the mid-nineteenth century, one of the well-known Nez Perce chiefs was Lawyer, whose mother is believed to be a Flathead woman (Drury 1960). Lawyer's case indicates that such intermarriages did not interfere with the social prestige of the offspring. A recent study of Walker (1967a) based on 2162 Nez Perces (17,296 blood quanta units) shows that 66 percent have Nez Perce heredity. Of the 34 per cent of non-Nez Perce heredity, 66 per cent are white, 18 per cent are mostly friendly Plateau tribes including Cayuse, Colville, Coeur d'Alene, Flathead, Klamath, Spokane, Umatilla, Warm Springs, and Yakima; 9 per cent are distant Indian tribes; 2 per cent are traditional

enemies such as Shoshonean speaking Paiute, Bannock and Shoshoni groups; 1 per cent Negro. In his study, no breakdown of the friendly Plateau group is given, but the Salish group taken as a whole probably ranks only second to the Sahaptin group.

Myth telling and bilingualism

Of the 35 Coeur d'Alene myths that Reichard collected, she recognized that 18 had parallels in Nez Perce (1947). In geographically contiguous situations the figure itself is not surprising. Here I would like to cite some examples that may throw some light on the nature of inter-tribal relationship possibly reflected in myths and historical tales.

Coeur d'Alene depiction of Nez Perces is hostile and condescending. In a story (Reichard 1947:206-7), two old women kill a Nez Perce man peeking into their lodge by throwing hot mush in his face. In another (Reichard 1947: 98-109), after releasing salmon that were kept captive by four man-eating sisters, Coyote tells salmon not to go up to the Nez Perce territory but to go to the Coeur d'Alene area. Coyote also goes around looking for a wife, and is refused by all Salish tribes, but gets a Nez Perce woman. In spite of his occasional role as a culture hero, Coyote is a second class citizen in myths. He eats mice, which no respectable myth people touch, and talks strangely.

Therefore, a marriage to Coyote seems to be an indirect insult to Nez Perce womanhood. Still in a third (Reichard 1947:194-8), Turtle organizes a war party, scalps a Nez Perce chief, but is caught with the scalp. He pleads against being drowned. Then, people (presumably the Nez Perces) believe that he cannot swim and throw him in water to kill him. Turtle triumphantly swims home and holds a scalp dance.

On the other hand, Nez Perces seem to have taken the policy of non-involvement (Aoki and Walker MS). In a version of Coyote's liberation of salmon, Coyote plans to deceive the girls guarding the salmon, goes upstream and says "let me be a baby laced in a Salish papoose (selixtiké?spe)³ placed on a raft and let me drift down." The point appears that being a Salish baby aroused less suspicion by the girls. Another episode seems to confirm this point. Coyote plays tricks on a group of sleeping boys by painting their faces with egg yoke, charcoal and so on. They wake up and start looking for Coyote for revenge. To avoid the angry boys, Coyote says "let me be a Salish man (sé·lix wićé·y) shooting grouse." The boys come by and ask him if Coyote came that way. Coyote in disguise answers "ʔo·tá· (Nez Perce word for no is wé·tu)" and the boys go away looking for him elsewhere.

There is a further example of bilingualism. Porcupine encounters bison droppings and asks how old they are. They answer "twenty years." As he wanders he keeps asking the age of various bison droppings and finally comes in sight of

a group of bisons resting across a river. Porcupine calls out to them to come and take him across the river. One bison asks him, "do you want me?" Then the narrator comments that Porcupine is half Salish. Porcupine keeps rejecting them saying "ʔo·tá·m" until a good fat cow asks, then he says "ʔu·né· (Nez Perce word for yes is ʔe·hé)." In personal communications both Professors Laurence C. Thompson and M. Dale Kinkade agree that Porcupine's words are likely to be Kalispel. This has an interesting implication. It must mean that the Nez Perce audience was able to understand some Kalispel words.

Moving away from the myth situation, Drury (1960) says that "there is plenty of evidence that Lawyer was fluent in both the Nez Perce and the Flathead languages."

On the Salish side, Teit mentions how a Coeur d'Alene chief, whose band was outnumbered by the Nez Perces in a hostile encounter, stood in front of the Nez Perces at night and unseen because of darkness "spoke loudly to them in their own language" to go home because all the major bands of the Coeur d'Alene tribe were there and Nez Perce had little chance to win. The Nez Perces believed this and went home without fighting (Teit 1930:125). In a story cited earlier, the two old women who killed a Nez Perce man feigned a fight speaking in Nez Perce (Reichard 1947:206f). Reichard mentions that phrases from Nez Perce and other languages were used in telling myths for comic effects (1947:30). Since she notes

that in Coeur d'Alene myths Meadowlark is a Spokane (1933: 564) and that Turtle speaks Spokane (1933:545), myth telling appears to have been quite a ^{multi}~~poly~~lingual entertainment.

Cross-utilization of economic resources (Walker 1967b) and inter-tribal religious ceremonies (Brunton 1968) in this area must have been among the factors that contributed to the development of bilingualism. It is clear from the foregoing that there were many Nez Perces who spoke Interior Salish and many Salish who spoke Nez Perce, and that there is a possibility of linguistic diffusion between the Interior Salish languages and Nez Perce.

Lexical comparison

Nez Perce is conservative in accepting loan words, at least it is so in regard to the items of European origin (Aoki 1970b). For example, 'chicken' in Nez Perce is [waswásno], a presumably indigenous word, while both Sahaptin and Kalispel have loans; Sahaptin [likó·k] and Kalispel [li·kók] (Vogt 1940a:148) are from Chinook Jargon likák (Kaufman^{MSI}) which is from French le coq. When we compare Salish and Sahaptin, the latter appears to be more conservative, e.g., Kalispel has laménás (Vogt 1940a:148) from French la mélasse for 'syrup' while Sahaptin has lišt̚x̚lišt̚x̚, an indigenous word meaning 'sticky' the Nez Perce cognate being list̚ex̚list̚ex̚ 'sticky.' Similarly, the word for 'pot' is ɬlpó (Vogt 1940a:

em. eíkan
Ch. skwínám

Ch. molás

150) in Kalispel from French le pot, while Sahaptin has tuksáy, presumably an indigenous word.

Nez Perce seems to prefer translation loans instead, e.g., cewcewínes 'telephone (a thing for whispering)', c̣iqleylé·keʔs 'microphone (a thing to talk into)', sepé·sc̣etes 'refrigerator (a thing that makes things freeze)'. If the same conservatism exists in regard to Indian languages, we should expect very few loans after a considerable period of contact. In the following paragraphs an attempt is made to list look-alikes between Nez Perce and Salish. Whenever available, I listed Kuipers's Proto-Salish and my Proto-Sahaptian forms (Aoki 1962). There appear to be words that should be treated with some caution. They are phonosymbolic words such as names of birds, which are often imitative of their calls, verbs for coughing, sucking, sneezing, and so on, and particles that describe powderiness, burning fire, snap of twigs and others. Words that correspond to English chirp, honk, caw, slurp, puff, splash, thud are likely to be of marginal significance. Here, I try to be more inclusive than judicious.

