

# Boas and the Babbelfish (Part I): Turning pentl'ach Vowels into Consonants\*

Mat Andreatta  
Qualicum First Nation

Jessie Recalma  
Qualicum First Nation

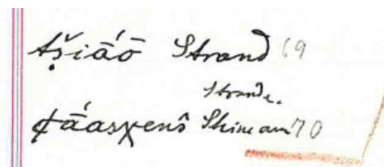
Suzanne Urbanczyk  
University of Victoria

**Abstract:** This paper outlines several methods for converting forms in Boas' pentl'ach corpus into a phonemic writing system. In addition to outlining the various ways that Boas represented glides and labialization with vowel symbols, we also describe how Boas transcribed glottal stops as sequences of vowels with an intervening accent mark. This allows the pentl'ach team to reconstruct glottal stops and glottalized resonants, which had previously been unidentified.

**Keywords:** pentl'ach (Pentlatch), Boas, transcription, glottal stop, vowels

## 1 Introduction

Franz Boas spent approximately two weeks in the Comox valley in 1886, making field notes of pentl'ach and ʔayʔajuθəm. The last fluent speaker of pentl'ach (Joe Nimmim) passed away in 1944 and the Boas corpus represents the majority of resources for pentl'ach, a Central Salish language. When looking at these materials, one is struck by the great number and diversity of vowel symbols, even though Central Salish languages typically only have four or five contrastive vowels. An example of two entries from Boas' materials illustrates that sometimes sequences of three vowel symbols can be used, as in the first example. This is an unlikely sequence of sounds in Salish languages in general.



**Figure 1:** Boas' field notes (c. 1910)

One reason for the great number of vowel symbols is that Boas' field notes represent narrow transcriptions of what he perceived. His work pre-dates the concept of the phoneme, and so represents as accurately as possible what he perceived, as a German first language speaker. While some of Boas' published work contains a key and some example words to know how to assign sounds to the symbols (Boas 1911), the pentl'ach field notes do not contain such a key. There is thus much work needed to decode his transcription system, in order to feel confident about how the pentl'ach language was pronounced.

---

\* We are grateful to the pentl'ach team for their guidance and all that they do to support reawakening pentl'ach, to the University of Victoria, and to our funders: First Peoples' Cultural Council and the Ministry of Indigenous Relations and Reconciliation.

Contact info: please contact any of the authors for any queries about this work:  
pentlatchproject.qualicum@shaw.ca, recalmaster@gmail.com, urbansu@uvic.ca.

---

*Papers for the International Conference on Salish and Neighbouring Languages* 58.

D. K. E. Reisinger, Laura Griffin, Gloria Mellesmoen, Sander Nederveen, Julia Schillo, Bailey Trotter (eds.). Vancouver, BC: UBCWPL, 2023.

The goal of this paper is to outline various ways that Boas used vocalic symbols to represent sounds that are standardly considered consonantal, like rounding, glides, and glottal stops. We do this in order to be as accurate as possible about how pentl'ach was pronounced. We begin by providing the context of this work (Section 2), followed by a discussion of the Boas corpus (Section 3), and then outline the mappings of vocalic symbols to consonantal symbols (Section 4), with the evidence to support this conversion. A final section summarizes our findings and next steps.

## **2 Context of this work**

The People of the Qualicum First Nation are the descendants of the traditional pentl'ach speaking people and stewards of the land and waters of Qualicum. The pentl'ach language was traditionally spoken from Cape Lazo to Parksville on the central East Coast of Vancouver Island. Since the 1940s, our language and that of our ancestors has been labeled by anthropologists and linguists as “extinct”. The harmful impact of this label cannot be understated, nor can its rippling intergenerational effects in our community. The definition of our language as “extinct” has led to cultural and spiritual disconnections within our community and disrupted our relationships as Indigenous peoples with our identities and traditional ways of being. This definition has also led to a lack of professional linguistic investigation and research into the language and its potential to be spoken within communities where it once was active in our day-to-day lives.

