1. Introductory
2. Reflexes of *r in Interior Salish
3. Development of *r outside of Interior Salish
4. Chronology

1. It has been noted before that r, an alveolar flap, and its glottalized counterpart Ɂ occur in four Salishan languages: Coeur d'Alene, Spokane, Okanagan, and Columbian, all Interior Salishan. Both r and Ɂ contrast with other phonemes in these languages, and they are clearly distinctive. Swadesh (1952:242) found it necessary to reconstruct *r for Proto-Salish on the basis of its occurrence in these four languages. Its usual reflex in other Salishan languages is l.

But the occurrence of r or Ɂ in any of these languages is defective--they may only occur as C₂ of a root; i.e., they cannot occur initially or in an affix. This limitation on their occurrence has also been commented on previously (Reichard 1938:535, 1958:298; Vogt 1940b:18; Watkins 1970:35). This is not to say that they cannot occur more than once in a word--they may be repeated by any of the usual reduplication patterns affecting C₂. E.g., Cm wərwərīwaʔ red-winged blackbird is an inherently reduplicated stem; Cm nūrnurt dull has collective reduplication of nûr dull; Cm xʷ̥ərpəm nervous from xʷ̥ərp shake, and Ok xʷ̥rrə̀p̕亲属 he became anxious from xʷ̥rap̕亲属 he trembled both have inchoative reduplication. All apparent instances of r as C₃ are to be ac-
counted for in this way--as reduplications of \( C_2 \). A sequence of two \( r \)'s from reduplication is articulated as a trill.

2. The Thompson language, however, also offers direct evidence of original \( *r \), which has there developed regularly to \( l \), but did not merge with original \( *l \) (the latter had earlier shifted to \( y \): Th kéyx, Cm kálx hand; Th cíykst, Cm cílkst five; Th yíq-, Cm líq- bury).

(1) Cm čár-, čór; Cv čár-; Cr čór-; Sp čúr--; Ka čól--; Sh čál--; Li čol--; Th čál- salt, čúl- sour; PIS *čár-, *čúr-, *čór- salt, sour (perhaps different ablaut grades of the same root, perhaps originally two different roots but now confused in some languages).

(2) Cm kór--; Ok kr-; Cr Sp čár--; Ka čál- (C); Th kəl--; PIS *kər- cut.

(3) Cm kwar-, kwr--; Ok kwr--; Cr kwar-; Ka kwa’l--; SSh kวล-, NSh kวล--; Th kəl-, kəl--; PIS *kwar- yellow.

(4) Cm tőr--; Cv təř-, təř--; Cr tár- untie, loosen; Ka taal untie, unwrap; (? Sh tāl- stretch, extend); Th tōl--; PIS *tōr- unravel.

(5) Cm xwar-; Cv xwar-; Cr xwar-; Ka xala- (initial perhaps in error?); Sh xəl- spin around; Th xəl- fluttering; PIS *xər- shake.

(6) Cm yér- spherical; Cr yar- hoop-like object rolls; Sp yir round; Ka yāl- round circle, hole; Sh yəl- turn; Th zəl- go around in circle, complete circumference; PIS *yər-around. (Presumably related, but not directly cognate, is Cv ciʔark curved.)

As these etymologies show, other Interior languages besides Thompson also have a regular development of \( l \) from \( *r \), but there the reflexes have fallen together with those
of *I. In addition to the cognates with r, internal evidence in Kalispel and Shuswap indicates that ! has two sources; these are distinguished by differences in preceding vowels. The regular reflexes of PIS vowels are as follows (see Kinkade and Sloat 1972 for detailed discussion of these vocalisms):

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But before back consonants (back velar stops and fricatives, and pharyngeals), another set of reflexes of these same PIS vowels appears:

