What's in a Name:
Toponyms as Linguistic Data for Historical Comparison

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A full picture of the linguistic mechanics and social importance of a language can only be arrived at through study of both contemporary and historical states of that language. There are languages, however, for which data is limited. For languages with limited contemporary resources, toponymic data can comprise a large portion of the available information. Analysis of toponyms, however, requires some degree of loss of precision due to obscured phonology and morphology over time. Based largely on toponymic data, Kenneth Jackson (1955) argued for the P-Celtic ancestry of Pictish, and his theory became the prevailing one. Katharine Forsyth (1997) and Alfred P. Smyth (1984) critique his arguments on cultural-linguistic terms. In this paper, I assess the use of toponymic data for studying linguistic relatedness through the application of similar methods to a language with known familial classification. I use the comparative method to analyze the linguistic relatedness of Lenape and Passamaquoddy-Maliseet, Western Abenaki, and Cherokee. The Lenape data consists only of toponyms with attested Lenape heritage. Systematic sound correspondences are found between Lenape and each of the compared languages. Previous scholarship claims that Lenape is related to Passamaquoddy and to Western Abenaki, but not to Cherokee. The absence of this distinction in the analysis of Lenape toponymic data suggests that toponymic data does not provide enough or reliable enough information for historical comparison.

1. Languages with limited resources.

An ideal description of a language will encompass both contemporary and historical states of that language, and will encompass all facets of linguistic expression, including spoken and written modes, if both exist.[1] Spoken data is valuable because it reflects the grammar, usage, and phonology of the language for a real speaker. Written data can reflect these things, but they can often be obscured by artifacts of borrowing (for instance *chaise longue* is [ʃɛz lɔŋg] in French, but becomes [t͡ʃeɪz laʊnd͡ʒ], spelled *chaise lounge,* in English), formality (including poetic syntax structures), and orthography (for example, pronunciation is obscured in the orthographic representation of *awry* and *indict*). Written data is valuable, however, in that it can record historical states of a language. Moreover, there are languages for which the only data available is written. Some of these are languages of extinct Mediterranean or Christian civilizations, including Akkadian, Vulgar Latin, and Old Low Franconian. Many of these languages also have modern descendants, which can provide information about the historical phonology, syntax, morphology, and semantics when studied with the comparative method. For some languages,

[1] Thanks are due to Professor Brook Lillehaugen for suggestions and support throughout the writing process, and to Mariana Irby for the same.

however, neither spoken nor written resources exist in significant enough quantity to produce a reliable picture of the language. In certain cases, the only method of inquiry is through historical reconstruction by comparison of modern descendants. Other languages have left small preserved traces in personal or national names or in the toponymy of the region their people inhabited.

This paper explores the reliability of toponymic data in historical comparison through a study of the linguistic relationships between Lenape (ISO 639-3 code [unm], Lewis et al. 2014) and Passamaquoddy-Maliseet (ISO 639-3 code [pqm], Lewis et al. 2014), Western Abenaki (ISO 639-3 code [abe], Lewis et al. 2014), and Cherokee (ISO 639-3 code [chr], Lewis et al. 2014). Based on the results of this study, toponyms are found to not give enough reliable information to rule out the possibility that correspondences appear by chance; therefore, claims of language relatedness based entirely on toponymic data are unreliable. Toponymic data should be used only with caution and in tandem with other sources of data in future studies of language history and relatedness.

In section 2 of this paper, I provide a background on the use of toponymic data in linguistic studies, including a discussion of one particular study using primarily toponymic data, Jackson (1955). Section 3 describes the current study, based on Lenape toponyms, including methods and goals. The process of creating the data set for Lenape, Passamaquoddy, Western Abenaki, and Cherokee is found in section 4, and section 5 outlines the analysis of that data. Section 6 includes a discussion and evaluation of the analysis. The conclusions of this study and their repercussions for future uses of toponymic data are included in section 7.

2. Toponyms as linguistic data.

Toponyms are useful as historic linguistic data because they tend to be remarkably resistant to change, and thus frequently preserve archaisms (Smyth 1984: 4, Forsyth 1997: 22). This phenomenon can be seen in toponyms in England ending in *–by*, Old Norse ‘farmstead’ (Ordnance Survey 2014). Such places are concentrated in the northeast of England, in the region formerly comprising the Danelaw (Briggs 2009). Despite Scandinavian languages having not been widely spoken in that region for hundreds of years, there are towns such as *Houseby* and *Tiptoby* still bearing that suffix (Ordnance Survey 2014). The archaic form is preserved even though the linguistic community no longer exists.

Toponyms can undergo change when they are borrowed into other languages. The French roots of the city of Des Moines, Iowa, are preserved in the spelling of the city's name, despite the area having been predominantly English-speaking for two hundred years. The pronunciation of *Des Moines*, however, has been anglicized from the French [de mu͡ĩ] to English [də mo͡ĩn]. If the United States had not had a tradition of regularized spelling of toponyms through legal action (Des Moines Public Library) the French heritage of *Des Moines* would be obscured. In addition, any historical comparison done based on the modern pronunciation of *Des Moines* would produce a false picture of French as spoken in the New World colonies.

Despite the difficulties introduced by the preservation of archaisms and change through borrowing, the etymology of toponyms in many regions has been extensively studied and speculated upon. How a society names its surroundings exposes how people conceptualize their world: how landforms are distinguished, how people interact with the land, how land is owned or distributed, or how places or topographic features are important spiritually, politically, or historically (Nash and Simpson 2012). In a toponym is encoded a literal meaning, a lexified denotation, historical and folk etymologies, connotations, and physical properties of the place described (Nash and Simpson 2012). In addition, toponyms may preserve linguistic features that do not appear elsewhere in the language with any frequency, particularly locative morphemes (Nash and Simpson 2012). For these reasons, toponyms can comprise an important portion of linguistic data. Their usefulness as linguistic data is strongly tied, however, to their relationship to the morphology, semantics, and phonology of the language as a whole. The full extent of the meaning of a toponym cannot be understood without comparison to other sources of data. A linguistic study based on toponymic data must bear in mind these properties of toponyms, and particularly their limitations.

2.1. Using toponymic data to studying linguistic relatedness.

An exemplary use of toponymic data for the study of linguistic relatedness is Kenneth Jackson's (1955) arguments regarding Pictish. There is very little evidence for the Pictish language, and most of what data does exist is comprised of toponyms (Jackson 1955: 133). As a result of the scarcity of information, the cultural and linguistic identity of the Picts has been highly contested since the late nineteenth century (Jackson 1955: 132). The Picts were a people who inhabited the northern part of the British Isle, in what is now Scotland, before the arrival of the Romans and

through the early Middle Ages. Despite their longevity and political prowess, very little is known about this people. The Picts have been claimed as the historical ancestors of the Scottish people in nationalistic movements to distinguish themselves from the Anglo-Saxon English and from the Celtic Irish and Welsh (see Pictish Nation as an example). In scholarly contexts, however, who exactly the Picts were politically, culturally, and linguistically remains contested.

Bede's writings (and also the *Life of Saint Columba*, in which Adomnan references Columba's need for a translator when missionizing to the Picts) suggest that the Picts existed as a political and linguistic entity separate from others in Britain; however, the exact nature of this entity is not described (Jackson 1955: 142). Since then, Pictish has been placed in different linguistic families by different scholars. It has been argued to be a Q-Celtic language related to modern Irish Gaelic and Scots Gaelic (Letter A in Figure 1: Skene 1836; Nicholson 1896, 1904; Fraser 1923, 1927; Diack 1944. As cited in Jackson 1955: 132), a P-Celtic language related to modern Welsh, Cornish, and Breton (Letter B in Figure 1: Stokes 1890; Macbain 1892; Watson 1926; O'Hahilly 1946. As cited in Jackson 1955: 132), a non-Celtic but Indo-European language, possibly Germanic in nature (Letter C in Figure 1: Pinkerton 1789; Pokorny 1938. As cited in Jackson 1955: 132), and a language with no Indo-European roots at all (Rhys 1892, 1898; Zimmer 1898; MacNeill 1933, 1939. As cited in Jackson 1955: 132).

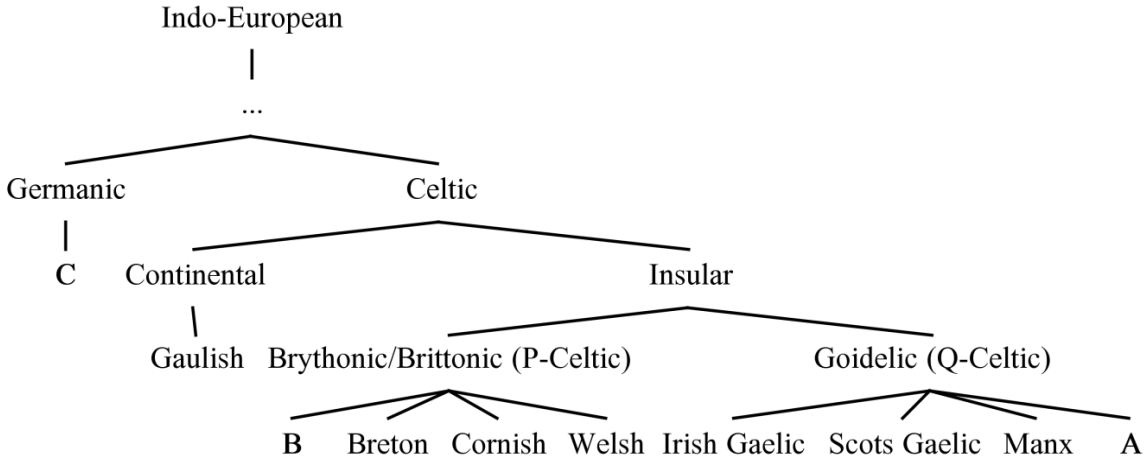

Figure 1. Comparison of Proposals for Pictish Relatedness.