The Qualicum First Nation is a First Nations band government and community located at the mouth of the Big Qualicum River on Vancouver Island. Since 2017, with the support of our elected Chief and Counsellors, dedicated members of community on and off reserve have been undertaking efforts to reconnect with and revitalize our traditional pentl'ach language and culture through partnerships with the Ministry of Indigenous Relations and Reconciliation as well as the First People's Cultural Council and the University of Victoria. These ongoing relationships have allowed our nation to develop and hire a structured working team of community members and professional linguistic consultants to carry out this revitalization work with tasks overseen and consulted upon directly by elected leadership within the nation and consensus building amongst our team members. This work is also directed by ongoing community engagement and consultation efforts led by active community members within our working revitalization team. These forms of engagement with both elected band governance as well as community member consultations ensure our work prioritizes Indigenous representation at all levels while incorporating Indigenous knowledges, histories, and understandings at the core of our work. The prioritizing and incorporation of these traditional forms of knowledge and values will help our community reconnect with our traditional language and culture by respecting and honoring our histories to foster and strengthen deeper senses of being, belonging and understanding individually and collectively in our futures.

The pieces of our language reclamation efforts within our community discussed within this paper are meant to document and describe the linguistic steps being taken to bring our language out of its dormant state of being and back into our community in order for it to be an active piece of our identities and to begin healing from its absence.

## **3 Boas pentl'ach corpus**

Boas, as an ethnographer, was well known for his work with George Hunt on the kwakwa'akwakw people and with the Jesup Expedition. Indigenous language studies in the late 1800s was a relatively new school of thought. Early examples of language interpretations can be found in a number of sources such as census documents, ship logs, Hudson's Bay Company fort journals, and

other places. A lot of these interpretations were extremely limited through their anglophone interpreters that appeared to have difficulty in documenting Indigenous languages and the unique sounds not found in English. The key focus of this is to look at Boas' pentl'ach work and dig into how to best interpret Boas' materials in a contemporary fashion. Since the erroneous label of "extinct", the general acceptance of this label has made revitalization work difficult. The only documented forms of pentl'ach have been through Boas and Barnett. Boas appeared to have studied the pentl'ach and Island Comox languages simultaneously as seen in his field notes (Boas 1886). Boas also noted at the time, there was a significant influence of ʔayʔajusəm (Island Comox) in the community. Pentl'ach would have been influenced by ʔayʔajusəm upwards of 30 to 40 years. Exact methods of the work are still not fully understood but the core work that Boas did resulted in two valuable vocabularies and six accounts of stories written in pentl'ach, currently held at the American Philosophical Society (APS) in Philadelphia, PA.

Furthermore, Boas, as an early language worker documented pentl'ach with the disadvantage of being unfamiliar with the sounds generally found within Salish languages. Based on a corroboration with other more contemporary studies of Boas' language work with Salish languages that weren't labelled "sleeping" or "extinct", it has been possible to make strong theories to help understand Boas' transcription system. There are inconsistencies about how many sounds are made, there are no real rules set out yet to distinguish which of Boas <q>'s are [q]'s and which are [x]'s, [x̥]'s, or [xʷ]'s.<sup>1</sup> The focus here, however, is to understand the necessary vowel combinations to place Boas' vocabulary into a more comprehensible pentl'ach orthography. The core work is based on Boas' pentl'ach vocabularies that we will refer to as the "yellow pages" (YP) and the "white pages" (WP). These are due to the colour of paper on which they are scanned. These papers are the primary documents where we access our most raw, primary data.

The two vocabulary collections contain similar but also different information; the yellow pages are essentially an English-Pentl'ach/Pentl'ach-English vocabulary that contain one version of Boas' orthography; the second document is a German-Pentl'ach vocabulary (the white pages). The white pages contain a number of phrases and other in-depth information as well as a small collection of stories. Both of the vocabularies contain differences that make more sense the more time is spent going over both documents. The yellow pages have a "sh" sound represented by a <c>, while the white pages use an accented, cursive "s" with an understroke <š> for the same sound. The number of vowels present appear to be relatively consistent in both documents, leading to a reason to believe there should be a strong focus on how these vowels should be understood. The white pages have a number of forms with 'Q' beside them, presumably identifying ʔayʔajusəm words.