1. Snow. Columbia Sahaptin pú·y, Northeast Sahaptin puʔúy (Rigsby 1969:125), Nez Perce póhoy hard or fine snow, mé·qeʔ genera¹ word for snow. Salish forms for 'snow on ground' are Cowichan and Musqueam méqe, Chilliwack ṃeqe (Elmendorf and Suttles 1960:16), Clallam náqaʔ, Lummi néqəʔ, Puget Sound (Skagit) báq^wuʔ, Columbia smák^wt, Coeur d'Alene

cm. tkóp
ch. kwátas/ut

cm. kwátas/ut

smíḱ^wt, Kalispel and Spokane səméḱ^wət (Vogt 1940b:6),⁴
 Colville smíḱ^wt (Kinkade and Sloat MS), Flathead səméḱ^uet,
 səméḱut (Krueger 1960:35). Other words are for 'snow
 falling' Columbia múḱ^wux^w, Coeur d'Alene máḱ^w; for 'cover
 with snow' Kalispel mḱ^wúp, Thompson wúxt, Clallam and Lummi
 ? číq. Nez Perce mé·qe? seems to be a loan from Salish.

2. Bull/bison. Sahaptin taláyi, Nez Perce cú·ḱim.
 Columbia scúḱəm bull, bull elk, Coeur d'Alene cúḱum
 buffalo (Kinkade and Sloat MS), Kalispel, Spokane, Colville
 scúḱəm bull (Vogt 1940b:6), Flathead scúḱəm bull (Krueger
 1961b:49), Thompson sqi?qíx^w tək stəmált male bovine.
 Sahaptin taláyi is a derivative of tála 'testes.' The Nez
 Perce counterpart is talohí·n (< tá·lo 'testes' + hí·n 'with').
 A possibly indigenous Nez Perce word for bison is qoqá·lḱ.
 Also there is a word kuseynémé, which is a derivative of
 kú·seyn 'east country', the literal meaning being 'a thing
 from the east (in this case today's Montana). The recently
 imported cows and bulls are called mú· in Nez Perce, a
 possibly modified form of Chinook Jargon or a plain phono-
 symbolic form. In view of the inter-tribal bison-hunting
 parties noted above, it is not surprising if the Nez Perce
 cú·ḱim is a loan from Salish. When the suffix ?ayn 'for'
 is attached, expected form with vowel harmony *co·ḱimáyn
 does not occur, but cú·ḱimayn, suggesting the recent origin
 of the word.

3. Calf (animal). Sahaptin qáyik, Nez Perce qeʔéyix, qulqulé·lx, Kalispel čikulkulé(1x^u) (Vogt 1940a:143), Flathead člkuikulé (Krueger 1961b:49), Thompson [ḡmɔʔ^w·təʔ^w]. There is not enough data but the Kalispel form and Nez Perce qulqulé·lx look close. This pair may be another byproduct of joint bison-hunt. On the other hand, Sahaptian forms may have been borrowed into Flathead as ɬqǫʔǫʔi (Krueger 1961b:49).

4. Moose. Not in Sahaptin. Nez Perce sá·slaqs, Kalispel and Flathead have sɣásəlqs (Vogt 1940a:176, Krueger 1961b:49), Thompson stɣéc'. Nez Perce permits no word initial consonant cluster, therefore, Salish seems to be the donor.

5. Crane. Sahaptin q^wášq^waš, Nez Perce múqe, Squamish sməq^wáʔ, Proto-Salish *s-məq^waʔ (Kuipers), Kalispel səmóq^weʔ (Vogt 1940a:163). Since Nez Perce has no surface labio-velars, the donor appears to be Salish. Cf. Chinook q^wášq^waš (Boas 1894:108).

6. Bluejay. Sahaptin xwášxwai (Jacobs 1931:219), Nez Perce quyé·squyes, Kalispel q^uásqi (Vogt 1940a:159), Flathead q^uásq^ui (Krueger 1961b:47), Thompson kawáye, Clallam k^wášk^waš, Skagit wášwaš. The Sahaptin form looks closer to the Interior Salish forms. The set is problematical. Cf. Nootka x^wi·š, x^we·š cry of Bluejay Society, Nitinat

x^wi·šx^wiš (Haas 1969b:121), Chinook qisqis (Boas 1894:155).

cm: c'iwciw
phononm.
? 7. Lewis's woodpecker. Sahaptin siwsiw, Nez Perce cí·wciw, Flathead ciucu (Krueger 1961b:49). Vogt gives no Kalispel form. Sahaptian may be the donor.

cm: c'ixwciw
cm: c'ixw
8. Fish hawk. Nez Perce sá·xsax. Proto-Salish *c'ix^w-c'ax^w (Kuipers). Since the form appears to be reconstructable for Salish, Nez Perce may be the recipient. Cf. Karok čú·kču·k (Bright 1957:421).

9. Great grandparent. No form is reported for Sahaptin. Nez Perce poxpóqt great grandparent, great grandchild, Flathead póxpóxút 'elders' (Krueger 1961a:17), Kalispel póxpóxút 'parent' (Vogt 1940a:158). For these glosses, Thompson sʔiʔtəm 'parent', Lummi ʔə^sʔéləx^w 'elder.' Since there does not seem to be Proto-Sahaptian form reconstructable, the donor may be Salish.

10. Maternal aunt. Umatilla Sahaptin xáxa, Nez Perce qé·qe?. Both Sahaptian forms are vocative. Kalispel and Flathead qáxe? (Vogt 1940a:159, Krueger 1961a:15), Columbia and Sokane qáxa? (Elmendorf 1961:375). The form is reconstructable in Proto-Sahaptian. Kuipers cited no Proto-Salish form, suggesting that Sahaptian is the donor. However, there are many basic kin terms in the world with velars and low vowels, especially reduplicated. The set may be coincidental.

11. Grandparent. Sahaptin (Umatilla, Tenino, Taytnapam) tɬa mother's father (Aoki 1966a). Nez Perce piláqaʔ.

^{Cm} tɬi'laʔ MF Proto-Salish *sil(-aʔ) grandparent (Kuipers). The form for maternal grandfather, nor the one for paternal grandfather for that matter, is not reconstructable for Proto-Sahaptian.

? Sahaptin tɬa may be a borrowing from Salish.

12. Grandparent. Sahaptin (Umatilla, Tenino, Taytnapam) púša father's father (Aoki 1966a). Nez Perce qalácaʔ, Coeur d'Alene púseʔ (Reichard 1939:105) father's brother.

The Sahaptin form for 'father's father' is close to the Coeur d'Alene form for 'father's brother'. Other interior Salish forms for 'father's father' are Spokane sxápe, Columbia sxəxáp^{aʔ} (Elmendorf 1961:370), and those for 'father's brother' are Spokane səméʔɬ, and Columbia səm^{aʔ}ɬ (Elmendorf 1961:376). Since púša-púseʔ forms do not enter into the reconstruction of either family, and because there is difference in meaning, it is possible that they are totally unrelated.

13. Canoe. Sahaptin (Umatilla) káwk, Yakima wási·s, Nez Perce líyēs, Kalispel ʔiyéʔ bark-canoe (Vogt 1940a:152), Spokane ʔiyéʔ, Columbia ʔiyaʔ, Colville ʔifʔ, Coeur d'Alene ʔédeʔ (Kinkade and Sloat MS), Flathead ʔiyé (Krueger 1960:35). Salish languages have both ʔ and l, but Nez Perce has only the latter. Therefore, if the set reflects a loan relationship

poss. borrowing into Cm, since no bark canoes there

Salish appears to be the donor.

14. Know/recognize. Sahaptin šuk^wa, Nez Perce cú·kwe, Columbia súx^w1- know, recognize, Coeur d'Alene súx^w be acquainted with, know, Kalispel súx^w know, recognize (Kinkade and Sloat MS), Proto-Salish *sux^w (Kuipers). Proto-Sahaptian *čú·kwe (?). This set may be a very old loan.

15. Suck. Nez Perce čó·xcoq-, Proto-Salish *čuq^w (Kuipers). Probably onomatopoeic.

16. Cough. Nez Perce ʔoxoʔóxa-, Proto-Salish *(ʔə)x^wu? (Kuipers). Another onomatopoeic pair.

17. Blow. Nez Perce púx (particle), Proto-Salish *pawh, *puh (Kuipers). Probably onomatopoeic. Cf. Nootka pu·x^w-, Nitinat pu·x^w- (Haas 1969b:121).