Kenneth Jackson's 1955 *The Pictish Language* offered a revolutionary new take on these theories, and one that proved to be the defining theory for the next forty years. Jackson re-

evaluated and reanalyzed the available data on Pictish language, weighed it against the prevailing archaeological theories of the time, and concluded that Pictish itself was a P-Celtic language, but that there also endured a significant pre-Celtic, non-Indo-European cultural and linguistic element to Pictish society into the fifth century (1955: 158). As sources, Jackson drew from a small corpus of inscriptions thought to be Pictish and a single Pictish king list, but the bulk of his data are from references to Pictish people and places by Classical authors and by non-Pictish medieval authors, and modern Scottish toponymy.

Of these sources of data, the inscriptions are particularly problematic to rely on for reliable information about Pictish. There are perhaps a couple dozen inscriptions scattered about modern Scotland. Some are accompanied by Pictish symbol-stones, and so are likely to be Pictish; however others are considered Pictish simply because they are not Irish, Brittonic, or Latin. A few are written in the Roman alphabet, while the rest are in Ogham, a script likely invented by an Irishman in the fourth century and imported to Britain with the arrival of Goidels in Scotland in the fifth century (Jackson 1955: 139). Ogham, being comprised of patterned tick marks, is notoriously difficult to read, especially on stones weathered over more than a thousand years. Any linguistic studies of the inscriptions are inconclusive, because most examples cannot be interpreted, and those which can show traces only of Gaelic influence on the Picts through Christianity and epigraphy.

The rest of Jackson's sources consist of attestations of names, some personal, some tribal, and some toponymic. Personal and tribal names are contained in writings by Ptolemy, Bede, Tacitus, Dio Cassius, Adomnan, and in the Pictish king list (Jackson 1995: 133-138, 144). Because most of these authors were not Picts themselves, the data shows a fair degree of adaptation into the author's native tongue. A fair portion of the names cannot be shown to have any Celtic roots at all (Jackson 1955: 138). Jackson argues that this provides evidence for the presence of pre-Celtic peoples into the Classical period (Jackson 1955: 152).

The bulk of Jackson's data comes from analysis of toponyms found in Ptolemy of Alexandria's *Geography* and found on modern Scottish maps. The 1955 paper details his data and conclusions, but shows little of his analysis. He notes that the presence of Q-Celtic toponyms does not prove anything, as other historical sources attest to the presence of non-Pictish Goidelic Celts in Scotland by the fifth century or earlier (Jackson 1955: 146). Pictish could only be proved Q-Celtic by this method if only Q-Celtic names were found and at least some of these were

attested in the historical record before the arrival of Scots from Ireland. The presence of P-Celtic toponyms, on the other hand, would be definitive. Unfortunately, the majority of P-Celtic toponymic elements also are attested in southern Britain. While these elements could be used to show P-Celtic roots of Pictish, they cannot show anything unique about Pictish as compared to Brittonic (Jackson 1955: 148). Jackson does identify one element, *Pit-*, which appears to be almost entirely concentrated in what he calls the "Pictish heartland", that is, along the northeast coast of modern-day Scotland. There are 323 cited examples, and Jackson contends that there is clear evidence for a single population naming them (Jackson 1955: 146). There is considerable controversy over the etymology and meaning of *pit-*, and so Jackson refrains from concluding anything further than that there existed a society in northeast Britain that was distinct, but likely related to, the Britons in the southern part of the island (Jackson 1955: 146). The rest of the toponymic data proves problematic in that it cannot be definitely tied to any likely related languages.

From his analysis of toponymic and personal names, Jackson concludes that Pictish included a large P-Celtic element. The degree of uncertainty in analyzing these names, and especially in analyzing the inscriptions, causes Jackson to qualify this conclusion. He argues that there is enough data that cannot be definitively linked to P-Celtic roots to suggest the presence of a pre-Celtic, non-Indo-European influence on Pictish language and society into the fifth century. Jackson's Picts, then, are a mixed culture, comprised of two proto-Pictish elements, one P-Celtic and the other non-Indo-European. The position of Pictish within the Celtic family is shown in Figure 2.

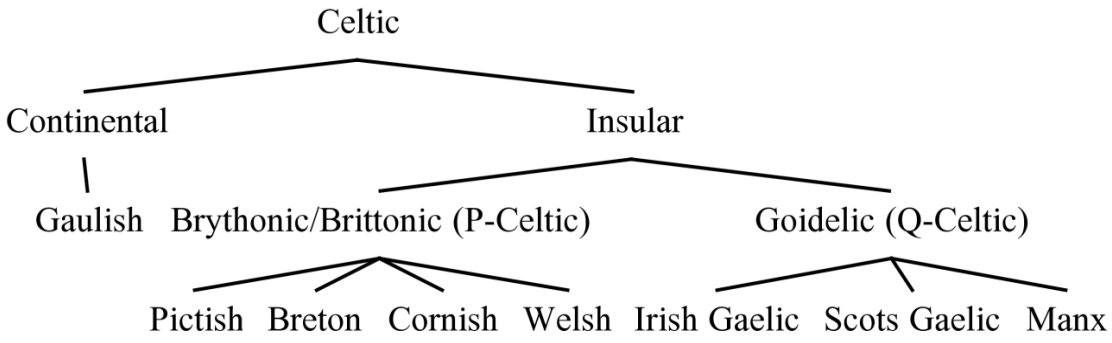

Figure 2. Celtic Family Tree with Pictish as a P-Celtic Language.

The conclusions drawn from the current study (see §7) suggest that the uncertainty which caused Jackson to suggest the endurance of a non-Indo-European element in Pictish is reflective of the limitations of his data set, not of any quality of the Pictish language.

2.2. Criticisms of Jackson (1955).

Jackson's paper became the standard accepted in the field of Celtic studies, but was not immune to criticism. The current study takes steps to avoid these in order to critique only Jackson's linguistic methodology. Alfred P. Smyth (1984) argues that Jackson's set of toponyms was too restricted geographically, and that this caused Jackson to come to false conclusions. The set of Lenape toponyms for this study was drawn largely from Donehoo (1928), who gives toponyms from across the state of Pennsylvania with origins in Lenape, Seneca, and other Native American languages. While this means the data is restricted to toponyms with previously attested Lenape origins, these have been distinguished from toponyms of other origins over a large geographic area. Katherine Forsyth (1997) argues that Jackson's linguistic arguments are influenced by archaeological evidence, a large portion of which has been disproven since Jackson was writing. In addition, Forsyth argues that Jackson's claim for the endurance of a non-Indo-European language in addition to the Pictish language is an extrapolation without evidential grounding. For the Lenape, there exists a wider body of historical record than for the Picts, so archaeological theories are not as relevant. Any conclusions drawn in this paper from non-linguistic data are based in accepted historical frameworks. Attempts are made to explain data that does not fit the prevailing hypothesis, but these are grounded in cross-linguistic patterns. Both Smyth and Forsyth note that Jackson makes false assumptions about the connection between language and culture (Smyth 1984: 47, Forsyth 1997: 22). These assumptions allow Jackson to argue the endurance of pre-Celtic people based on evidence of pre-Celtic toponyms. His conclusion ignores the fact that toponyms, particularly names of geographic features, are the most common linguistic item to be borrowed (Rivet and Smith 1979: 271. Cited in Forsyth 1997: 22). To be entirely sure he was not including borrowed terms, Jackson should have restricted his data to names of tribes and settlements. The current study does not exclude these features outright, but the effect of their removal from the data set is discussed in §6.2. In avoiding the criticisms given to Jackson (1955), this paper strives to evaluate the use of solely toponymic data for historical

comparison, questioning whether such a data set can yield enough reliable evidence for any historical linguistic relationships.

3. A comparative study of Lenape toponyms.

Forsyth (1997) and Smyth (1984) critique Jackson (1955) on the basis of missteps they see in drawing and shaping his data set. In this paper, I aim to evaluate his methodology, specifically his use of toponyms as linguistic data for historical comparison. This evaluation is made through a case study of Lenape. For Lenape, there already exists a historical linguistic lineage based on spoken and written data. The conclusions drawn in this study, using historical comparison on toponymic data, may then be compared and contrasted with accepted scholarship.

Lenape is an Algonquian language spoken in eastern Pennsylvania, Delaware, Maryland, and New Jersey (Delaware Tribe). I compare the Lenape toponyms with linguistic data from two Algonquian languages – Passamaquoddy-Maliseet, and Western Abenaki – and one Iroquoian language – Cherokee. The Algonquian languages are shown in Figure 3. Cherokee does not appear, because it is not an Algonquian language.