Separate from the "white" and "yellow" pages, the APS files also include a corresponding "Comox and pentlatch texts" file that contained another author's transcriptions of Boas' collected stories. Analyzing these stories, one can see that the handwriting is different from that of Boas. It is not clear whose writing it is, as there are no notes within the documents that state who might have been interpreting Boas' texts. These notes are imperfect as a comparative analysis of the transcribed translation and the stories can see that there are misinterpretations of Boas' handwriting. A common mistake seen from this is the <Y> misidentified as a <t>. One of the issues that comes from studying contemporary interpretations of Boas' work is that it is common for people to have difficulty accurately interpreting Boas' handwriting. This is followed by an assumption that contemporary scholars are correct in their interpretations as well as opposed to keeping an open mind towards the idea that perhaps someone misinterpreted a German-born person documenting a

---

<sup>1</sup> Throughout the paper, we will be adopting the convention of representing Boas' characters in angled brackets <...>, phonemic representations in slashes /.../, and phonetic representations in square brackets [...].

Salish language for the first time. While exploring this work, it is important for us to maintain an open mind and accept that anyone involved in this work could be wrong in their interpretation.

In order to maintain the linguistic integrity of the core work, proper interpretation has had to be done based on a comparative model. Without a proper point of reference, the work has been done in the dark, but we use the surrounding languages as a guide to help us uncover the pentl'ach language. Pentl'ach, as a northern Central Salish language, must have cognates. Being part of a language family means that there are closely related languages all around. Each language has a relative sphere of influence and often shares a level of similarity with each surrounding language. In the case of pentl'ach, surrounding languages include Island Comox, Mainland Comox, Sechelt, Squamish, Island Halkomelem, and the Nuu-chah-nulth language from the Wakashan family.

The best way to really get a proper understanding of Boas' transcription system is to find cognates of the words in other languages to have a logical comparison. We had to find out what these words were in surrounding languages in order to get the best understanding of how Boas intended these words to be interpreted. We have also accessed a database of pentl'ach developed by M. Dale Kinkade and held at the University of Washington Library archives. This database includes a reconstructed form in the APA writing system as the headword. There are fields below it that include a reconstruction of Boas' transcription from each source. In some entries, Kinkade has also noted cognates. By going through some of Kinkade's documents and seeing his cognates, it also helped to look at more contemporary versions of these languages found in Beaumont's Sechelt dictionary (Beaumont 2011), Jacobs' Squamish dictionary (Jacobs 2011), and recordings of Mainland Comox dialects available online via FirstVoices.com. What also was helpful was understanding that Boas' work was conducted in a specific era and that he worked with other languages, as evident in the British Association for the Advancement of Science. In the APS library, there were also copies of vocabularies Boas had compiled of Sechelt and Island Comox.

The benefit of looking at these documents was that there were contemporary examples to compare data. In comparing the older data with the newer data, it helped lead to an understanding of what Boas might have meant by a word such as <tšīā'ō> 'beach' with its three vowels.

As a part of community work, one of the goals that had to be accomplished was developing a proper orthography. This work was done collaboratively by a handful of team members, including community members, and was founded on an in-depth analysis of Boas' white and yellow pages to pick an orthography that would best interpret Boas' work in a way that was accessible to the communities who belong to the language. We will include representations of words in the orthography below.

Boas also had vocabularies in Island Comox and Sechelt that appear to have been done around the same time as his pentl'ach work. These vocabularies also contain what one could call equivalent white and yellow pages. The insight offered by these is that they are written in the same orthography Boas used in his pentl'ach documents. Having these other white and yellow pages offers a deeper comparative process by being able to look at where there are similar words in Boas' other vocabularies with the added benefit of seeing which letters he used to see how similar they are to pentl'ach. We can then translate these words into a contemporary orthography by referencing Ron Beaumont's dictionary (Beaumont 2011), Herbert Harris' grammatical sketch of Island Comox (Harris 1977), and with access to recordings and spellings of Mainland Comox through FirstVoices.com.