18. Whistle. Nez Perce hwi· (particle). Proto-Salish *x^wiw, *x^wu-1 reduplicated *x^wu-x^w1 (Kuipers). Onomatopoeic.

19. One. Sahaptin naṣš (Jacobs 1931:240), Nez Perce ná·qc, Proto-Salish *nək^wə? (Swadesh 1949:171), *nək, *nək-u? (Kuipers), *nəkəw?, *pela (Elmendorf 1962:6). There seems to be no relationship among the forms cited here. More on this set later. Cf. PCA *nekwet (Haas 1965:85).

spílya
 20. Coyote. Sahaptin ~~xfiya~~ (Jacobs 1931:219), Nez Perce
 ?iceyé·ye, Kalispel spi·liyé (Vogt 1940a:164), Spokane
 spíliye (Vogt 1940b:6), Skagit sbiyáw, Thompson sənki?ép,
 Colville sənkalip, Columbia smiyáw, ~~Moses! Columbia simiyáu~~
 (Krueger 1967:7), Coeur d'Alene smiyíw, Flathead sənčəlé
 (Krueger 1961b:48). Sahaptin, Kalispel and Spokane forms
 are very close. Because 'coyote' is a commonly tabooed
 item one should expect active replacement by loans. The
 Kalispel form is found only in tales and the ordinary word
 is sənčəlé (Vogt 1940a:163) or sənčəlép (Vogt 1940b:6).
 Since ordinary words tend to be indigenous, Sahaptin may *into Ka & Sp*
 be the donor. *only*

21. Only. Sahaptin sim (suffix), Nez Perce cim (suffix),
 Kalispel čəmí (particle) (Vogt 1940a:141). There ^{one} is not
 enough data. If there is a loan relationship, (1) reconstruct-
 ability in Proto-Sahaptian, and (2) shift from an affix to
 an independent particle, suggest that Sahaptian is the donor.

There are some items that are borrowed into Sahaptian
 and Salish from a third source and those that appear to be
 very recent because of gloss.

22. Pig. Sahaptin kušú, Nez Perce hoqhó·q̣, Columbia
 1ək^wu·sú (Kinkade and Sloat MS). The Nez Perce form is
 from English hog, and the rest are from French cochon
 through Chinook Jargon košó (Kaufman MS).¹₅

23. White man. Sahaptin páštn, šuyápu (Rigsby 1969:131),
 Nez Perce so·yá·po·, Columbia suyápənux^w, Coeur d'Alene
 suyépəmš, Kalispel suyápi (Kinkade and Sloat MS). The
 first Sahaptin form is Chinook Jargon bastən (Kaufman^{MS})
 derived from Boston. In the Nez Perce form po· and pu·
 is a common suffix for tribal names. The Sahaptin cognate
 pam may be in the Coeur d'Alene form. The source of the
 Nez Perce stem is unknown. One possibility is French soldat.
 It should be remembered that the French trappers were in
 the area before the first Americans made the well-recorded
 appearance in the area in 1804 in the form of the expedition
 group of Lewis and Clark, both officers of the U.S. Army.
 There are more recent loans from English soldier. Nez Perce
 só·lcas, Columbian súlcas, Coeur d'Alene sóltes (Kinkade and
 Sloat MS). In Nez Perce, só·lcas is used in the sense of
 'soldier', especially in reference to U.S. Army soldiers
 under General O. O. Howard, who were involved in the Chief
 Jos ph's War in the 1870's.

Semantic comparison

At this time it appears premature to attempt a systematic
 comparison because we need more information. The following
 is an unstructured impression.

The numeral systems are different in that the Salish
 system is decimal and Sahaptian is quinary-decimal. There
 is an interesting parallel in the way 'hundred' is expressed.

Ch. pástn

Ch. wiyápənuxcínəm 'talk English'
 swipsqáxa? 'white-man's horse'

Nez Perce suffixes *hú·sus* 'head' as in *lepitú·sus* '200' (*lepit* 'two'; except in reduplication of recent loans as in case of 'pig' above, *h* is deleted after a consonant), so does Coeur d'Alene, a suffix for 'head' *-qin* is used.

In the area of kinship system, Elmendorf (1961) enumerates the common features in Salish as follows, (1) all parent's siblings are distinguished from parents, and sibling's child from own child, (2) parent's sibling and parent's parent terms are extended to some generation collaterals of these relatives, and similarly for sibling's child and child's child, (3) sibling terms are extended in cousins, (4) special status change terms for parent's sibling and sibling's child applied following death of a connecting relative are very wide spread, (5) the terminology of lineal relatives beyond the second ascending or descending generation tends to be "generation" in type, often a single term applies reciprocally to members of both generations. Same observations can be made for most of the Sahaptin dialects and Nez Perce (Aoki 1966a).

In the same study, Elmendorf suggests that lineal types found in Coast Salish are innovations and that the bifurcate collateral types of the Interior reflect the Proto-Salish kinship system. Sahaptian systems are also bifurcate collateral. However, the Tenino system of equating father's father, paternal great grandfather, and father's mother's brother (Murdock 1958) and their reciprocals seems to be old in Sahaptian (Aoki 1966a).

*culture,
not eq.*

Then, even though superficially Sahaptian and Salish kinship systems look alike, there seems to be an important difference between them. The similarity is probably brought about by diffusion.

In other areas of semantics, a cursory inspection of Reichard's sketch of Coeur d'Alene (1933) indicates that ^{is} there is a considerable difference between Coeur d'Alene and Nez Perce in regard to the types of rules that combine underlying semantic elements to produce surface units. For example, difference of innate and non-innate characteristics, is not overtly indicated in Nez Perce.

Syntactic comparison

Further studies of the several languages are needed before a systematic treatment of syntax can be made. Impressionistically, Interior Salish is more polysynthetic than Nez Perce. For example, kwičtulmn 'I saw you' ^{pl?} (Reichard 1933:582) in Coeur d'Alene is ʔi·n ʔe· hé·xne 'I saw you' in Nez Perce. Because only the third person is overtly marked in the Nez Perce verb system, the information expressed in Coeur d'Alene by verbal affixes has to be provided by independent pronouns and particles. However, a shift in linguistic type can occur in a language in a relatively short period of time (Aoki 1970b). Within the Salish family itself, there appears to be some variation; Boas (1906:98-100)

pointed out that notions expressed by complex verbal forms in Interior languages are expressed by way of auxiliary verbs in Coast languages. Though simplistic, Table I [Table I] based on Reichard (1933) (for Coeur d'Alene) and my studies of Nez Perce may give some idea of the difference in linear ordering of items in the surface structure of verb affixes. Numbers refer to sections in Reichard (1933). It should be remembered that these are simply differences in low level syntactic rules. We know from Australian examples that a prefix in one language may turn up as a suffix in a genetically related language.

Phonological comparison

Phonology in Interior Salish and Nez Perce shows some intriguing problems.

1. Labio-velars. Both Jacobs (1953:49) and Haas (1969a: 85-9) mention that labio-velars are one of the prominent diffused features in the Pacific Coast area. They are in Athapaskan (Kutchin), Nadene (Tlingit), Wakashan (Kwakiutl), Chemakuan (Quileute), Salish and Sahaptin. Further south, they are in Kalapuyan (Jacobs 1945), Takelma (Sapir 1922), and at least phonetically in both Miluk and Hanis Coos (Jacobs 1939). It appears on the surface that along with Klamath (Barker 1964), Nez Perce is one of the blank spots in regard to labio-velars.