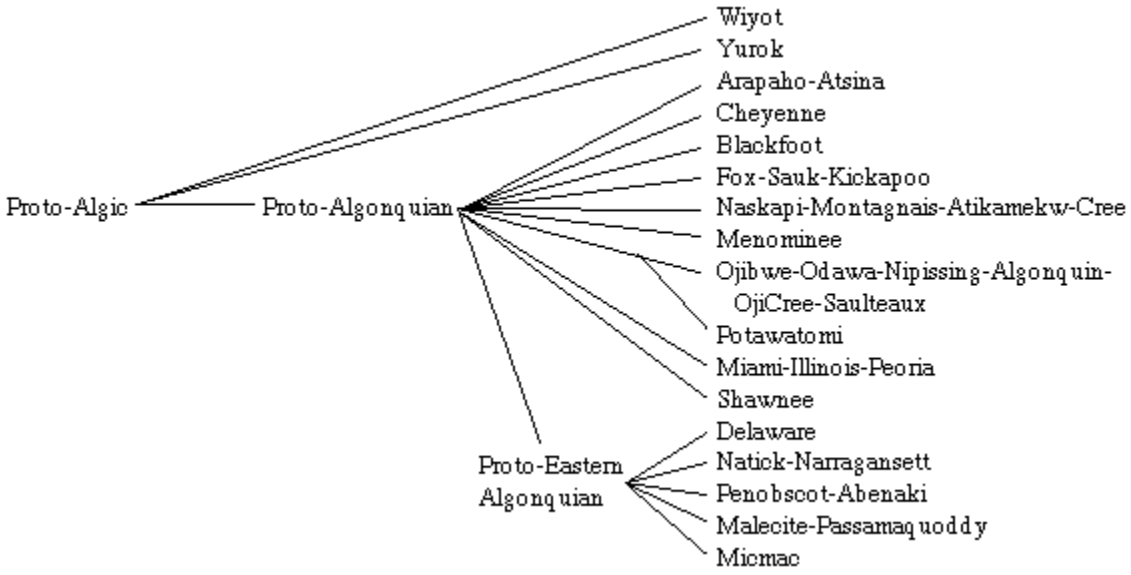

Figure 3. Algic Family Tree. (Valentine)

In analyzing toponymic data, Lenape is shown to be likely related to Western Abenaki and Passamaquoddy-Maliseet, all three being Eastern Algonquian languages; however, it is also shown to be equally likely related to Cherokee, which is an Iroquoian language.

3.1. Lenape.

Lenape (also called Lenni-Lenape or Unami) is a language indigenous to parts of modern-day eastern Pennsylvania, Delaware, Maryland, and New Jersey. Along with Munsee, it comprises the Delaware macro-language.

Figure 4. Delaware Homeland (Delaware Tribe).

Lenape is an Algic language, of the Eastern Algonquian branch, and is most closely related to languages such as Abenaki, Wampanoag, and Mohegan-Pequot (Lewis et al. 2014). There are no known L1 speakers, but 310 L2 speakers are listed in the 2000 census, and the language is undergoing revitalization efforts in Pennsylvania (Lewis et al. 2014), including a college-level language course at Swarthmore College (Swarthmore College). The Lenape people were forced west to reservations in Oklahoma in the 1860s along with many other indigenous peoples, and now the majority of Lenape reside in Oklahoma (Delaware Tribe 2014).

4. Data.

There is scholarship on the grammar of Lenape based on spoken and written data (O'Meara 1996). A linguistic family tree exists (See Figure 3) and is largely consented to within the linguistic and historical scholarly communities. In addition, there have been relatively extensive etymological studies of toponyms in the Lenape geographic homeland (Heckewelder and Ponceau 1834; Donehoo 1928; Repsher 2004; Rayapati 2014), so a toponymic data set can be kept reasonably free of places named in other languages. To replicate a situation similar to Pictish, where the bulk of available data is comprised of toponyms, I constructed a Lenape data set (Appendix A) consisting only of toponyms with demonstrated Lenape heritage.[2] These have been gathered from four sources: Donehoo (1928), Wallace (1981), Repsher (2004), and Rayapati (2014). Donehoo (1928) presents an exhaustive etymological study of place names throughout Pennsylvania with indigenous origins, including a history of the name, history of the place, and how the name has been spelled since the arrival of Europeans. Wallace (1981) includes detailed maps of indigenous place names throughout the state of Pennsylvania, though he does not give their linguistic origins. Repsher (2004) summarizes work by Willis Rivinus (1995) and George MacReynolds (1955), giving a brief history and etymology of indigenous toponyms in Bucks County, Pennsylvania. Rayapati (2014) draws heavily on Donehoo (1928), and focuses on the distribution of the locative suffix *–ing* in Lenape toponyms. My data set consists only of toponyms attested in at least two of these sources, a total of approximately 120 places.

The phonetic transcriptions of Lenape toponyms are hypothesized based on spelling variations given in Donehoo (1928). The orthographic decisions which produced these variations show biases of English, Welsh, and German speakers representing Lenape words. For example, the town now known as Shamokin, PA, has been recorded in various official documents as Schamockin, Samokin, Schachhenamendi, Schomako, Shahomaking, Shamaken, Shamochan, Shamokin, Shaumoking, Shawmokin, Shoahmokin, Shomhomokin, Shomoken, Shomokin, Siamocon, and Skamoken (Donehoo 1928: 189). In the data set, this toponym is transcribed [ʃahamokın]. Below, in Table 1, is a summary of the variant spellings. The first consonant sound is variably recorded as <sch> <s> <sh> or <sk>. The first sound these Europeans heard was

[2] This is slightly different from Jackson's approach: Jackson mapped all toponyms, and made his argument based on which linguistic elements appeared exclusively in the geographic Pictish heartland. I have deviated from this approach mostly for simplicity, because it would increase the possibility of contamination of the data set.

almost certainly a sibilant, but the exact identity of that sibilant is not readily apparent. Because the majority of these variations use <sh>, which in English usually corresponds to [ʃ], or <sch>, which also corresponds to [ʃ], but in German, the first consonant sound was likely [ʃ]. The process of hypothesizing vowel sounds is more complicated, since English, German, and Welsh of the colonial period all show variation in the spelling of vowel sounds (Goddard 1990: 227, Mattheier 2003: 218, King 2003: 2).

Sch S Sh Sk	a o aho au aw oah	m	o a	ck k ch c	in o ing en an in on

Table 1. Summary of variant spellings of *Shamokin*.

The consonant transcribed in the data set as [ç], in words such as [nısçamını] *Neshaminy*, was similarly complicated. This sound is variably recorded as <ch>, <gh>, <h>, <k>, <ts>, <sh>, or nothing. Despite such variable spellings, these must all represent the same sound, because they appear in variant spellings of the same toponym. The town of *A**ch**singing*, spelled with a <ch>, is also recorded as *A**ss**insing* with <ss>, or *A**ts**insink* with <ts>, among other similar variations (Donehoo 1928: 1). The town of *Wyalusing*, whose modern spelling omits this sound, is also found as *Ma**ch**iwihilusing* with <ch>, *Ma**h**ackloosing* with <h>, *Ma**k**ehalousing* with <k>, and *Wi**gh**alousin* with <gh> (Donehoo 1928: 259). With the exception of <k>, these spellings all represent fricatives or affricates in both German and English. There seems to be disagreement, however, over the place of articulation. The represented sounds appear to range from alveolar to velar. Taking the apparent manner and placements into account, it makes sense to posit that this sound could have been a palatal fricative [ç]. English does not have this sound, so English speakers would have difficulty discerning and transcribing it. German does have this sound, and usually transcribes it <ch>, as in *ich* 'I'. Indeed, the majority of spellings of *Wyalusing* make use of the <ch> spelling, and the town has also been called by the German *Friedensheutten* (Donahoo 1928: 259), suggesting it was likely speakers of German who first transcribed the town's name.

I have gathered linguistic data for each Passamaquoddy-Maliseet, Western Abenaki, and Cherokee from modern dictionaries. These dictionaries list entries in each language's orthography, and include a pronunciation guide. From these, I have transcribed the data into IPA. To facilitate this data gathering, I have chosen a word list of 108 English words drawn from common geographical elements and Donehoo's (1928) etymologies.[3] This data set appears in Appendix B.

5. Analysis.

This study uses the comparative method to analyze linguistic relationships between toponymic Lenape data and dictionary Passamaquoddy, Western Abenaki, and Cherokee data. The description of linguistic history does not constitute proto-language reconstruction, though the two endeavors are closely linked. Historical comparison requires first that systematic sound correspondences are identified in cognates between two or more languages. Then, taking into account naturalness and environmental factors, possible routes of phonological change that would result in these sound correspondences are hypothesized. It is important to note that a single sound correspondence could be the result of multiple phonological changes. These changes must then be ordered chronologically, taking into account all feeding, bleeding, counter-feeding, and counter-bleeding relationships. The chronology of phonological changes can be complicated by varying lengths and degrees of process productivity (Picard 1994). The information gathered from Lenape toponyms is not reliable enough to propose specific phonological changes; however, analysis does still yield systematic sound correspondences. Alone, these can suggest, but not fully prove, linguistic relatedness.