#### 4 Vocalic symbol conversions

In discussing the work we are doing, we will first review the conventions that other linguists have identified for converting vocalic symbols to glides. The two bodies of secondary pentl'ach research we are consulting include a paper with a number of Proto-Central Salish cognates by Galloway (1988) and an unpublished database of pentl'ach forms prepared by M. Dale Kinkade (n.d.) held at the University of Washington Library special collection, as mentioned above. The latter doesn't discuss the conversions explicitly, but includes phonemicized pentl'ach headwords in APA, as well as representations of Boas' narrow transcriptions, including cognates with some forms. Each source provides different ways to check how to convert from Boas' system to a phonemic representation. Galloway (1988:302) outlines a number of what he refers to as pentl'ach "standardizations" for consonants and vowels. The ones for vocalic symbols are provided below.

(1) Galloway (1988:302) pentl'ach standardizations:

<b>Boas</b>		<b>APA</b>
y/ī	→	y
ku/ko	→	k <sup>w</sup>
k'o	→	k <sup>'w</sup>
q̄ō/qu/q̄	→	x <sup>w</sup>
u	→	w/u
<u>k</u> u	→	q <sup>w</sup>
<u>k</u> 'ō	→	q <sup>'w</sup>
qo	→	ḡ <sup>w</sup>

In the first conversion, a glide <y> and the vocalic symbol <ī> map to the palatal glide [y]. In the remaining conversions, the vocalic symbols <u, o, ō> map onto the vowel [u], glide [w], or secondary labialization. In these conversions, it is interesting to note that there is a many-to-one conversion for vocalic symbols, where we can confidently reconstruct a glide or labialization, based on context.<sup>2</sup> While Galloway (1988) doesn't explicitly state the context for the conversion, we can infer that when the vocalic symbol immediately follows a consonant symbol like <k, q>, it can be converted to secondary labialization, as in the examples below. Comparison with ʔayʔajuθəm and Sechelt words for 'flower' also indicates that the stop is uvular and the <n> is an /m/. The two languages differ in terms of whether the second vowel is schwa or /a/.

(2) Secondary labialization:

<b>Boas</b>		<b>APA</b>	<b>pentl'ach</b>	<b>gloss</b>	
<u>k</u> oā'san	→	q <sup>w</sup> asəm	qwasem	'flower'	[YP]
kuā'yil	→	k <sup>w</sup> ayel	kwayel	'today'	[YP]

When the vocalic symbol does not follow a <k, q> type of symbol, it is converted to either a vowel or glide, depending on context. We are assuming universal principles of syllabification in which vowels and glides differ based on syllable position (Waksler 1990). If the vocalic symbol is

<sup>2</sup> This differs from the indeterminacy found in the consonant conversions, where the mapping is many symbols to potentially several different consonantal symbols Boas used, as noted above. The consonantal indeterminacy relates to having several symbols correspond to more than one consonant in terms of place (velar vs. uvular) and manner (stop vs. fricative).

found in the beginning or end of the syllable, it is converted to a glide, as seen below. We have expanded the set of vocalic symbols to convert to /y/ to include <ē, i>.

(3) Glide:

<b>Boas</b>		<b>APA</b>	<b>pentl'ach</b>	<b>gloss</b>	
slā'al <sup>v</sup> naē	→	słaʔhnay	slha'lhney	'girl'	[YP]
s'ōpai'ū	→	supayu	supayu	'ax'	[YP]

If the vocalic symbol occurs where the nucleus of the syllable would be, it is converted to a vowel, as shown below.

(4) Vowel conversion:

<b>Boas</b>		<b>APA</b>	<b>pentl'ach</b>	<b>gloss</b>	
quō'm	→	x <sup>w</sup> um	xwum	'dry (beach)'	[YP]
wē'yus	→	wiyus	wiyus	'body'	[YP]

Searching Kinkade (n.d.), we note that he used similar conversions for the vocalic symbols as we are assuming, and also supplied cognates to support some choices of what type of back consonant Boas may have heard. We have been unable to find a statement of how he converted the Boas symbols, but the database does include all the examples from the different sources Boas created.