We may examine the following Nez Perce verbs;

(1) *niká·lpsa* 'I am peeling (hide)'

(2) *hinká·lpsa* 'he is peeling (hide)'

(3) *tukéhtu?* 'I am going to shoot (arrow) out'

(4) *petkúhtu?* 'we are going to shoot (arrow) out'

niké· is a prefix meaning 'on or against a fibrous or hide-like object.' lp is a stem meaning 'take, seize,' and se is a present tense suffix. tuk is a prefix meaning 'shoot,' éht a stem meaning 'out' and u? is a future tense suffix. There are two person-number prefixes in these sentences; hi a third person subject prefix, pe a plural subject prefix. The underlying elements for (1)-(4) may be (5)-(8).

(5) *niké· + lp* (dominant) + *se*

(6) *hi + niké· + lp* (dominant) + *se*

(7) *tuk + éht + u?*

(8) *pe + tuk + éht + u?*

There is a vowel deletion rule which operates on a non-initial unstressed vowel in a prefix. Furthermore, a vowel harmony rule changes e to a, u to o when there is a dominant vowel such as a, o, and some i in the same word. From (8), we should expect (9), which is ungrammatical.

(9) **petkéhtu?*

There are numerous other examples that show similar alternation;

(10) *tukepelí·kse* 'I am stretching my arm'

(11) *hitkupelí·kse* 'he is stretching his arm'

(12) *tukelí·kce* 'I am going hunting'

(13) *hitkulí·kce* 'he is going hunting'

One way to look at this situation is to think that there is something different about the k in the prefix in (1) and (2) from the k in (3), (4), (10) - (13). The first k in (1) and (2) affects no vowels in the environment. The second k labializes the following vowel when there are two consonants preceding (to have proper output, this labialization rule has to follow the vowel deletion rule). Tentatively we may consider the first k as a "regular k" and the second as a k with some labializing quality, a labio-velar, for example. This view has interesting support from the lower Nez Perce dialect forms. For example, in the downriver dialect (4) 'we are going to shoot' is (14).

(14) petk^wéhtu?

Then even though there is no surface k^w, we may assume that there is an underlying k^w in all dialects of Nez Perce. Similarly, there appears to be underlying k'^w, q^w, and q'^w.

Incidentally, ku as a sort of reduced grade of k^w seems widespread in the area. Silverstein posits k^w as the underlying form of Chinook preposition ku 'to'. Shipley (1970:101) notes that ku in Tfalati corresponds to k^w in Santiam and Yonkalla in his study of Proto-Kalapuyan.

In short, when we examine some internal evidences, Nez Perce has, as Sahaptin and Salish neighbors do, labio-velar consonants.

2. Glottalization. In Nez Perce, all consonants except spirants are glottalized by being combined with the following glottal stop. This glottalization rule applies before the vowel deletion rule, producing the surface contrast between glottalized consonants and consonant-glottal stop sequence. There are some etymologically irreducible glottalized consonants. Thus a stem with initial glottal stop, when reduplicated, has a glottalized consonant in the middle of the word, for example, ʔilp'íp 'red', ʔí·tít 'buttock', ʔayc'áyc 'a kind of parsnip (a diminutive reduplicated form of ʔáys, another variety of parsnip)', ʔipk'ípx 'loose dirt' (velars are spirantalized word finally, and before nasals).

Compare this situation with Reichard's description, "... if a verb stem with vowel initial be preceded by a prefix, the final consonant of that prefix must be glottalized or the consonant (or vowel) separated from the initial vowel of the stem by the stop. Furthermore, if a stem beginning with a vowel is reduplicated, the final consonant of the reduplicated portion may be glottalized, or it may, like a vowel, be set off from the stem by the glottal stop" (Reichard 1933:533).

also cm.
It is clear that there is a similar phonological rule in both Nez Perce and Coeur d'Alene, which may be called a "glottalization rule." There seem to be, however, two differences; (1) the Coeur d'Alene rule is optional, and (2) Coeur d'Alene has a later rule that eliminates the morpheme initial glottal stop.

In recent work, Sloat (1966:46, 1968:11) clarifies that (2) above is not the case by stating that Reichard's #V should be replaced by ?V because there is always a glottal stop in this position. The similarity between the two languages in regard to glottalization procedure is striking.

- cf. Sloat on Cr.

3. Vowel harmony. In Nez Perce, there are six underlying vowels i ə e a o u, and there is backing (and lowering) assimilation that changes e to a, and u to o, if there are a, o, or ə in the same word (Aoki 1966b). The unchanging vowels a, o, and ə may be termed dominant vowels, and the changing e, and u ~~may~~ recessive vowels. There is a later rule that change ə to i producing five surface vowels. The assimilation can be progressive, regressive, or both because there is no positional restriction of dominant vowels. The process is typologically different from classical vowel harmony, for example, in Altaic languages all affix morphemes have two or more alternating surface forms (Aoki 1968).

Though less extensive than in Nez Perce, backing and lowering assimilation is reported for Kalispel, "in some cases the vowels i and e of a suffix are replaced by a when the stem itself contains the vowel a" (Vogt 1940a:19). Some backing and lowering of Kalispel vowels is caused by some "faucal" consonants, "the postpalatals lower e to a and u to o, but only when separated from the vowel by a

consonant" (Vogt 1940a:19). Also a similar assimilation in Coeur d'Alene affixes is described by Reichard, "the second vowel of the series is the form found when it precedes a velar or a faucal: q, q^w, q̣, q̣^w, x, x^w, r, R, r^w and when it follows certain other sounds. There is a tendency in Coeur d'Alene to draw back the entire faucal region when using one of the velars or faucals so that a approaches in such cases more nearly to ɔ, and this tendency is anticipatory, that is, it operates from the beginning of the word and continues until the faucal is pronounced and in some cases, it seems even to carry over beyond to the end of the words" (1933:561).

More recently, Kinkade and Sloat have made a stimulatingly clear presentation of the relationship between Proto-Interior Salish vowels and Coeur d'Alene vowels. The backing assimilation in this light may be summarized as in Table II.

[Table II] It is interesting to note that the last two lines read exactly like the Nez Perce assimilation procedure.

One difference between the two languages is that in Nez Perce back consonants are not the only conditioning factor in the assimilation. For example, wato 'walk in water' (prefix), ʔá·c 'go in' (stem), wala 'tie knots' (prefix), law 'fish' (prefix), hicił 'climb a tree' (prefix), ʔayn 'for' (suffix) are all 'backing' or dominant elements. Since the backing ~~element~~ assimilation is reported only for Kalispel and Coeur d'Alene on the Salish side, while

vowel harmony existed in Proto-Sahaptian (Aoki 1962, Jacobsen 1968, Rigsby and Silverstein 1969), the latter may be the donor of this feature in this area.

Why borrowing at all? NP is vowel harmony, Salish is not.

4. a/i vocalism. This naturally takes us to another problem in Nez Perce vowels. Synchronically, there are pairs of words in which a-i alternation is observed, e.g., ʔaptámisa 'I am against (something)', konmá·ptimt 'across from there' (ko 'that' + nim 'of' + ʔáptam 'against' + t nominalizer); ʔinó·qtisa 'I go ahead (of someone)', ʔanó·qt 'before'; tásx (< tasq) 'grease', tisqáʔw 'fat (adjective)'; mis 'hear (verb prefix)', maćáyo 'ear'. Rigsby's data (1965) from the Umatilla dialect of Sahaptin suggest that a similar condition exists, e.g., iščít ~ aščít 'road, path'; išxí ~ aščí 'pitch'.