5.1. Lenape and Passamaquoddy-Maliseet.

The data suggest that Lenape and Passamaquoddy are related languages through cognates with systematic sound correspondences. There are cognates with nearly identical phonology. The correspondence in (1) shows words with two morphemes that are cognate. This means that not only do Lenape and Passamaquoddy share phonological characteristics, but also morphological ones. Specifically, not only are the words for 'big' (1a) and 'hill' (1b) cognate, but the

[3] This is more information than Jackson would have had when matching Pictish toponyms to potential Celtic cognates. Again, I have chosen this path for simplicity.

morphological rules for attaching adjectives to nouns are also cognate. In (2), Passamaquoddy [guwɛz] is cognate to two Lenape toponyms, both of which are cited by Donehoo as relating to the Lenape for ‘pine’. *Aquetong* includes an extra sound at the beginning, which could be another morpheme, or could have been dropped in both [guwɛz] and *Isle of Que*. *Isle of Que* is lacking an alveolar consonant at the end, which appears in [guwɛz] as the voiced fricative [z] and in *Aquetong* as the unvoiced stop [t]. The three words do show significant correspondence otherwise, so these inconsistencies do not discount these as cognate. As shown in (3), the Lenape *Neshaminy* has three syllables more that Passamaquoddy [niz]. Donehoo argues that the last two are the morpheme *hanne* ‘stream’, as in *Susquehanna* and *Allegheny*. In Passamaquoddy, numbers are predicates and inflect based on what is being counted (Francis and Leavitt 2008). The possibility of an additional morpheme on the Lenape [nɪsçam-], as compared to the counting form of Passamaquoddy [niz] ‘two’, strengthens the argument that these are cognate, rather than weakening it. It suggests that Lenape also inflects numbers, and that Lenape and Passamaquoddy have similar syntactic structures, as suggested by (2). The cognate pairs shown in (4) and (5) differ between languages mostly in vowel quality and consonant voicing. In (4), the Lenape toponym ends with a [k], whereas the Passamaquoddy cognates end in [k^w]. All of these differences are regular correspondences, and are discussed below.

It is unsurprising which phones in these cognates are not identical. First, the voicing of obstruents in Passamaquoddy is predictable: voiceless obstruents appear adjacent to another consonant, while voiced obstruents appear elsewhere. Voicelessness can be a result of a historical consonant that is no longer pronounced but is still represented in the orthography (Francis and Leavitt 2008). In addition, there is only one token of a voiced obstruent in Lenape, in Towanda [təwandə]. Because of these phonological processes, it is unsurprising that Passamaquoddy voiced and unvoiced obstruents both correspond to Lenape voiceless obstruents. Second, as discussed in §4, the vowels of the Lenape data are only approximate, so cannot be relied upon for finding correspondences.

Toponym	Lenape	Passamaquoddy	Gloss
(1) Kittatinny	[kɪtatɪni]	[ktodon]	‘big mountain’
(1a) Kittatinny	[kɪt-]	[ktʃi]	‘big, great’
(1b) Kittatinny	[-atɪni]	[-ahkiw]	‘hill’
(2a) Aquetong Isle of Que	[akʷɛt-] [kuweɪ]	[guwɛz]	‘white pine’
(3) Neshaminy	[nɪsçam-]	[niz]	‘two COUNT’
(4a) Nescopeck Paxton (Tup-peek-ing)	[tupik]	[ktəbɛkʷ] [waltʃəbɛkʷ]	‘spring’ ‘puddle, small pond’
(5) M’cheu-weami-sipu	[sipu]	[zib]	‘river’

In addition to obvious surface correspondences, Passamaquoddy and Lenape exhibit sound correspondences that require further phonetic change from a shared ancestral language. The following cognates show a correspondence between Passamaquoddy [w] and Lenape [n]:

Toponym	Lenape	Passamaquoddy	Gloss
(4) Conemaugh	[ko**n**əmaç]	[gi**w**ənig]	‘otter’
(5) Achsinging Machk-achsin Muncy/Munsee	[açsi**n**]	[bənapskʷ]	‘rock, stone’
(6) Pocopson	[pokopso**n**]	[gapskʷ]	‘waterfall; rocky roiling river’
(7) Kittatinny	[-ati**n**-]	[-ahki**w**-]	‘hill’

The cognate pair in (4) is the strongest evidence for this correspondence. The first consonants differ only in voicing, the second consonants exhibit the [n]/[w] correspondence, the third consonants are both nasals, which are very similar phonetically, and the last consonants show a correspondence between Passamaquoddy [g] and Lenape [ç], which appears in other words and is discussed below. Examples (5) and (6) are more tenuous, because they rely on a correspondence between Lenape [n] and Passamaquoddy labialized [k]. However, there is evidence in other words of the [k] and [ʷ] being treated separately with regards to linguistic change. In (8), Passamaquoddy [k] corresponds to Lenape [ç], while Passamaquoddy [ʷ] appears as a full [w] glide in Lenape. Example (7) shows evidence that a phonological process involving [w] and [n] was once productive in Passamaquoddy. The morpheme [-ahkiw-] ‘hill’ appears as [-odon] in the word [ktodon] ‘big mountain’. Here, the [w] of [-ahkiw] corresponds to the [n] in [ktodon], just as in (7) the [w] corresponds to the [n] in [-atin-].

Toponym	Lenape	Passamaquoddy	Gloss
(8) Machiwihilusing	[mə**ç**w**w**ɪhɪlus-]	[kta**k**^{w}həmuhs]	‘old man’

There is also a correspondence between Passamaquoddy [g] and [k] and Lenape [ç]. As discussed above, the voicing of consonants in Passamaquoddy is predictable. Because of this phonological process, it is unsurprising that Passamaquoddy [g] and [k] both correspond with Lenape [ç].

Toponym	Lenape	Passamaquoddy	Gloss
(9) Nockamixon	[-ami**ç**s-]	[ani**g**an]	‘old house, building’
(10) Machiwihilusing	[mə**ç**wɪhɪlus-]	[kta**k**^{w}əmus]	‘old man’
(11) Conemaugh	[konəma**ç**]	[giwəni**g**]	‘otter’

Other possible phone correspondences only appear a couple times in the data set, or do not appear consistently. There is a possible correspondence between Passamaquoddy [m] and Lenape [l]. The correspondence in (12) is clear, and the rest of the phones which comprise the two words correspond in ways that are attested elsewhere. The [m]/[l] correspondence is only attested in one other case, however, and this one is tenuous, because it requires Passamaquoddy and Lenape to have the same verbal morphological structure, and for the verb [miktuwitʃuwon] to be the same morphological form as the Lenape word which ended up as the current toponyms *Lackawanna* and *Lehigh*. Examples such as (1) and (3) suggest that Passamaquoddy and Lenape do share morphological structures, so it would not be impossible for (13) to be a cognate pair. More tokens of [m]/[l] correspondences are necessary to support this claim, however.

Toponym	Lenape	Passamaquoddy	Gloss
(12) Machiwihilusing	[məçwɪhɪ**l**us-]	[ktak^{w}ə**m**us]	‘old man’
(13) Lackawanna Lehigh	[**l**ɛçaʊ-]	[**m**iktuwitʃuwon]	‘it$_{river}$ forks’

A summary of sound correspondences found between Lenape and Passamaquoddy is shown below:

Lenape	p	t	t	ç	k	k	k^{w}	s	m	n	n	l	w
Passamaquoddy	p, b	t, d	tʃ	k, g	k, g	k^{w}#	k^{w}	z	n	#n	w	m	w

Table 2. Lenape-Passamaquoddy Correspondences.

5.2. Lenape and Western Abenaki.

The data suggest that Lenape and Western Abenaki are related languages through cognates with systematic sound correspondences. There are a number of nearly identical cognates. Similar to Passamaquoddy-Lenape cognates, examples (14-19) show some variation in consonant voicing, but this is unconcerning. As mentioned earlier, there is only one token in this data set of a voiced obstruent in Lenape, so both voiced and voiceless Abenaki obstruents correspond to the unvoiced obstruent in Lenape.

Toponym	Lenape	Western Abenaki	Gloss
(14) Aquetong Isle of Que	[akʷɛt-] [kuweɪ]	[goa]	‘white pine’
(15) Tulpehocken	[tulpe-]	[doləba]	‘turtle’
(16) Kittanning Kittatinny	[kɪt-]	[gɪtsɪ]	‘big’
(17) Namescesepong	[namesi-]	[namas]	‘fish’
(18) Oley (Olink)	[oalɪnk]	[wɤ̃lakw̥]	‘hole’
(19) Kittatinny	[-atin-]	[-adən-]	‘mountain’

The following hypothesized cognates are mostly phonetically very similar, but include one sound correspondence that is not attested elsewhere in the data. In (20), the onset [m] in Western Abenaki appears to correspond to Lenape [n]. This would require the nasals [m] and [n] to correspond. Nasals are very similar phonetically, and so are a natural correspondence. In addition, the consonants [s] and [k] in [nesiku] correspond to [k] and [z] in [mkazawɪ], but there must have been an event of metathesis in one of the two languages. In (21), there appears to be a correspondence between Lenape [po] and Western Abenaki [ms]. Both [p] and [m] are bilabial consonants, but Abenaki [s] does not have any obvious reflection in the Lenape. It is possible that the two pieces represent different morphemes added to a root that were then lexified as part of that root, but there is no evidence to prove or disprove this. In (22), Lenape [t] appears to correspond to Western Abenaki [h]. These could be related by a process of debuccalization and lenition from a proto-phone closer to [t], or by fortition from a proto-phone closer to [h].