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(In this table bracketed vowels are lower allophonic variants of higher vowels.)
In Kalispel and Shuswap, most l's are preceded by the regular reflexes of PIS vowels, but others are preceded by the vowels characteristic of position before back consonants. In Okanagan, Colville and Columbian, r patterns like back consonants in this respect, having lower values of vowels in this environment. Thus the instances of Kalispel and Shuswap l following lowered vowels may be presumed to be derived from *r, even if cognates with r do not occur in Okanagan, Spokane, Coeur d'Alene, or Columbian. (Spokane, for the most part, has the regular reflexes of PIS vowels before r, indicating that apparently Spokane r does not function as a back consonant.) Thompson also has a lower variant of u and o, and the low vowel a under certain morphophonemic conditions rather than the usual e before l, further supporting the derivation of Thompson l from PIS *r.

The special limited distribution of r in those languages where it does occur begs the question whether it may not earlier have occurred in other positions in words. Here again Thompson cognates provide direct confirmation. In a few etymologies stem-initial l in the other Interior languages corresponds to l in Thompson, where the expected correspondence would be y. It seems reasonable to assume that this correspondence reflects stem-initial *r-, and to conclude that a general shift *r > l has already been under way for some time in the entire Interior Salish territory, but simply has not been completed in Columbian, Coeur d'Alene, Okanagan (and Colville), and Spokane. Some examples of initial *r follow.

(7) Cm láp bend, sláp wood, stick; Ok slíp wood; Cr líp wood; Sh lép- bend branch down; Th láp- bend (something) over; PIS *ráp- bend (wood).

(8) Cm líw- clatter, ring; Ka lu- sound of rolling object; Th lèwó- knock, hammer, lîluten male thunder spirit; PIS
riwē-? rumble.

(9) Cm lōx, snlēxīča? fish scales; Th lēxt [fish, meat] is improperly cooked, has bloody taste, lē?ix get slimy; PIS *rōx-,*rić- slime; fishy taste.

The correspondence of Thompson 1 to other IS 1 is not limited to stem initial, as a matter of fact: the same correspondence is also found in the position of C2 and in certain lexical suffixes. This suggests that we are dealing with *r in these cases as well.

(10) Cm qūīl-; Cv qūīl-; Ka qūīl-; Cr qūīl-; Th qūīl-; PIS *qūār- cheat.

(11) Cm xèl-, xèl-; Ka xèl-; Cr xèl; Th ḳeš-xèl cribbed, n-xèl-īws bridge; PIS *qēr- lay evenly.

(12) Cm ḳèl- cook in a pit; Ka sə-ľāqíst (with metathesis); Cr līq- bake (with metathesis); Sh s-qiłye; Li Th n-ṗèlzetən; PIS *qēr- to steam, *qēr-ya sweathouse.

These facts suggest a split of PIS *r, but an immediate question arises as to the conditioning factors. The shift in root-initial position seems self-evident, but the evidence later in words is more complex. An examination of the cases in which C2 of stems shows the correspondence Th l to 1 elsewhere reveals that the forms contain also postvelars as C1. It seems possible that the change of *r to 1 may have begun in cases where a postvelar preceded *r in the same stem. A rapid inspection of the available material in r-languages reveals that there are no roots in which r follows a back consonant of any sort. (There are a few cases in which r precedes a back consonant; analysis at this point is inadequate to determine whether these constitute C3 in the stems involved or whether they represent segmentable suffixes, but there are enough cases to indicate that apparently back consonants in that position did not condition shift of a
preceding *r to 1. E.g., (13) Cm tǝłq-; Cv tǝq- *kick; Sp tǝłq-; Ka tǝlq-; Cr tǝlq *step on, kick (probably borrowed from Ka); PIS *tǝlq- *kick, dance; and the derivatives Cm stǝři qxǝn; Cv stǝři qxǝn (K); Ka stǝlǝq>sǝn; Cr starē*q-šǝn; PIS *stǝři(q)sxǝn mudhen.)

In suffixes there are no cases of r at all in the r-languages. Nevertheless, Thompson sometimes shows the correspondence 1:1 in suffixes.