One conversion we have found, not noted by others, came from supporting the work of Pulhug (2023) on reconstructing reduplicated forms. In looking at the diminutive forms, we noted that there were some glottal stops missing from Kinkade's (1985) reconstructed forms. In the Boas transcriptions, these were often represented by a sequence of two vowel symbols separated by an accent mark, as indicated in the word for 'girl' in (3) above. Whenever this sequence is found at the end of a syllable (either before another consonant or at the end of the word), it can be reliably reconstructed as a vowel followed by a syllable-final glottal stop. Other examples are provided below.

(5) <V'V > at the end of a syllable → [Vʔ]:

<b>Boas</b>		<b>APA</b>	<b>pentl'ach</b>	<b>gloss</b>	
<u>k</u> ō'ok <u>o</u> a	→	q <sup>w</sup> uʔq <sup>w</sup> a	qwu'qwa	'to drink'	[YP] <sup>3</sup>
sqō'icin		s <sup>x</sup> wi'ʔšin	sXwi'shin	'deer'	[YP]
cī'ecuwaç		ši'ʔšəwaθ	shi'shewac	'boy'	[YP]
<u>k</u> ē <u>k</u> tē'e		qiqtiʔ	qiqti'	'youngest child'	[YP]
(s)mē <u>k</u> oā'a		sməq <sup>w</sup> aʔ	smeqw'a'	'crane (heron)'	[YP] <sup>4</sup>

The representation of glottal stop as an accent mark was noted by Galloway (1988), but only for the white pages (i.e., the pentl'ach-German wordlist), and it does not appear that Galloway

<sup>3</sup> This cognate was found to have a syllable-final glottal stop in the Mainland Comox classified wordlist (Bouchard & Kennedy 1977).

<sup>4</sup> This cognate form for 'heron' has a word-final glottal stop in Hul'q'umi'num' (Huḱari & Peter 1995) but lacks one in shishalh. No cognate was found in ʔayʔajuθəm, which appears to use *pal* for 'sandhill crane'.

reconstructed glottal stops in this context. We have also found the accent mark used to indicate primary stress.

Further support for converting a sequence of vowels <VVC> as [V?C] comes from comparing how prenasal glottal stops are pronounced in ʔayʔajuθəm. Notice that glottalized resonants are pronounced as a sequence of glottal stop preceding the resonant, as in the first four forms. When the glottalized resonant is word-final, the glottal stop is pronounced after the resonant. Of particular interest in reconstructing the glottal stops is the presence of the echo vowel, indicated by Blake (2000) as a super-scripted vowel between the glottal stop and resonant in the output.

(6) ʔayʔajuθəm echo vowels (Blake 2000:185)<sup>5</sup>:

<b>Input</b>		<b>Output</b>	<b>Gloss</b>
ʔilit	ʔiʔlit	ʔéʔ <sup>é</sup> lét	‘shallow’
qawum	qaʔwum	qáʔ <sup>a</sup> wóm	‘eye’
q̣wut <sup>0</sup>	q̣əʔwut <sup>0</sup>	q̣aʔ <sup>a</sup> wut <sup>0</sup>	‘uvula’
q <sup>w</sup> l	q <sup>w</sup> əlʔ	q <sup>w</sup> əlʔ <sup>a</sup>	‘come’

This phonetic detail regarding the pronunciation gives us confidence that what Boas perceived and transcribed as a sequence of vowels with intervening accent mark is a syllable-final glottal stop.

One final area where Boas used vocalic symbols to represent consonant information comes from the palatoalveolar consonants. Galloway (1988:302) doesn’t explicitly mention that <i> is part of the representation of /č, č̣/, providing the following conversions.

(7) Palatoalveolar conversions (Galloway 1988:302):

tc/ts	→	č
tc’/ts’	→	č̣
djʔ/tcʔ	→	ǰ
c	→	š
GM tš/tṣ̌	→	č

However, as can be seen from the following words, these consonant combinations are followed by an <i> in Boas’ notes, and the vocalic symbol is clearly not pronounced as a vowel.