Toponym	Lenape	Western Abenaki	Gloss
(20) Nescopeck	[nesiku]	[mkazawɪ]	‘black’
(21) Buckwampum (Pocacuintink)	[pokak^{w}-]	[mskakw̥]	‘bog’
(22) Tinicum (Manatey) Isle of Que (Cuwei-menatey)	[mɛnateɪ]	[mənahan]	‘island’

There is an apparent correspondence between Lenape [k] and Western Abenaki word-final [kw̥]; however, this correspondence is due to a constraint in Lenape against word-final labialization. In (23-25), word-final [k] appears labialized in Western Abenaki, but unlabialized in Lenape. In fact, there are no Lenape toponyms in this data set that end in a labialized consonant, including [w]. In (26), the consonant in question appears at the word boundary in Western Abenaki, but at a morpheme boundary in Lenape. Here, labialization remains in Lenape, not having been affected by a word boundary.

Toponym	Lenape	Western Abenaki	Gloss
(23) Lenapewihittuck	[-wihɪtə**k**]	[tə**kw̥**]	‘river’
(24) Nescopeck Paxton	[tupi**k**]	[bʌ̃ba**kw̥**]	‘pond, bay, basin’
(25) Oley (Olink)	[oalɪn**k**]	[wʌ̃la**kw̥**]	‘hole’
(26) Buckwampum (Pocacuintink)	[poka**k^{w}**-]	[mska**kw̥**]	‘bog’

Example (27) shows a Lenape toponym with two possible Abenaki cognates. For Lenape [tupik] to be cognate to Western Abenaki [bʌ̃bakw̥], [t] and [b] must correspond, [p] and [b] must correspond, and so must [k] and [kw̥]. The latter two have already been discussed in examples (14-19) and (23-26), respectively. For Lenape [tupik] to be cognate to Western Abenaki [təkəbɪ], metathesis is likely to have occurred in one of the languages, so that Lenape [p-k] and Abenaki [k-b] can correspond. Because neither a [t]-[b] correspondence nor metathesis are attested elsewhere in the data set, either cognate pair is possible.

Toponym	Lenape	Western Abenaki	Gloss
(27) Nescopeck	[tupik]	[bʌ̃bakw̥]	‘pond, bay, basin’
Paxton		[təkəbɪ]	‘cold water, a spring’

A summary of sound correspondences found between Lenape and Western Abenaki is shown below:

Lenape	p	t	t	t	k	k	k^w	s	m	n	n	l
Western Abenaki	b	d	ts	h	g	k^w#	k^w	s	m	m	n	l

Table 3. Lenape-Western Abenaki Correspondences.

5.3. Lenape and Cherokee.

The data suggest that Lenape and Cherokee are related languages through cognates with systematic sound correspondences. There are cognates with very similar phonetics. In (28), there are correspondences between Lenape [t] and [n] and Cherokee [d] and [s], respectively. As discussed previously, there is no apparent distinction in Lenape in the voicing of consonants. A correspondence between an unvoiced Lenape consonant and its voiced counterpart in another language is unsurprising. The phones [n] and [s] differ in manner, but share place of articulation, making their correspondence more natural. In (29), the similarity is less pronounced. There is again a correspondence between voiced and unvoiced consonants: between Lenape [k] and Cherokee [g]. There is also a correspondence between Lenape [ʃ] and Cherokee [tl]. The Cherokee [tl] is not an affricate, rather it is an onset consonant cluster; however, it is plausible that it could have evolved from something more resembling the affricate [t͡ɬ]. This sound differs from [ʃ] in both manner and place of articulation, but the differences in both cases are slight – an affricate and a fricative, and an alveolar and a post-alveolar. If the beginning [ʃ] and final [k] of Lenape *Shamokin* correspond with Cherokee [tl] and [g], then Lenape [m] must correspond with Cherokee [d]. This correspondence is less natural, as the two consonants differ in both manner and place of articulation. All of the toponyms in (30) include the locative suffix, which appears as [-ɪng̊] in Lenape and [-ĩ] in Cherokee. The similarity between these suffixes is apparent, as both begin with the vowel [ɪ] and end with a nasal (though Lenape does also end with a stop following the nasal). This pair does not lend much weight to an argument of relatedness between the two languages, however. First, the similarity of monosyllabic words is highly likely to be the result of chance. Second, as discussed above, the vowels in these Lenape transcriptions are approximations, so cannot be solely relied upon for arguing correspondence. Thirdly, all word-

final vowels in Cherokee are nasal (Feeling 1975: x). The nasality of the locative suffix cannot be definitively linked to a historical nasal consonant without further evidence. Still, it is worth noting that these suffixes do appear similar.

Toponym	Lenape	Cherokee	Gloss
(28) Kittatinny	[-atin-]	[gadusĩ]	'hill'
(29) Shamokin	[ʃahamok]	[tlə̃dɛgə̃]	'eel'
(30) Kittaning, Lehigh, Mahoning, Perkiomen, Poquessing, Shamokin, Minisink, Tinicum, Muncy, Wyalusing, Nockamixon, Passayunk	[-ɪn̥g]	[-ĩ]	LOC

There is a possible correspondence between Lenape [n] and Cherokee [l]. The cognate pair in (31) shows a correspondence between Lenape [m], [n], [t] and Cherokee [n], [l], [d], respectively. These correspondences are unproblematic. As discussed previously, nasals commonly correspond. Voiced and unvoiced pairs of stops also correspond, as in (28). The phones [l] and [n] are both alveolar, differing only in nasality and lateralness. The cognate pair in (32) shows the same [t] – [d] correspondence, as well as [n] – [l]. Unfortunately, both (28) and (32) argue for a cognate to Lenape *Kittatinny*, but the words in Cherokee are not related, so only one may be a true cognate pair. If (32) is not a cognate pair, this leaves only one attestation for the [n] – [l] correspondence.

Toponym	Lenape	Cherokee	Gloss
(31) Tinicum (Manatey) Isle of Que (Cuwei-menatey)	[mɛ**n**atei]	[uhna**l**udə̃ʔĩ]	'island'
(32) Kittatinny	[-ati**n**-]	[oda**l**ə̃ʔĩ]	mountain'

There is shown to be a consistent correspondence between Lenape [k] and [ç] and Cherokee [ʔ]. There is not a perfect one-to-one correspondence between each sound in each of these cognate pairs, but this is likely an artifact of transcription and translation in the Lenape data set (see §6.1.). In (33) and (34), Lenape [n] corresponds to Cherokee [d͡ʒ] and [t], respectively. All are alveolar stops, so this is a plausible set of correspondences. The cognate pair in (35) is also very close, with correspondences between Lenape [w] and Cherokee [w], Lenape [h] and

Cherokee [j], and Lenape [k] and Cherokee [ʔ]. Lenape [t] does not have a reflection in the Cherokee cognate. In (36), the [l] in each cognate word matches, and Lenape [s] and [k] correspond to Cherokee [n] and [ʔ], as has been discussed (see examples 28 and 33). In (37), Lenape [n] corresponds with Cherokee [t], as in (34). Lenape [p] does not have an obvious reflection in Cherokee. It is a stop, like the Cherokee pair of [g], and labial like the Cherokee [o], but it is unclear which of these the [p] corresponds with.

Toponym	Lenape	Cherokee	Gloss
(33) Nockamixon	[no**ç**a-]	[d͡ʒo**ʔ**ĩ]	‘three’
(34) Neshaminy	[nɪs**ç**am-]	[ta**ʔ**lĩ]	‘two’
(35) Lenapewihittuck	[-wihɪtə**k**]	[uwɛjã**ʔ**ĩ]	‘creek, river’
(36) Oley (Olink)	[oalɪn**k**]	[atalɛsã**ʔ**ĩ]	‘hole’
(37) Nescopeck Paxton	[tupi**k**]	[ganugogã**ʔ**ĩ]	‘spring’

The pattern of correspondence between Lenape [k]/[ç] and Cherokee [ʔ] is remarkable because there are more cognate tokens to support it than for any correspondences argued for Lenape and Passamaquoddy or Western Abenaki.

6. Demonstrating Linguistic Relatedness.

S. P. Harrison (2003) describes the demonstration of linguistic relatedness as a negative argument, resulting from the discarding of all other possibilities. Similarities between two languages are observed, and these languages may be called related only if these similarities are best explained by descent from a common ancestor, and not by borrowing between languages, random chance, or non-arbitrary form-meaning relationships (Harrison 2003: 215).

Without good historic records, it is nearly impossible to prove a word has been borrowed or not. One indicator of potential borrowing is geographic, cultural, and economic interactions. Passamaquoddy is spoken today in eastern Maine and western New Brunswick, especially in the St. Croix River and St. John River basins (Francis and Leavitt 2008: 3). Western Abenaki is spoken in central Quebec and regions of the Champlain Valley (Day 1995: iii). Lenape was historically spoken in eastern Pennsylvania, Delaware, and New Jersey (Lenape Language Preservation Project 2005), an area which does not border either the region of Passamaquoddy or Western Abenaki speakers. In addition, both the Passamaquoddy and Abenaki were members of

the Wamanaki Confederation until the 1860s, when the confederation dissolved, but this confederation did not include the Lenape (Francis and Leavitt 2008: 3). This suggests that there were not extensive geographic or political interactions between Lenape and the Passamaquoddy or Western Abenaki tribes, and contact borrowings are not likely. Another way to identify potential borrowings is through basic vocabularies, which list types of words with very low rates of borrowing (the most famous example is Swadesh 1971: 283). All lists generally include body parts, close kin, common natural landmarks and phenomena, and low natural numbers (Campbell 2003: 263). Of the twelve Lenape-Passamaquoddy cognate pairs I propose, eight involve vocabulary in these basic categories. Of the eleven Lenape-Western Abenaki cognate pairs, five involve this type of vocabulary. Of the twenty-two Lenape-Cherokee cognate pairs, eight are of this type. It is certainly true that languages do borrow from within basic vocabularies – a commonly cited example is of East and Southeast Asian number systems, in which even the lowest numbers have been largely borrowed from Chinese (Rankin 2003: 187) – but the rate of borrow appears to be lower than that in the rest of a language's vocabulary.