(14) Cm -ǝlqs; Ka -ǝlqs; Cr -ǝlqs; Th -ǝlqs; PIS *-ǝrqs clothes.

(15) Cm -ǝlǝwǝs; Cr -ǝlqǝs heart, stomach; seat of mind or intelligence (K); Th -ǝlǝx -ǝlǝx; PIS *-ǝrǝx inside; feelings.

(16) There is also the Th element -ǝleʔ-, occurring most commonly with the suffix -ǝxǝn leg, foot. No cognates have been found for the sequence -ǝleʔǝxǝn leg, foot (in more general sense), but it seems that Th -ǝl- may be cognate with an element Cm -ǝl-, Cr -ǝl- (-ǝl-, -ǝl-), which is common in the formation of various other lexical suffixes; e.g., Cm -ǝlps back of neck, -ǝlqǝp throat, (perhaps unstressed in -ǝlqs nose, point); Cr -ǝlps throat, -ǝlqs end, -ǝlq feeling, -ǝlup ~ -ǝlup foundation; cf. also Cr -ǝl- ~ -ǝl- ~ -ǝl- ~ -l- place where two elements meet (R); PIS *-ǝr- ?

Given our earlier hypothesis about the partial shift of *r to 1 following postvelars, it seems reasonable to suppose further than original suffixes with *r developed alternants with 1 following back consonants in preceding stems. These would have been fairly frequent, and it is easy to imagine that these 1-alternants were subsequently generalized.

In connection with these developments we should note that r-1 alternations are common in many languages. In
some they are at least to some extent complementarily distributed (e.g., Korean). In fact, it appears that in general languages with an r/l contrast are less common than those that are less complex in this respect (i.e., have only r or l or neither or such elements in non-contrastive distribution; cf. Hockett 1955:121-4). Cases have also often been noted in languages with contrastive l and r where historic forms have been altered to place l earlier than r in words (e.g., Spanish palabra word, Latin parab(o)la; Spanish peligro danger, Latin periculum). Dissimilation of r to l before another r has also been noted (e.g., French pèlerin [English pilgrim], Latin peregrinus). And it is interesting to recall that there are difficulties in reconstructing any initial *r- in Proto-Indoeuropean. 2

In the same vein it is interesting to note that Thompson shows phonetic r (here a weak retroflex spirant similar to English r) in a reduplicative formation where otherwise the sequence -lVl- would occur: xʷəlélmečton [xʷəlélmeččən] drumstick with rattle (cf. xʷəl̥p rushing sound), apparently involving a reduplicative suffix -eC2 repetitive. There is unfortunately only this example in the native material (this reduplicative formation is rare) but the likelihood that it is a productive alternation is heightened by the fact that the same phenomenon recurs in the informant's English: salal is rendered [səral].

3. Up to the present it has been thought that PS *r fell together with *l in all the other branches of the family (i.e., Swadesh's Coast Salish, Bella Coola and Tillamook), developing in all cases just as PS *l did. In four languages—Comox, Squamish, Clallam, and the Sooke
dialect of Northern Straits Salish--*l developed to a semivowel (usually y, but w under certain circumstances in Comox). Like the inherited semivowels, they have vocalic alternants in positions calling for vowels. Of these languages, Squamish is particularly interesting, because it has both 1 and y corresponding to l in other languages. Kuipers (1967:247, 1970b:48) has explained this as a mixture of original 1- and y-dialects. Borrowing is very likely involved in a number of cases, especially where the same word appears in both 1- and y-forms (e.g., ƛliƛliws, ƛliƛliws speckled trout [i from y]; q̓p̓álstn, q̓p̓áyʔaʔq̓wstn knee-cap).