Furthermore, i-a alternation exists in Proto-Sahaptian. In the six vowel system proposed by ~~XXX~~ Rigsby and Silverstein (1969) the alternation is *e-*a or *i-*ε. In this system *i *ε *u are recessive and *e *a *o are dominant.

	Umatilla Sahaptin	Nez Perce
'much'	aláx	ʔiléx[ni
'ear'	mićyú	maćáyo

The diachronic rules that derive the following vowels in the reflex languages (Table III) cannot account for the

[Table III] sets above.

Let us turn for the moment to the Salish situation. Roas and Haeberlin (1927) noted that Coast Salish a corresponds to Interior i, and further that there are items that show Coast i corresponding to Interior a.

A simple (and no doubt requiring future refinement) explanation is that rules analogous to those needed to derive Coeur d'Alene i from Proto-Interior Salish a operated as diachronic rules across Salishan-Sahaptian border. The probably ablaut-related and extremely constrained context in which these rules operated may be worked out in the future.

It is interesting to note that similar alternation between a and i is observed in Proto-Mayan, e.g., *sit ~ *sat 'fruit, eye', *sihm ~ *sahm 'nose' (Kaufman MS2), and in Proto-Kalapuyan e.g., Tfalati k^winafun, Santiam k^wanafu 'eat' (ShIPLEY 1970:101).

5. Velar softening. This is one of those rules in the common stock of rules used world over. The velar softening rule is wide spread on the Pacific Coast from Vancouver Island to the mouth of Columbia. Sapir mentions the existence of this rule in Nootka, Nitinat, Makah which softened Wakashan k, preserved in Kwakiutl, to č (1926:110). The centrifugal distribution of č-languages around presumably more conservative k-languages in the Salish family is well known. Also in Sahaptian, Sahaptin has this rule operating in a more constrained form than Salish. In Sahaptin, velar softening takes place before a high front vowel (*i and *e), a common context in which this type of rule operates. In this area

There are
IS about
pairs with
i & a.

if borrowed at all

Salish appears to be the source because of its more general form, e.g., in both Kalispel and Coeur d'Alene, every Proto-Salish k is changed to č and there is no surface [k].

6. Reduplication. Nez Perce reduplication can be classified in terms of its formal characteristics into complete and partial reduplications and the latter into preposed, infix, and postposed (Aoki 1963). All of these types seem to be found in Coeur d'Alene, according to Reichard (1933). In cases of base forms with initial glottal stops, glottalized consonants, optionally in Coeur d'Alene and always in Nez Perce, are produced as noted earlier. The meaning of complete reduplication is plurality, distributive, iterative, and 'it has the effect of' in both languages. In Nez Perce, it also means diminutive. Preposed partial reduplication indicates diminutive in Coeur d'Alene, and plurality in Nez Perce. In both languages infix or medial reduplication means 'gradually becoming'. For example,

Coeur d'Alene	lu ^h p 'dry'	lu ^h ?p 'it became dry'	<i>not R</i>
Nez Perce	tá ^h ?c 'good'	ta ^h ?a ^h ?ác 'better (as in	
		'it gets better')	

Postposed reduplication in Coeur d'Alene means 'it came to be' (Reichard 1933:§607), Nez Perce examples have little generalizable meaning and no simplexes are found independently.

7. Symbolism. Diminutive and less frequently augmentative meaning is expressed in some languages of the area (Nichols 1970) and in northwestern California (Haas 1970) by changing certain sounds. In case of Nez Perce the following alternation is observed;

normal	diminutive
recessive vowels	dominant vowels
n	ɫ
k	q
s	c

For example, síkem 'horse', ciqá·mqal 'dog' (qan signifies 'young' of animals); sukúysukuy 'brown, dark bay (of horses)', có·koy 'bay (pet name for a bay colored horse)'; tú·kes 'digging stick', tokactó·kac 'small or toy digging stick'; ?iní·t 'house', ?ilí·t 'doll house'.

Coeur d'Alene uses glottalization to express diminutive quality (Reichard 1933:§614).

8. Abnormal types of speech. Here I am using the expression "abnormal types of speech" in the way Sapir did in his well known Nootka study (1915). In Coeur d'Alene myths, Coyote palatalizes s to š (Reichard 1933:545). While Nez Perce has more varieties for other myth figures as well, the s to š change is exactly what the Nez Perce Coyote makes!

Phonetic comparison

There are a few points in phonetic details that show parallels between Interior Salish and Nez Perce.

1. Glottalized sonorants. Vogt (1940b:10) points out that one of the main differences between Kalispel and Spokane is that in the latter, unlike Kalispel, "the stricture of the glottis is synchronous with the articulation of the sonants," while in Kalispel, there is a "tendency to dissociate these sounds [glottalized sonants] in glottal stop followed by non-glottalized sonant." Therefore in Spokane am' and aʔm distinctions are easily made. A spectrographic study of Nez Perce glottalized sonants shows that they are of Spokane variety (Aoki 1970a).

2. Labialization. In regard to Coeur d'Alene vowels Reichard says that labialization "is use of lips, but not rounding" (1933:531). In Nez Perce, there is a great deal of individual variation in the lip rounding of high back vowels. Only "inner rounding", as it is sometimes called, seems to be of relevance in both languages.

3. Marginal items. Kuipers postulates both λ and $\lambda^?$ for Proto-Salish, Sahaptin has both λ and $\lambda^?$. A lateral spirant λ infrequently occurs in Nez Perce but none of the lateral affricates either plain or glottalized is found except in marginal cases. The only exception is [ʔép] 'splash!' (an onomatopoeic particle describing something dropping into water). None of the forms in the major lexical classes such as noun stems, verb stems or their affixes contain $\lambda^?$. However, the existence of such marginal items make the absence of lateral affricates in the Nez Perce inventory of systematic units in this geographical area less anomalous.

Concluding remarks

1. North Plateau diffusion area. After examining some of the similarities between Interior Salish and Nez Perce, we note that there are a handful of lexical look-alikes, mostly nouns. Kinship term systems are superficially similar, but this is perhaps due to being in the same plateau culture area. Still there appear to be some significant differences in the proto systems. Surface syntax differs considerably. There are many phonological and phonetic parallels.

So far I have discussed the nature of the area along the border of Salishan and Sahaptian. When one examines the Shoshoni phonological rules (Miller), practically no rules are shared by Shoshoni and Nez Perce. The intense

enmity between them into the historical period explains why there is little possibility of a diffusion area on the south side of Nez Perce. However, we should remember that the difference in the nature of the Salish-Sahaptian border and Sahaptian-Uto-Aztecan border reflects nothing of distant history. The wall of hostility between Sahaptians and Shoshoni and other northern Uto-Aztecs may have been built up in relatively recent times, for example, as a reaction to the expansion of the latter into the Basin (Lamb 1958). On the contrary, as Whorf (1935⁵) and more recently Rigsby (1969) suggest, the genetic relationship for Sahaptian may be sought in the direction of Uto-Aztecan. There are even couple of possible loans into Nez Perce from northern Uto-Aztecan. One is the word for 'coyote'. That the item is frequently tabooed and subject ^{to} active replacement is already pointed above in connection with the possible borrowing of the Sahaptian word into Kalispel and Spokane, but the Nez Perce form ?iceyé·ye was left unmentioned. In Nez Perce -yé·ye is an isolable morpheme that 'personifies' the preceding element frequently used in myths. In personal communication, Sven Liljeblad says 'coyote' is ica?a in Northern Paiute and icappi in Shoshoni, ?a a personifier in the former and (p)pi a classifier in the latter are isolable. It seems possible that Nez Perce stem for 'coyote' is a borrowing from Shoshoni or Northern Paiute. The second is tribal self-designation, which also

quite understandably may be a taboo. The Nez Perce word for themselves is nimí·pu· alternating with numí·pu·. The suffix -pu· is frequently used for tribal names as noted in connection with forms for 'white man' above. Again according to Liljeblad, the word for 'person, man' is nimi in Shoshoni, Northern Paiute, and Ute. We may conjecture that the Nez Perce alternation of i and u is an attempt to approximate i, in borrowing the form from Uto-Aztecs. There may be a further possibility that the set is of older common origin.