Campbell (2003:275) claims that "conventional wisdom holds that 5-6 percent of the vocabulary of any two compared languages may be accidentally similar." This claim presents a challenge to the data presented here. The toponymic data only yielded twelve cognate pairs for each Lenape-Passamaquoddy and Lenape-Western Abenaki and eleven for Lenape-Cherokee, numbers which are well under 5% of a language's vocabulary. The consistency of sound correspondences, however, suggests that these cognate pairs are not coincidental.
Non-arbitrary form-meaning correspondences include categories such as sound symbolism and onomatopoeia, where the phonetic representations of words mimic the natural sounds they describe. With the possible exception of Passamaquoddy [zib] 'river', none of the data fit into this category.

6.1. Limits of the Data Set.

The data set used in this study was severely limited in terms of size and scope. From a set of 128 toponyms, only 16 were found to be cognate to words in Passamaquoddy, 13 with words in Abenaki, and 22 with words in Cherokee. Four of these had cognates in all three languages. This means that any argument for linguistic relatedness in these three languages rests on only twenty-

four Lenape toponyms. The scarcity of potential cognates means that any sound correspondence is attested in very few tokens, with many only attested once or twice.

In addition to scarcity of information, the phonetic transcriptions of the Lenape are obscured by layers of uncertainty. As with any language, dialectal variation would mean each toponym could have multiple pronunciations. Then, these toponyms were transcribed and used by speakers of a different, completely unrelated European language. Competing transcriptions appear in surveying and legal documents. The pronunciation of these toponyms has then continued to shift in the centuries since they were first transcribed by Europeans. On the extreme, this leads to toponyms like *Lehigh*, which represents an English corruption of a German shortening of the Lenape toponym, which may have looked like *Lechauweeki, Lechauwiechink*, or *Lechauwoak* (Donahoo 1928: 89). A knowledge of which European languages transcribers spoke and of the variant spellings allows for more certainty in hypothesizing an original pronunciation, and my method for doing so is described in §4.

A fully convincing argument for linguistic relatedness requires regular correspondences in phonology, morphology, and syntax. Campbell (2003: 263) warns that in previous studies, "Use of lexical material alone (or as the primary source of evidence) often led to incorrect proposals and hence has proven controversial." With a data set limited to toponyms, there is virtually no morphological data and no syntactical data at all. Assertions of linguistic relatedness based only on toponymic data, then, are tenuous unless corroborated by further morphological and syntactic study.

6.2. Landscape Features.

Both Forsyth (1997) and Smyth (1984) criticize Jackson (1955) on his inclusion of toponyms of landscape features in his data set. Names of natural landmarks, including mountains, rivers, and other bodies of water, are more likely to be borrowed and endure longer than the language community that coined them (Smyth 1984: 47, and Forsyth 1997: 22). In order to avoid the inclusion of possible pre-Lenape toponyms in this data set, then, all names of natural features should be removed. In addition, names of settlements that share a name with a natural feature should also be removed. This leaves nine toponyms cognate with Passamaquoddy, six cognate with Western Abenaki, and thirteen cognate with Cherokee.

Toponym	Lenape	Passamaquoddy	Gloss
Achsinging	[açsin]	[bənapsk^{w}]	‘rock, stone’
Isle of Que	[kuweɪ]	[guwɛz]	‘white pine’
Lackawanna Lehigh	[lɛçaʊ-]	[miktuwitʃuwon]	‘it$_{river}$ forks’
Machiwihilusing	[məçwɪhɪlus-]	[ktak^{w}həmuhs]	‘old man’
Nescopeck Paxton (historically Tup-peek-ing)	[tupik]	[ktəbɛk^{w}] [waltʃəbɛk^{w}]	‘spring’ ‘puddle, small pond’
Nockamixon	[-amiçs-]	[anigan]	‘old house, building’
Pocopson	[pokopson]	[gapsk^{w}]	‘waterfall; rocky roiling river’

Table 4. Passamaquoddy cognates of non-natural feature Lenape toponyms.

Toponym	Lenape	Western Abenaki	Gloss
Isle of Que	[kuweɪ]	[goa]	‘white pine’
Nescopeck	[nesiku]	[mkazawɪ]	‘black’
Nescopeck Paxton	[tupik]	[bʌ̃bakw̥] [təkəbɪ]	‘pond, bay, basin’ ‘cold water, a spring’
Oley (Olink)	[oalɪnk]	[wʌ̃lakw̥]	‘hole’
Tinicum (Manatey) Isle of Que (Cuwei-menatey)	[mɛnateɪ]	[mənahan]	‘island’

Table 5. Western Abenaki cognates of non-natural feature Lenape toponyms.

Toponym	Lenape	Cherokee	Gloss
Lehigh, Mahoning, Shamokin, Minisink, Tinicum, Muncy, Wyalusing, Nockamixon, Passayunk	[-ing̥]	[-ĩ]	LOC
Nescopeck Paxton	[tupik]	[ganugogə̃ʔĩ]	‘spring’
Nockamixon	[noça-]	[dʒoʔĩ]	‘three’
Oley (Olink)	[oalɪnk]	[atalɛsə̃ʔĩ]	‘hole’
Shamokin	[ʃahamok]	[tlə̃dɛgə̃]	‘eel’
Tinicum (Manatey) Isle of Que (Cuwei-menatey)	[mɛnateɪ]	[uhnaludə̃ʔĩ]	‘island’

Table 6. Cherokee cognates of non-natural feature Lenape toponyms.

Importantly, this paring down of the data set removes evidence for certain sound correspondences. Both *Conemaugh* and *Kittatinny* are removed, leaving the only evidence for the Lenape-Passamaquoddy [n]-[w] correspondence *Achsinging* and *Pocopson*, where the Passamaquoddy [w] is part of a labialized [k]. Most sound correspondences still have at least one attestation, though many are limited to only one.

6.3. Cherokee.

As shown in Figure 2, Lenape is not related to Cherokee. In §5.3., however, I discuss a number of apparent cognate pairs and a consistent sound correspondence. This correspondence, between Lenape [k]/[ç] and Cherokee [ʔ], is more strongly attested than sound correspondences between Lenape and Passamaquoddy or Western Abenaki, which are related languages. It is highly likely, then, that the cognate pairs and sound correspondences found in this paper are a result of chance, and do not support claims of linguistic relatedness. The use of purely toponymic data for historical comparison does not yield enough or reliable enough data to yield significant results.

7. Conclusion.

In response to Jackson (1955), this paper questions the reliability of determining linguistic relatedness of a target language by using the comparative method on toponymic data. Such a data set is limited in scope, both in terms of simple volume of items and in type – that is, all data is lexical, and the semantic breadth is limited. In addition, as discussed in §4, the phonological makeup of that data can be obscured. As a result, in this study only sixteen Lenape-Passamaquoddy cognate pairs were found, twelve Lenape-Western Abenaki pairs, and twenty-two Lenape-Cherokee pairs. Still, as shown in §5, these were enough to find regular sound correspondences. While these correspondences do suggest linguistic relatedness, the small size of the sample is not enough to determine that these correspondences are not the product of random chance. It is possible that further study of Lenape toponyms could uncover more cognate pairs, but toponymic data is finite, so finding very many more is unlikely. This study finds the methods used in Jackson (1955) possible, but finds significant danger for turning up false positives. Toponymic data is limited in scope, and does not yield enough cognate pairs to comprise more than the chance amount. Toponyms are also limited in their form, as transcription and borrowing can obscure their phonetic representation. In this study, these shortcomings allowed for an argument of linguistic relatedness between Lenape and Cherokee, which is incorrect.

The failure of this method to give reliable suggestions of linguistic relatedness presents a problem for languages, such as Pictish, for which the available data is predominately toponymic. If combined with other sources of data, for example archaeological and historical, the conclusions may be checked. While it is true that cultural relatedness does not imply linguistic relatedness, linguistic relatedness is a strong indicator of historic cultural relatedness. In tandem with studies in other disciplines, the hypotheses generated through the comparative method can be used in studying the cultural history of a society.

References

Briggs, Keith. 2009. Maps of English place-name element distribution. Online: http://keithbriggs.info.

Campbell, Lyle. 2003. How to Show Languages are Related: Methods for Distant Genetic Relationship. In Brian D. Joseph and Richard D. Janda (eds.), *The Handbook of Historical Linguistics,* 262-282. Malden, MA: Blackwell Publishing, Ltd.

Charles-Edwards, Thomas, ed. 2003. *After Rome*. Oxford: Oxford University Press.

Day, Gordon M. 1995. *Western Abenaki Dictionary*. Hull, Quebec: Canadian Museum of Civilization.

Delaware Tribe. 2014. *Official Web Site of the Delaware Tribe of Indians*. Online: delawaretribe.org.

Des Moines Public Library. 2013. *Timeline of Des Moines.* Online: dmpl.org.