A limited study of the Squamish material yields a number of examples in which Squamish 1 corresponds to PIS *r. For some of the etymologies cited above, there are Squamish cognates: (7) PIS *rąp- bend (wood); Sq ląp- warped, skew. The root (6) PIS *yər- around is presumably cognate to the root involved in Sq s-il-ʔān̓m year, and probably also to that in Sq s-yiʔiʔ top for spinning, níliit roll (something). Similarly, (3) PIS *kwər- yellow is probably related to the root in Sq kwəliʔay alder. There is possibly a connection between (8) PIS *riw̄ʔ- (?) rumble, clatter, ring, etc. and Sq lúlum to sing, between (4) PIS *tər- unravel, extend out in a line and Sq təʔlm lengthwise, parallel; and conceivably Sq x̣óʔʔ- write may be related to (11) PIS *xəɾ- lay evenly. (12) PIS *q̓ər̓ya sweathouse is clearly directly comparable with Sq q̓əl̓yə take a steam bath; here the best cognates are in the North Interior, and we may, of course, be dealing with an old loan; cf. also Cx q̓əl̓̓łətən, very close to Th Li nq̓əl̓ətən (Cx ʔ is regular from *y but the l is not expected).
Of the suffixes, (15) PIS *-arwás inside; feelings may be connected with the suffix in Sq hów?-álus wish to accompany (cf. hów? accompany); Kuipers (1967:392) further notes that in addition to the common connective -ay- (reduced -i-) there is a less common element -al(?)(-), which he suggests may be the 1-form of -ay- (he cites examples on p. 133; it may also be in the suffix -alap thigh); this may reflect the same element we have suggested in (16) PIS *-ár-.

There are a few further etymologies to mention. Some are of limited scope or problematic status.

(17) Sq lès bottom, lower part, deep (with derivatives); Th lès low (viewed from higher vantage point) (with various derivatives).

(18) Sq xīlán roll, knock down, off; Cm xəlq- kill, butcher, beat up (here Cm l would be expected for PS *r after the postvelar initial).

(19) Sq ččó; H1 ḍəcələ; Ch Cz čələm; Th čələs; Cm čərís; Cv čərís; Ka čalís; Cr čalús (presumably a loan, but source unclear); PS *čkər- † kingfisher.

One etymology suggests that Proto-Salish (or a somewhat later stage) may have had doublet roots in *1 and *r. It may well be that some cases of Squamish roots with both 1- and y-forms are to be explained on this sort of basis.

(20) Cm sél- round; Ka selp somersault, səlp- dizzy; Cr selp spin, səlúp set spinning, sil turn; Ti selúhs thread; H1 (Cw Ms) sél?səltən spindle; Sq səl- spin thread; Th səl-turn, səlk- turn, whirl, səlp- dizzy, səlsələlx wobbly, siyə- twist; PS *sər-, *səl-, *sər-, *səl- spin. Presumably the *1-version of the root (with a different extension) is
involved in Th si-ɬ- turn pages (i < y); Sq sóy-ɬ- switch, transfer; SPg sál-ɬ- turn around; cf. also Sg sélʔ-ɬ-tən overcome with dizziness (M).

Forms in which Squamish shows ɬ apparently cognate with original *ɬ can reasonably have been borrowed from ɬ-languages, which surround Squamish. In fact, the presence of inherited ɬ (< PS *r) would have facilitated the borrowing of ɬ-forms from adjacent languages. But Squamish y apparently corresponding to PIS *r would raise difficulties. (The only diffusional explanation that seems possible would be that Squamish had borrowed an ɬ-form very early, prior to the *ɬ > y shift.) In the material studied a single case of this sort has appeared (noted, in fact, by Kuipers [1970b: 57] as reflecting PS *r):

(21) Sq ɬiɬiɬám (from a root *ɬəɬ-) overflow; Sh ɬəɬt overflowing; Cr ɬəɬt flood, be in excess, overflow.

Unfortunately there are no cognates available in any of the other diagnostic languages, but the *r seems well supported by the unusual vowel in Shuswap, as well as by Coeur d'Alene r. One wonders whether possibly this may reflect a PS root with alternating *r and *ɬ-like (20) spin above--but there are no available forms to support such a hypothesis. In spite of this etymology, it seems wise to keep in mind the possibility that Squamish retains the distinction between PS *r and *ɬ in modern ɬ and y.