The data examined so far ~~does~~ not point to recent common origin of Nez Perce and Salish, but the parallels in phonology seem to warrant their constituting a linguistic diffusion area. Some extralinguistic evidences of tribal contact and bilingualism on both sides show that the parallels are not altogether coincidental.

2. Prehistoric distribution of Coeur d'Alene ^{and} ~~of~~ Nez Perce. Most of the maps showing linguistic and tribal distribution in this area (e.g., Kroeber 1939, Oregon Historical Society 1958, Murdock 1960) give Nez Perce as geographically contiguous with Coeur d'Alene and Flathead, but not with Kalispel. Spokane is placed next ^{to} Palus in the first two, and to Wallawalla in the third, and in none is it directly in touch with Nez Perce.

There are four possible evidences that point to a period in which Nez Perce and Coeur d'Alene were not in direct contact.

First, Nez Perce myth characters use [ʔo·tá·] and [ʔo·tá·m] for 'no' and [ʔu·né·] for 'yes'. In a personal communication, M. Dale Kinkade mentions that Coeur d'Alene, Columbia, Colville, and Okanagon use [lút] for 'no', while in Kalispel (and possibly in Spokane) it is [tá] or [tám]. The forms for 'yes' are hé· in Coeur d'Alene, ʔá· in Colville, Okanagon, and Columbia, and é· or á in Kalispel. Furthermore, Kalispel has a word unéx^w which means 'really' or 'indeed'. Though no forms are available in Spokane, Kinkade thinks they are similar to Kalispel. Salish forms in Nez Perce myths seem to be best explained in terms of Kalispel (or possibly Spokane) forms. Second, if the Nez Perce word mé·qe? for 'snow' is borrowed, Kalispel sáméq^wət looks closer to Nez Perce than any of the Interior forms. Third, again if the Nez Perce word líyes for 'canoe' is borrowed, while forms in Columbia, Spokane, Kalispel, and Flathead with initials əx and y as the second consonant will be borrowed into Nez Perce as l and y, Coeur d'Alene téde? will be borrowed as *tete?.

Fourth, the numeral 'one' needs some further comment. In Table IV the Salish languages are listed from east to west. Besides forms cited in Elmendorf (1962), Flathead (Krueger 1960:37), Spokane and Colville (Vogt 1940b:8), Snoqualmie-Duwamish (Tweddel 1950:70) forms are added. The three possible proto-forms are given at the top of each column.

What is noticeable about *naqs is (1) it is very close

[Table IV]

to Proto-Sahaptian *ná·qč, (2) the Salish languages that have these forms are, with the exception of Okanagon and Kalispel, geographically contiguous to the Sahaptian languages today, and (3) Coeur d'Alene is the only eastern language which now touches a Sahaptian language without having a *naqs form. The situation suggests (1) Salish *naqs is a loan from Sahaptian, (2) Coeur d'Alene was not an immediate neighbor of Sahaptian, and (3) Kalispel (and possible pre-Okanagon) abutted against Sahaptian.

According to Elmendorf (1965) Coeur d'Alene was once the easternmost Salish language, then Spokane-Kalispel-Flathead group made a northerly detour around Coeur d'Alene in its eastern expansion process ending up with Spokane to the west, Kalispel to the north, and Flathead to the east of Coeur d'Alene. Then in the course of the eastern movement of the Kalispel group, there must have been a stage in which Spokane was to the west of its present location, Kalispel where Spokane is now, and Flathead in the process of getting around Coeur d'Alene to the north in order to expand into today's Montana. Kalispel loans into Nez Perce may reflect this transitional stage.

The relationship of three developmental stages of Interior Salish languages in Figure 1 and lexical loans associated with each stage ~~XXXXXX~~ is summarized in Figure 2.

[Fig. 1]

[Fig. 2]

It may be of significance that in Stage I loans were from Sahaptian to Salish, and in Stages II and III the direction is reversed.

3. Diffusion areas and dating.

There have been at least two types of attempts at linguistic dating. First is the autonomous treatment of linguistic data and the second is correlation of archaeological cultures with languages. The first, notably in the works of Swadesh, relied on the universal rate constant of lexical replacement. Within the Salish family, Elmendorf (1970) noted that linguistic taboo ethnographically attested in Twana accelerated lexical replacement. There must be numerous and irregularly distributed instances of linguistic taboo that are unrecoverable in this area. The second approach of correlating archaeological cultures with linguistic communities has obvious drawbacks. One does not have to speak German to drive a Volkswagen.

However, linguistic diffusion does not occur without cultural contact, which may leave archaeological traces in the form of new types of artifacts. Even though one cannot tell what language was spoken by the artifacts, a change in archaeological culture, at least in some instances, must coincide with the beginning of a linguistic diffusion period.

We now may look at the archaeological findings in the present day Nez Perce area. According to Butler (1962: 54-5), the four phases at Weis Rockshelter are; Craig Mountain (5,500 - 1,490 B.C.), Grave Creek (1,490 - 105 B.C.), Rocky Mountain (105 B.C. - 400 A.D.), and Camas Prairie (400 - 1,400 A.D.). About 1,400 A.D. the inhabitants deserted Weis Rockshelter. Butler considers that the last phase starting about 400 A.D. may be the local emergence of Plateau culture (1962:57). While this is highly conjectural, the beginning date of the Plateau culture may indicate the local terminus a quo of the North Plateau linguistic diffusion period.

Future extension of archaeological works in the areas north and west from Camas Prairie and in the locality of Sanpoil and Nespelem, together with more detailed study of cross-genetic linguistic diffusion in the area appears to be of particular importance.

Table I

	Coeur d'Alene	Nez Perce
nominalization	prefix (297) <i>more usu. a suff.</i>	suffix
intentional	prefix (299)	suffix
pronominal	prefix (279) and suffix	prefix
plural	prefix (390) <i>suff on R (or suffix)</i>	prefix or suffix
locative	prefix (393-408)	stem
directional	prefix (410-420)	suffix
causative	suffix (439)	prefix
desiderative	suffix (441)	suffix
benefactive	suffix (565)	suffix
reciprocal	suffix (568)	prefix

Table II

Proto-Interior Salish	Coeur d'Alene	
	regular	bef. back consonants
*a	i	a
*i	i	e
*u	u	ɔ
*ə	ɛ	a/ə

Table III

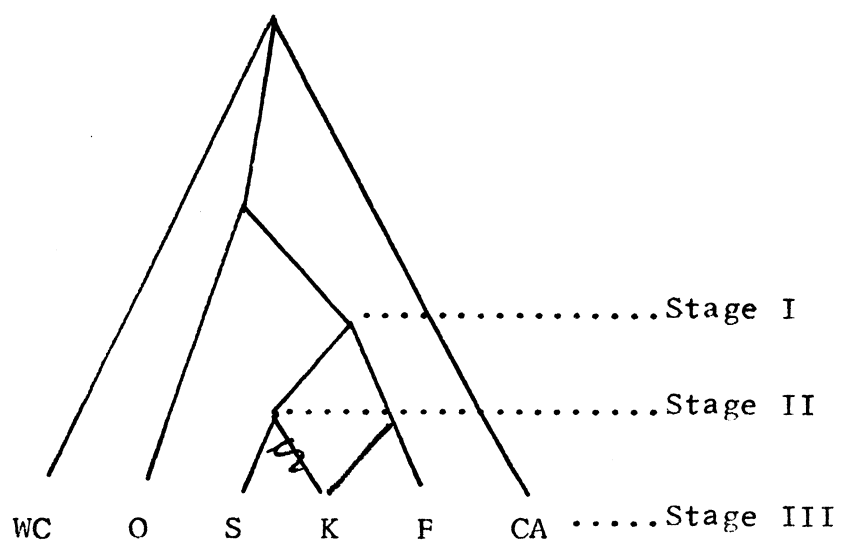
Proto-Sahaptian	Sahaptin	Nez Perce
*i	i	i
*e	/e/ > [i]	/e/ > [i]
*ɛ	/ɛ/ > [a]	æ
*a	a	a
*o	/o/ > [u]	o
*u	u	u