Donehoo, George P. 1928. *A History of the Indian Villages and Place Names in Pennsylvania.* Harrisburg: The Telegraph Press.

Feeling, Durbin. 1975. *Cherokee-English Dictionary.* Tahlequah, OK: Cherokee Nation of Oklahoma.

Forsyth, Katherine. 1997. *Language in Pictland*. Utrecht: de Keltische Draak.

Francis, David A. and Robert M. Leavitt. 2008. *A Passamaquoddy-Maliseet Dictionary*. Orono, ME: The University of Maine Press.

Goddard, Ives. 1990. Unhistorical Features in Massachusett Orthography. In Jacek Fisiak (ed.), *Historical Linguistics and Philology*. Boston: Walter de Gruyter.

Harrison, S.P. 2003. On the Limits of the Comparative Method. In Brian D. Joseph and Richard D. Janda (eds.), *The Handbook of Historical Linguistics*, 213-243. Malden, MA: Blackwell Publishing, Ltd.

Heckewelder, John, and Peter S. Du Ponceau. 1834. Names Which the Lenni Lenape of Delaware Indians, Who Once Inhabited This Country, Had Given to Rivers, Streams, Places, &c. &c. within the Now States of Pennsylvania, Jew Jersey, Maryland and Virginia: And Also Names of Chieftains and Distinguished Men of That Nation; With the Significations of Those Names, and Biographical Sketches of Some of Those Men. *Transactions of the American Philosophical Society* 4. 351-396.

Jackson, Kenneth. 1955. The Pictish Language. In F.T. Wainwright (ed.), *The Problem of the Picts*, 129-166. New York: Thomas Nelson and Sons Ltd.

King, Gareth. 2003. *Modern Welsh: A Comprehensive Grammar*. Psychology Press: New York.

Lenape Language Preservation Project. 2005. *The Lenape Talking Dictionary*. Online: www.talk-lenape.org.

Lewis, M. Paul, Gary F. Simons, and Charles D. Fennig (eds.). 2014. *Ethnologue: Languages of the World, Seventeenth edition*. Dallas, Texas: SIL International. Online version: http://www.ethnologue.com.

MacReynolds, George. 1955. *Place Names in Bucks County*. Doylestown, PA: Bucks County Historical Society.

Mattheier, Klaus J. 2003. German. In Ana Deumert and Wim Vandenbussche (eds.), *Germanic Standardizations: Past to Present*. Philadelphia: John Benjamins Publishing Company.

Nash, David & Jane Simpson. 2012. Toponymy: Recording and Analyzing Placenames in a Language Area. In Nicholas Thieberger (ed.), *The Oxford Handbook of Linguistic Fieldwork,* 392-406. New York: Oxford University Press.

Ordnance Survey. 2014. Glossary of Scandinavian origins of place names in Britain. Online: http://www.ordnancesurvey.co.uk.

Picard, Marc. 1994. *Principles and Methods in Historical Phonology: From Proto-Algonkian to Arapaho.* Montréal: McGill-Queen's University Press.

Pictish Nation. 2014. *The Pictish Nation*. Online: www.facebook.com/pages/The-Pictish-Nation/82429333057?sk=timeline.

Rayapati, Jacob P. 2014. Lenape Heritage in American Place Names. *The Institute for Cultural & Healing Traditions, Ltd.* Online: www.qcinstitute.org.

Repsher, Donald R. 2004. Indian Place Names in Bucks County. *Lenape Nation*. Online: www.lenapenation.org.

Rivinus, Willis M. 1995. *William Penn and the Lenape Indians*. New Hope, PA: the author.

Smyth, Alfred P. 1984. *Warlords and Holy Men: Scotland AD 80-1000.* Baltimore: Edward Arnold, Ltd.

Swadesh, Morris. 1971. *The Origin and Diversification of Language.* Piscataway, NJ: Transaction Publishers.

Swarthmore College. 2014. *Linguistics*. Online: www.swarthmore.edu/linguistics.

Valentine, Rand. n.d. The Algonquian Language Family. *Anishinaabemowin*. Online: imp.lss.wisc.edu/~jrvalent/AIS/index.html.

Wallace, Paul A.W. 1981. *Indians in Pennsylvania*. Harrisburg: Pennsylvania Historical and Museum Commission.

Appendix A. Lenape Toponyms.

Lenape Toponym	Type of Place	Primary Source
Achsinging	settlement	Wallace
Allegheny	river	Wallace
Aquetong	settlement/spring	Repsher
Aughwick	settlement	Wallace
Buckwampum / Pocacuintink	mountain	Repsher
Carlisle	settlement	Wallace
Catawissa	settlement	Wallace
Cattalossa (Quitolawissing)	creek	Repsher
Wilawanna	settlement	Donehoo
Chenango	settlement	Wallace
Chickenumiche	hill	Repsher
Chillisquaque	settlement/creek	Wallace
Chinquapin	settlement	Repsher
Chugnut	settlement/creek	Wallace
Conemauon	settlement/river	Wallace
Conestoga	creek	Wallace
Conewanga	river	Wallace
Conocochooga	creek	Wallace
Gnadenheutten	settlement	Wallace
Goshooshing	settlement	Wallace
Hackaczockan	creek	Repsher
Hannastown	settlement	Wallace
Hartyaken (Arr-ti-hick-anna)	settlement	Repsher
Hesson	settlement	Wallace
Hock Junction	settlement	Rayapati
Hollekonk (Holicong)	settlement/spring	Repsher
Isle of Que	island	Wallace
Kantkateck	island	Repsher
Kickenapaulin's	settlement	Wallace
Kinzua	creek	Wallace
Kiskiminetos	river	Wallace
Kittanning	settlemet/stream	Rayapati
Kittatinny	mountains	Rayapati
Kuskusky	settlement	Wallace

Lackawanna	settlement	Wallace
Lahaska (Lahaskeke)	settlement/stream	Repsher
Lawunakhannek	settlement	Wallace
Lehigh (Lechauweekin, Lechauwichink, Lechauweing)	settlement	Rayapati
Lehightom	settlement	Rayapati
Lekau-miska	hill	Repsher
Lenapehoking	region	Rayapati
Lenapewihittuck	river	Repsher
Lycoming (Leaguai-hanne)		Rayapati
Machk-achsin	hill	Repsher
Mackkeerikitton		Repsher
Mahonhanne	creek	Repsher
Mahoning		Rayapati
Makereisk-kikon	river	Repsher
Manatawny	settlement	Brunner
Manayunk	settlement	Rayapati
Manhattan (Mana-ahten-ing)	island	Rayapati
Menahakonk	island	Repsher
Minisink	settlement	Brunner
Muncy	creek	Wallace
Nescopeck	settlement	Wallace
Neshaminy (Nisha-men-ing)	creek	Repsher
Nockamixon (Nocha-nichs-ink / Nocha-miks-ing)	settlement	Repsher
Okehocking	settlement	Rayapati
Oley	settlement	Brunner
Passayunk (Pachsegink, Pachsegonk)	settlement	Rayapati
Paunacussing	settlement	Repsher
Paxtang	settlement	Wallace
Paxton (Paxtana, Peshtang)	settlement	Rayapati
Pechoqueolin	settlement	Repsher
Perkasie	settlement	Wallace
Perkasie (Poekskossing)	settlement	Repsher
Perkiomen (Pakihmomink)	stream	Repsher
Playwicky (Pleu-ecke / Pleu-ick-ing)	settlement	Repsher
Pocasie (Poekskossing)	creek	Repsher
Pocopson	settlement	Rayapati
Poquessing	creek	Repsher

Sanckhickan	falls	Repsher
Sawcunk	settlement	Wallace
Schuylkill	river	Brunner
Shamokin	settlement	Brunner
Shickshinny	creek	Repsher
Sipaessing (Sipaessinglandt/Chiepieasing)	settlement	Repsher
Susquehanna	river	Rayapati
Tinicum	settlement/island	Repsher
Tioga	settlement	Wallace
Tohickon	creek	Repsher
Tooqueminsey (Tuckwi-mens-ing)	settlement	Repsher
Toughkenamon		Rayapati
Towanda (Tawundeunk / Tawandaemenk)	settlement	Rayapati
Towissink	creek	Repsher
Tschichohocki	island	Repsher
Tulpehocken (Tulpewi-hacki / Tulpewihoking)	settlement	Rayapati
Tunkhannock	river	Wallace
Tuscarora	creek/mountains	Wallace
Venango	settlement	Wallace
Wickus Sippus	creek	Repsher
Wingohocking	creek	Rayapati
Winnahawchunik (Win-na-haw-caw-chunk)	settlement	Repsher
Wissinoming (Quessinawomink)	creek	Rayapati
Wyalusing	settlement	Wallace
Wyoming	settlement	Wallace
Wyoming (M'cheuoming)	settlement	Rayapati
Youghiogheny	river	Wallace

Appendix B. Passamaquoddy, Western Abenaki, and Cherokee Word List.