As our knowledge of the intricacies of Salishan comparison advances, it becomes possible to recognize more and more cases of diffusion among closely related languages. Suttles (1965) has already made clear that a complex borrowing situation existed among languages in the area around the Strait of Georgia. This very likely involved Squamish in a close relationship with at least Halkomelem and Straits
Salish. A variety of phonological correspondences are involved in this picture, but one is of particular interest to us here because it throws light on a Squamish form containing $q$:

(22) Sq čl?áqí; Hl $k^w$-céléqéí, Cw céléqéí (Kv) ($k^w$ is presumably a demonstrative element equivalent to the particle $k^{wi}$ which usually precedes this word in both Sq and Straits) Lm čəl?éqí; Sg čəléqéí; Cl či?áqí yesterday.

In this etymology we see an apparent correspondence Sq č : Hl c : Straits (Lm, Sg and Cl) č. But this is not the expected set of reflexes, judging from broader Salishan comparison. For Sq č we should expect Hl c, but Lm Sg s and Cl c (from PS *k). For č in Straits languages, on the other hand, we should expect in both Hl and Sq either y or p. The reasonable conclusion is that the word for yesterday has been borrowed. However, the direction of the borrowing is difficult to determine, since the forms seem structurally well integrated in the systems of all the languages and there at first seem to be no phonological clues. For words of this sort lacking a wider Salishan etymology the direction of borrowing is then problematic. Fortunately there are further cognates for this word:

(22a) Cm pláqèl; Th s-pi?-hèwt yesterday.

In Thompson the root seems clearly comparable, and it points to PS *l; the Columbian word seems an exact cognate for the Straits forms--p : č, 1 : l? (Cl i?), q : q, -1 : -i being all well attested correspondences. Thus the form must have been borrowed from Straits into both Halkomelem and Squamish, providing an independently confirmed example of what may have been an extensive set of borrowed l-forms in Squamish—an overlay which would obscure a possible basic pattern of
Sq $\text{1} < \text{PS }^*r$ beside $y < *1$. Obviously this whole complex situation among the Georgia Strait languages needs full and careful study.

In another part of the Coast there is a small hint that PS $^*r$ may turn out to have a distinct reflex. Corresponding to (7) PIS $^*r^\text{áp}^\text{-} \text{bend (wood)}$ we find a Cowlitz form $y^\text{áp}^\text{-} \text{bend down (a branch)}$, suggesting that PS $^*r$ may have developed to Cz $y$ while $*1$ remained $\text{1}$.

4. Given the limitations of the material and the apparent infrequency of original $^*r$, it has seemed worthwhile to present the facts that have been uncovered. These facts not only reaffirm the necessity to reconstruct PS $^*r$, but suggest certain other things about it. (1) $^*r$ had wider privileges of occurrence originally than $r$ now has in any of the r-languages: it apparently appeared as $C_1$ in roots and in certain suffixes. (2) Its conversion to $\text{1}$ is recent. In fact, it may have survived in some form distinct from $*1$ beyond the split of Interior Salish from the rest of the family. As Swadesh (1952:242) explains, the shift of $^*r$ to $\text{1}$ in Thompson necessarily followed the shift of $*1$ to $y$ (just as perhaps, we now see, also in Squamish); furthermore, this latter shift must have followed a still earlier change of $^*y$ to $z$. A similar sequence is involved in Straits Salish, where PS $^*y$ developed to $\xi$ before vowels prior to the shift of $*1 > y$ (which, of course, affects only certain dialects of the group, in any case). The presence of $r$ in the r-languages, where it apparently is in the process of being converted to $\text{1}$, suggests that this change as a whole is very recent. It seems at least conceivable that $*1 > y$ may have begun in Thompson, spreading to Squamish and perhaps on to Clallam, Sooke and Comox. The shift $^*r > 1$ may reasonably have
begun somewhere more centrally in Interior Salish—in the present r-languages, where it perhaps operated at first in dissimilatory circumstances. As it spread beyond these languages, however, it spread in more generalized form, merging *r with *l in Kalispel dialects north and east of Spokane dialect, and in Shuswap and Lillooet, and reaching Thompson and Squamish after their change of *l > y was already completed. (3) The effect of *r on neighboring vowels may also be a rather recent development, since it seems not to apply in Spokane, and in more limited fashion in Thompson and Lillooet; and there seem to be no effects in Squamish or any other Coast Salish language.