Table IV

	*nə́kʷəʔ (Swadesh)		
	*nə́k-uʔ (Kuipers)		
	*nə́kəwʔ (Elmendorf)	*naqs	*péla
Coeur d'Alene	nə́kʷéʔ		
Flathead	n kú	čínáqs	
Kalispel	n kúʔ	čínáqs	
Spokane		čínáqs	
Colville		náqs	
Wenatchee-Columbia		naks	
Okanagon	n kó	naqs(unit)	
Thompson			péya
Lilooet	nsxxx		péla
Musqueam	nə́caʔ		
Snoqualmie- Duwamish	díčó		
Twana	də́čó.-		
Puget Sound	dáčó		
U. Chehalis	načaw		
Tillamook			haigi ~ highi
Siletz			heqʷí

Figure 1

Proto-Interior Salish



WC: Wenatchee Columbia

O: Okanagon

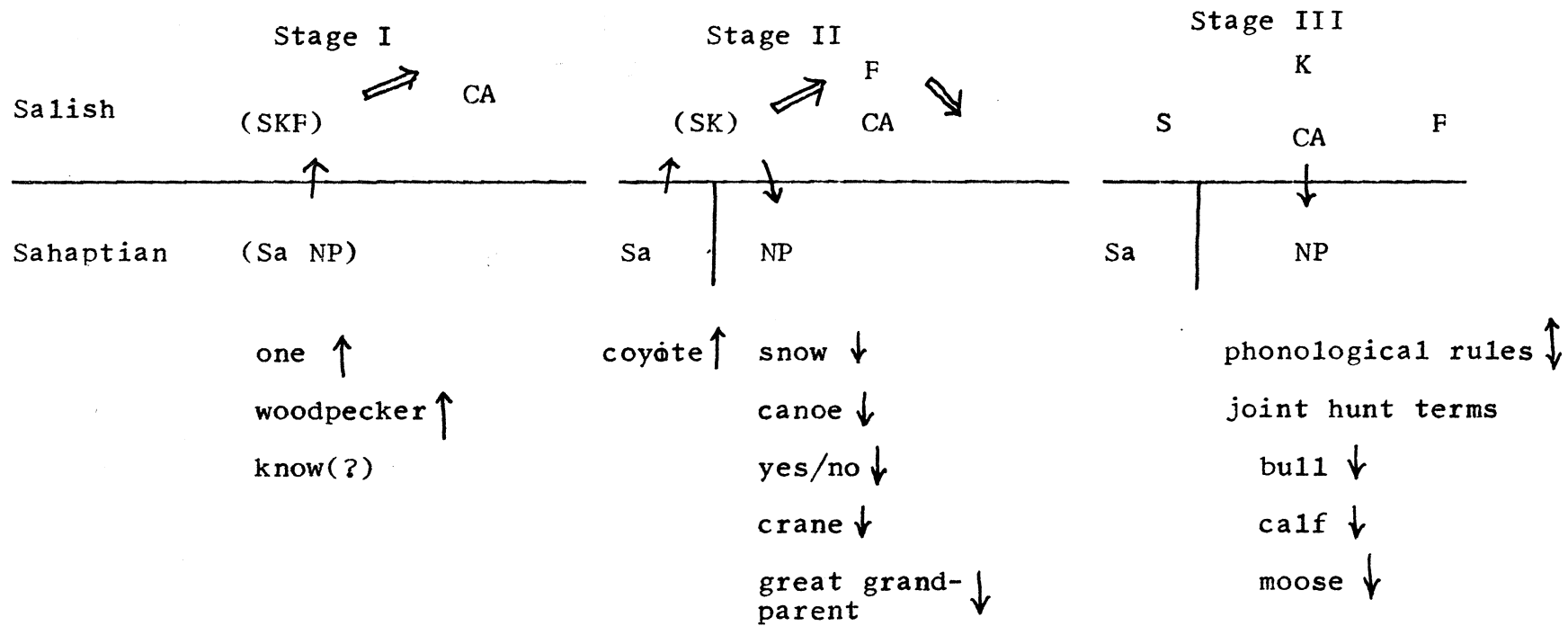
S: Spokane

K: Kalispel

F: Flathead

CA: Coeur d'Alene

Figure 2



Sa: Sahaptian

NP: Nez Perce

↗ direction of tribal movement

↑ direction of loans

Notes

1. I wish to express my grateful thanks to Professors Mary R. Haas, Terrance S. Kaufman, and B. Robert Butler for their valuable comments on an earlier draft of this paper, and to Professors M. Dale Kinkade, Sven Liljeblad, Bruce J. Rigsby, and Laurence C. Thompson for generously providing unreferenced Sahaptin, Salish, and northern Uto-Aztecan forms.
2. Sahaptian is the name of a linguistic family, in which there are two languages, Sahaptin and Nez Perce.
3. The Nez Perce data in this paper was collected by the author in the summers of 1960-2, and 1965 under the joint sponsorship of the Survey of California and Other Indian Languages, Department of Linguistics, University of California, Berkeley and of the Idaho Historical Society. Of the five Nez Perce surface vowels i æ a o u, æ is written e for transcriptional simplicity.
4. Vogt's transcription of glottalization is changed to a superscribed comma, and his macron for postvelars to a subscribed dot in this paper, e.g., $\dot{y} > \overset{,}{y}$, $\bar{x} > \underset{\cdot}{x}$.
5. Kaufman's c is changed to š.

References Cited

Aoki, Haruo

- 1962 Nez Perce and Northern Sahaptin: a binary comparison. *International Journal of American Linguistics* 28.172-82.
- 1963 Reduplication in Nez Perce. *International Journal of American Linguistics* 29.42-4.
- 1966a Nez Perce and Proto-Sahaptian kinship terms. *International Journal of American Linguistics* 32.357-68.
- 1966b Nez Perce vowel harmony and Proto-Sahaptian vowels. *Language* 42.759-67.
- 1968 Toward a typology of vowel harmony. *International Journal of American Linguistics* 34.142-5.
- 1970a A note on glottalized consonants. *Phonetica* 21.65-74.
- 1970b A note on linguistic modification. *Studies in American Indian languages*, ed. by J. O. Sawyer, University of California Publications in Linguistics, vol. 65.

Aoki, Haruo and Deward E. Walker Jr.

- MS Nez Perce myths.

Barker, M. A. R.

- 1964 Klamath grammar. University of California Publications in Linguistics, vol. 32.

Boas, Franz

- 1894 Chinook texts. *Bulletin* 20, Bureau of American Ethnology.

Boas(cont.)

- 1906 The Indian languages of Canada. Annual Archaeological Report, 1905, being part of appendix to the Report of the Minister of Education, Ontario, pp. 88-106.
- 1911 Introduction. Handbook of American Indian Languages, part 1. Bulletin 40, Bureau of American Ethnology, pp. 1-83.