(8) <i> as offglide for palatoalveolar place:

<b>Boas</b>	→	<b>APA</b>	<b>pentl’ach</b>	<b>gloss</b>	
tṣ̌iā’ō	→	čaw	chaw	‘beach’	[WP]
tciā’ō	→	čaw	chaw	‘beach’	[YP]

The example above shows that a sequence of three vowels can be converted to two consonants with an intervening vowel. Crucially, the <i> is part of the consonant articulation. Also, in this case, comparison with the cognate word in Sechelt *chaw*, lets us know that the accent mark is to be interpreted as an indicator of stress, rather than a glottal stop.

<sup>5</sup> The second column is directly from Blake, which we assume illustrates the effects of schwa epenthesis as well as sequencing of the glottal articulation associated with glottalized resonants.

## 5 Summary

An important step in reawakening pentl'ach is having confidence in what the sounds are that correspond to the symbols Boas used to document the language. This paper outlined the process the pentl'ach team is using, focusing on how vocalic symbols map onto consonants. While most of these conversions have been identified in the sources we are referencing, the rules do not include the context for the conversion and failed to identify a number of glottal stops and potential glottalized resonants. Having confidence that the vocalic symbols map onto the consonants as proposed, we are left with vowel symbols that represent vowel pronunciation. With the official orthography having four vowels <i, u, a, e>, we next turn our attention to determining the pronunciation rules for those vowel symbols.

## References

- Beaumont, Ronald, C. 1985. *She shashishalhem, the Sechelt language: Language, stories and sayings of the Sechelt Indian people of British Columbia*. Penticton, BC: Theytus Books.
- Beaumont, Ronald, C. 2011. *Sechelt dictionary*. Sechelt Indian Band.
- Blake, Susan J. 2000. *On the distribution and representation of schwa in Sliammon (Salish): Descriptive and theoretical perspectives*. Doctoral dissertation, University of British Columbia, Vancouver, BC.
- Boas, Franz. 1886. *Diary of field work [English translation]*. American Philosophical Society. <https://diglib.amphilsoc.org/islandora/object/diary-field-work-1886-english-translation#page/1/mode/1up>
- Boas, Franz. ca. 1890. *Pentlach materials*. American Council of Learned Societies Committee on Native American Languages, American Philosophical Society (Item s2j.3). Philadelphia, PA: American Philosophical Society.
- Boas, Franz. ca. 1910. *Comox and Pentlach texts*. American Council of Learned Societies Committee on Native American Languages, American Philosophical Society (Item s2j.1). Philadelphia, PA: American Philosophical Society.
- Boas, Franz. 1911. *Handbook of American Indian languages*. Smithsonian Institution, Bureau of American Ethnology.
- Bouchard, Randy & Dorothy Kennedy. 1981. Classified wordlist for BC Indian languages – Mainland Comox version. – Preliminary only. Ms. BC Indian Languages Project.
- Galloway, Brent. 1988. Some Proto-Central Salish sound correspondences. In William Shipley (ed.), *In honor of Mary Haas: From the Hass Festival Conference on Native American Linguistics*. New York, NY: Mouton de Gruyter, 293–343.
- Harris, Herbert. R. 1977. *A grammatical sketch of Comox*. Doctoral dissertation, University of Kansas, Lawrence, KS.
- Hukari, Tom & Ruby Peter. 1995. *The Cowichan dictionary of the Hul'q'umi'num' dialect of the Coast Salish People*. Duncan, BC: Cowichan Tribes.



- Jacobs, Peter. 2011. *Skwxwú7mesh Sníchim – Xwelíten sníchim skíxwts – Squamish – English dictionary*. Seattle, WA: University of Washington Press.
- Kinkade, M. Dale. 1985. Pentlach reduplication. *Fifth Working Conference on Central Salish Languages*. Victoria, BC.
- Kinkade, M. Dale. n. d. [pentl'ach vocabulary database with Salish cognates]. University of Washington Special Collections (51008-005, 1, Vocab).
- Pulhug, Alena. (2023). *Reconstructing pentl'ach plural and diminutive noun reduplication for language reclamation*. Honour's thesis, University of Victoria, Victoria, BC.
- Waksler, Rachelle. 1990. *A formal account of glide/vowel alternation in prosodic theory*. Doctoral dissertation, Harvard University, Cambridge, MA.