In any case, *r is strongly reaffirmed as a PS phoneme with a considerably wider distribution than was earlier apparent, although even so it was presumably still of quite limited occurrence.
FOOTNOTES

1This paper has grown out of a more general Salishan comparison undertaken by the authors during the academic year 1971-72. We are grateful to several agencies for support during this period: The University of Kansas, which made possible Kinkade's sabbatical leave; the University of Hawaii, which made arrangements between the Department of Linguistics and the Pacific and Asian Linguistics Institute for Thompson's full-time participation during autumn semester 1971; and the National Science Foundation, which has supported not only the present research, but collection of much of the fresh material on which it is based.

The following abbreviations are used: Ch Upper Chehalis, Cl Clallam, Cm Columbian, Cr Coeur d'Alene, Cv Colville (dialect of Okanagan), Cw Cowichan (dialect of Halkomelem), Cz Cowlitz, Cx Comox, Hl Halkomelem, IS Interior Salish, Ka Kalispel (except Spokane dialect), Li Lillooet, Lm Lummi (dialect of Northern Straits Salish), Ms Musqueam (dialect of Halkomelem), NSh Northern Shuswap (dialects), Ok Okanagan, PIS Proto-Interior Salish, PS Proto-Salish, Sg Songish (dialect of Northern Straits Salish), Sh Shuswap, Sp Spokane (dialect of Kalispel), SPg Southern Puget Sound Salish (dialects), Sq Squamish, SSh Southern Shuswap (dialects), Th Thompson (Ntlakapamux), Ti Tillamook.

All forms have been converted to the same transcription system for easy comparison. A few non-obvious vowel symbols are involved: e for a low front unrounded vowel, o for a low back rounded vowel; i and u are used for the relatively higher vowels, although they may be phonetically
considerably lower than those symbols suggest in IPA notation.

A number of forms are cited from Kinkade and Sloat 1972, covering primarily Cm and Cr. Some additional forms in Cr are cited from Reichard 1938, 1939 (marked R). Other sources are as follows: Cv, Anthony Mattina's field notes, or Kinkade's field notes (marked K); Hl (Cw and Ms), Elmdorf and Suttles 1960, or Tiuu Kava's field notes on Cw (marked Kv); Ka, Vogt 1940a, 1940b, or Barry F. Carlson's field notes (marked C); Li, Lillian Nakai Campbell's field notes; Ok, Watkins 1970; Sg, Barbara S. Efrat's field notes, or Mitchell 1968 (marked M); NSh, Kuipers 1969, 1970a, 1970b; SSh, James A. Gibson's field notes (forms cited simply as Sh show no difference between northern and southern dialects); Sp, Barry F. Carlson's field notes; SPg, Snyder 1968; Sq, Kuipers 1967, 1969; Ti, Melville Jacobs' field notes. Other forms are cited from the authors' own field notes: Ch, Cm and Cz (Kinkade); Cl, Cx, Lm and Th (Thompson). We acknowledge gratefully the materials that various scholars (as just noted) have made available for this study.

For each etymology a general gloss is given at the end; these glosses are appropriate also for the forms in the various languages except where individual forms are otherwise glossed.

2We are indebted to Gordon H. Fairbanks for calling this similarity to our attention.
REFERENCES