Boas, Franz and Herman Haeberlin

- 1927 Sound shifts in Salishan dialects. International Journal of American Linguistics 4.117-36.

Bright, William

- 1957 The Karok language. University of California Publications in Linguistics, vol. 13.

Brunton, Bill B.

- 1968 Ceremonial integration in the Plateau of north-western North America. Northwest Anthropological Research Notes 2.1.1-28.

Butler, B. Robert

- 1962 Contributions to the prehistory of the Columbia Plateau. Occasional Papers of the Idaho State College Museum, no. 9.

Drury, Clifford M.

- 1960 I, the Lawyer. The Westerners, vol.7, no. 1.

Elmendorf, William W.

- 1961 System change in Salish kinship terminologies.
Southwestern Journal of Anthropology 17.365-82.
- 1962 Relations of Oregon Salish as evidenced in
numerical systems. Anthropological Linguistics
vol. 4, no. 2.1-16.
- 1965 Linguistic and geographic relations in the
northern Plateau area. Southwestern Journal of
Anthropology 21.63-78.
- 1970 Word tabu and change rates: tests of a hypothesis.
Languages and Cultures of Western North America,
ed. by Earl H. Swanson, Jr. The Idaho State Univ.
Press, Pocatello, Idaho.

Elmendorf, William W. and Wayne Suttles

- 1960 Pattern and change in ~~MX~~ Halkomelem Salish
dialects. Anthropological Linguistics vol. 2,
no. 7.1-32.

Haas, Mary R.

- 1965 Is Kutenai related to Algonkian? Canadian
Journal of Linguistics 10.2,3.77-92.
- 1969a The prehistory of languages. The Hague, Mouton.
- 1969b Internal reconstruction of the Nootka-Nitinat
pronominal suffixes. International Journal of
American Linguistics 35.108-24.
- 1970 Consonant symbolism in northwestern California:
a problem in diffusion. Languages and Cultures of
Western North America, ed. by Earl H. Swanson, Jr.

Jacobs, Melville

- 1929 Northwest Sahaptin texts, 1. University of Washington Publications in Anthropology 6.175-244.
- 1931 A sketch of northern Sahaptin grammar. University of Washington Publications in Anthropology 4.85-292.
- 1937 Historic perspectives in Indian languages of Oregon and Washington. Pacific Northwest Quarterly 28.55-74.
- 1939 Coos narrative and ethnologic texts. University of Washington Publications in Anthropology 8.1-126.
- 1945 Kalapuyan texts. University of Washington Publications in Anthropology vol. 11.
- 1953 The areal spread of sound features in the languages north of California. University of California Publications in Linguistics 10.46-56.
- 1960 The people are coming soon. Seattle, University of Washington Press.

Jacobsen, William H. Jr.

- 1968 On the prehistory of Nez Perce vowel harmony. Language 44.819-29.

Kaufman, Terrance S.

- MS1 Chinook Jargon vocabulary with grammatical notes.
- MS2 Mayan etymological dictionary.

Kinkade, M. Dale and Clarence Sloat

- MS Proto-Interior Salish vowels. Paper given at the Fourth International Conference on Salish Languages, University of Victoria, B.C. August 25-26, 1969.

Kroeber, Alfred L.

- 1939 Cultural and natural areas of native North America. University of California Publications in American Archaeology and Ethnology, vol. 38.

Krueger, John R.

- 1960 Miscellanea Selica I: a Flathead supplement to Vogt's Salishan Studies. Anthropological Linguistics vol. 2, no. 7.33-8.
- 1961a Miscellanea Selica II: some kinship terms of Flathead Salish. Anthropological Linguistics vol. 3, no. 2.11-8.
- 1961b Miscellanea Selica III: Flathead animal names and anatomical terms. Anthropological Linguistics, vol. 3, no. 9.43-52.
- 1967 Miscellanea Selica IV: an interim Moses' Columbia (Wenatchee) Salishan vocabulary. Anthropological Linguistics, vol. 9, no. 2.5-11.

Kuipers, Aert H.

- MS Toward a Salish etymological dictionary. Paper given at the Fourth International Conference on Salish Languages, University of Victoria, B. C. August 25-26, 1969.

Lamb, Sydney M.

- 1958 Linguistic prehistory in the Great Basin. International Journal of American Linguistics 24.95-100.

Miller, Wick R.

MS Shoshoni phonological rules.

Murdock, George Peter

1958 Social organization of the Tenino. *Miscellanea Paul Rivet Octogenario Dicata* 1.299-315.

1960 Ethnographic bibliography of North America.
3rd. edn. New Haven.

Nichols, Joanna

1970 Diminutive consonant symbolism in Western North America. *Project on Linguistic Analysis*, 2nd Series, no. 10. Phonology Laboratory, Department of Linguistics, University of California, Berkeley.

Oregon Historical Society

1958 Indian tribes and languages of the Old Oregon country.

Reichard, Gladys A.

1933 Coeur d'Alene. *Handbook of American Indian Languages*, part 3. ed. by Franz Boas. Augustin. pp. 517-707.

1939 Stem-list of the Coeur d'Alene language. *International Journal of American Linguistics* 10.92-108.

1947 An analysis of Coeur d'Alene Indian myths. *Memoirs of the American Folklore Society*, vol. 41.

Rigsby, Bruce J.

1965 Continuity and change in Sahaptian vowel systems. *International Journal of American Linguistics* 31.306-11.

Rigsby (cont.)

- 1969 The Waiilatpuan problem. Northwest Anthropological Research Notes, vol. 3, no. 68-146.

Rigsby, Bruce J. and Michael Silverstein

- 1969 Nez Perce vowels and Proto-Sahaptian vowel harmony. Language 45.45-59.

Sapir, Edward

- 1915 Abnormal types of speech in Nootka. Memoir 62, Canadian Geological Survey, Anthropological Series no. 5. Ottawa, Government Printing Bureau.
- 1922 The Takelma language of southwestern Oregon. Handbook of American Indian Languages, part 2. Bulletin 40, Bureau of American Ethnology, pp. 7-296.
- 1926 A Chinookan phonetic law. International Journal of American Linguistics 4.105-110.

Schwede, Madge L.

- MS An ecological study of Nez Perce settlement patterns. Washington State University MA thesis 1966.

Shipley, William F.

- 1970 Proto-Kalapuyan. Languages and Cultures of Western North America, ed. by Earl H. Swanson, Jr. pp. 97-106.

Silverstein, Michael

- MS Chinook Jargon: language contact and the problem of multi-level generative systems.

Sloat, Clarence

- 1966 Phonological redundancy rules in Coeur d'Alene.
University of Washington PhD thesis.
- 1968 A skeleton key to Reichard's Coeur d'Alene
transcriptions. Anthropological Linguistics
vol. 10, no. 5.8-11.

Spinden, Herbert Joseph

- 1908 The Nez Percé Indians. Memoirs of American
Anthropological Association 2.171-274.

Suttles, Wayne and William W. Elmendorf

- 1963 Linguistic evidence for Salish prehistory.
Symposium in Language and Culture: Proceedings
of the 1962 annual meeting of the American
Ethnological Society, pp. 40-52.

Swadesh, Morris

- 1949 The linguistic approach to Salish prehistory.
Indians of the Urban Northwest, ed. by Marian
W. Smith. New York, Columbia University Press.
pp. 161-73.

Teit, James A.

- 1930 The Salishan tribes of the western Plateaus.
44th Annual Report, Bureau of American Ethnology
1927-8. Washington, D. C.

Tweddell, Colin Ellidge

- 1950 The Snoqualmie-Duwamish dialect of Puget Sound
Coast Salish. University of Washington
Publications in Anthropology 12.1-78.