English	**Passamaquoddy-Maliseet** (Francis and Leavitt 2008)	**Western Abenaki** (Day 1995)	**Cherokee** (Feeling 1975)
acorn	asahqaha	anaskebagôn / anaskemen (red or black oak acorn) wacil (white oak acorn)	gule
bank (of a river)	sitom (shore, beach, coast; riverbank) sonuci (along edge, at edge; on or along shore, coast, riverbank, etc) sonuciw (along edge, at edge; on or along shore, coast, riverbank, etc)		
basin		pkwabagôik (the lake or basin formed by a river widening)	
bay	amonopekek (geographical term) cihciqpeke (it narrows) kskopeke (it widens out) oqimut (lagoon, bay; sheltered harbor, port) pihtakome (it is a long lake or bay)	bôbagw (pond, bay, basin) gwenibagw (long bay or pond) kaskebaga / kskebaga (it is a wide bay or lake, it is a river widening into a lake) msôbagw (a big body of water, a big bay) pkwadabaga (bay or wide place formed in a river by erosion on one side) wôliniaig (it is a bay) Pabalôgamak (lake full of bays, Lake Raquette, NY) sidtobagol (two bays or lakes touching or close together)	
big	kci (big, great; old; pure) kini (big, large, great) Kci-kuspem (Big Lake, at Motahkomikuk, ME)	gagici / gakci (very big) gici / gôkci / msi (big, great) masegilek / masegwikwek (big animate/inanimate one) mesegwikwen / msagigen (it is big)	utana
blue	musqonocihte (it is blue, sky-colored)	wlôwi (blue) wlôwigen (it is blue)	sakonigeʔi
black	mokoseweyu (s/he it is black)	mkazawi (black) mkazawbaga (it is black - liquid) mkazawigek / mkazawigen (it is black)	gvhnageʔi
bog	elomocokek (mudflat, muddy land) pkuwahq (bog, swamp, heath) walcoq (swamp, bog, wetland)	mskagw (bog) meskagw (coniferous swamp or bog) wôljebagw (a swampy depression with water, a marsh, primarily a bog pond, not connected with any stream;	

		bowl-shaped)	
brook		cicigwitegwaso (a narrow little river or brook) gitadowôganizibosiz (whetstone brook) zibos (a brook, this a particular locale on the Abenaki reserve) zibosimiz (a very little brook)	
brush	kcimkatoke (there is thick woody growth, there is dense brush too thick to walk through)		
bush	lamipisoq (among bushes, in brush)	alômhlabiwi (in the bushes, literally in the net) bizaga (it is bushy, thick woody growth) ginibizaga (very bushy, very thinck growth of bushes)	uwaʔihlvʔi
cave	aloq (hole, cave, burrow) lamkomiqikan (underground cave)	alômki (inside the ground; a vace, cellar, Hell) dawapska (hole in rock, cave, literally down inside rock)	usdagalvʔi
chief	mektunenok (director, boss, chairperson, manager, etc) sakom (chief)	zôgemô (chief hence secondarily President, Lord)	ugvwiyuhi
clearing	pqotekon (clearing or opening in the woods) messuwatoke, panikon, pankomike, panskute (there is a clearing)		
cliff	koskapske (it is a cliff, precipice, crag, dropoff) koskitome (rocky land slopes down abruptly, forms a cliff or precipice; it is rocky at bottom of a dropoff, it (water) gets deep suddenly; there is body of water at base of cliff)	bamigajigapskak (where the cliff is, literally where the rock is taken off) gadzigapska / gadzigapskezo (it is a cliff, it is a steep rock) gadzigapskw (a cliff, a steep rock)	
cove	eli-ksekonik (inlet, cove) pisihikoniw (it/there is cove or inlet) pisipiqe (there is inlet, cover, gulf, bay, estuary)		
cranberries	ipimin (highbush cranberry) sun / suwon (bog cranberry)	nibimen (high bush cranberry) popokwaimen (a cranberry) popokwamozi (cranberry bush)	

		nibimenakwam (cranberry bush, pembina)	
creek		zibosiz (a little river, creek)	uweyvʔi
ditch	psahkihikon (ditch, trench, gutter)	pasakahigan (ditch)	udelisgalvhvʔi
dirty	kincoke (it is very dirty, there is a lot of dirt on it) moccoke (it is dirty) mocopekot (for a liquid, it is dirty, contaminated)	agwejaga (it is dirty, but dry) agwejagezi (be dirty)	agadahaʔi / gadahaʔi
drink	t-ahtolossomu (s/he keeps drinking, drinks repeatedly)	dawesmi (drink from something) gôgadosmi (drink N) gadosmowôgan (the act of drinking) bamesemimek (where one drinks)	aditasdi / aditasga
downriver	papkeyik, papkiye	alego (go downstream with the current, shoot rapids) naaiosi (a little below or downstream) naaiwi (downstream, down below, down country, home to hunters on the upper river)	geʔi (downstream)
downhill	motape, motapiyahkiw, papkiye	benôkiwi (downhill ADV) benôko (a downhill N)	aksosgvʔi
eel	kat 1 (eel) sakapsqehtom (lamprey eel)	nahômo (he goes with the current, an eel)	tlvdegwa
falls	kapsq (waterfall, falls; rocky river bed with rocks exposed so that the water is "boiling") weskituwicuwok (waterfall; place where water flows over something)	bôntegw (a rapids, falls)	
field	eli-sonutaskutek, sonutaskutew (along edge of field) epahsaskutew, suwaskutew (in the center or middle of the field) pemskutek (in the field)	akikôn / kikôn (a field)	dlogesi
fish	lontoqi-nomehs (freshwater fish) napomeq/skomeq (male/female fish) nomehs (fish)	alnamgw (common fish, ie chub, dace) namas (a fish)bemômanosek (fishing place - probable origin of Ompompanoosuc River, VT)	ajaʔdi / asuhvsga
fishing (N)		mawôgan (fishing, the action of fishing)	
five	nan (counting) nanonul (there are five) nanokehs	nôlan (counting) nônnenol (cardinal) nônni (PT)	hisgi

	(five times)		
flat	sokotekon (it is flat) sokotiyapske (for a rock, it is flat), tetpahkomike (it is flat land)	abagi (adj)	
forest	kcihq	bezegatakwa (dark forest) msakwika (forest of big trees) neskakwika (a dense growth of forest, troublesome to go through) olakwika (a good roest)	inageʔi
fork	nihtuwahte (it is forked, bifurcated) miktuwicuwon (for river/stream, it forks, it divides or comes together)	bemejinibaga (a fork of a river or lake) nigidawtegwihla (the river spreads out, forks, becomes a system of forks - named going upstream)	dulotsgvʔi / yvgi
four	new (counting) newicuwon (it flows in four directions or channels) newokehs (four times) newonul (there are four)	yaw (counting) yawda (four times)	nvhgi
gourd		kwôlaskw	
green	mipocihte, skipocihte, skipoqotte, stahqoncihte (it is green)	askaskwi	ijeʔi / ijeʔiyusdi
ground	tupqan (earth, ground, soil, dirt)	tsakaa (flat ground) bemakaa (sloping ground) dabsakaa (low ground)	
headgear	ahsusuwon (hat) 'tannoskesun (archaic, hat) tanosqesun (headdress)	Alnôbaasolkwôn (an Indian hat, used nowadays for a Plains type headdress) asolkwôn (hair covering, man's hat)	alsgwetuwo (hat)
hickory			waneʔi (tree) sohi (nut)
hill	epahsahkiw (halfway up/down hill) kisahqew 1 (uphill) sopayahkiw (side of hill, edge of dropoff) tehsahqahkiw (top of hill, high land)	olôka (a nice hill) gadzigôka (it is a steep hill or bank) dasôko (hilltop)	gadusi
hog/pig	piks 2	biges	sihgwa
hole	aloq (hole, cave, burrow) elomalokahk (hole)	wôlagw (hole) aspôlagw (hole of such a width, a wide open hole) molôôlagw (deep hole)	atalesvʔi
horn	somu	askan (horn, antler, powder horn, horn rattle)	uhyona

house	elaktahasik (house with peaked and shingled roof) 'kanikan (old house, building) masqewikan (birchbark house) oposikuwam (wooden frame house) pqapsqisikuwam (brick house) qahqolunsqikuwam (clay or adobe house) qinusqikan (house with peaked roof) sakomawikuwam (chief's house), wik (h/ house, home) wikuwam (house, dwelling, building)	Alnigamigw / Alnôbaiwigwôm (Indian house, wigwam, ordinary dwelling) bedegwikôn (a round house or camp) gwenatagigamigw (long house)	gahljode
inlet	eli-ksekonik (inlet, cove)	bidhebaga / bidhinbaga (an inlet bay, entering water) bidhigan (an entrance, inlet to bay or river)	
island	monihq	menahan (an island)	uhnaludvʔi
lake	kuspem, qospem (lake) eli-sonutakomek, sopayakom (along the shore of a lake) epahsakom (in the middle of the lake) kci-lontoq (large lake) lontoq (body of fresh water)		vdali
land	ktahkomiq (land, ground, earth; territory; world, planet	aki / ki (earth, land, ground, soil, world) Alnôbaaki (Indian land) begwaki (snady land) gedakina (our land, our world, our reservation land)	gada
LOC			-i
mountain	woc 1 (mountain) ktoton (big mountain, Mt. Katahdin)	bamadenik (where the mountain is) ginadena (a very high mountain) gitaaden / gitaden (a great mountain) msadena / msiwajo (big mountain) wajo (a mountain, a hill) bamadena (where the mountains are; at the mountains)	odalvʔi
mountain range / divide	pemotonet (mountain range)	alemadenaseg (a mountain range; where the mountains extend, begin, etc)	
mouse	tuhkis, apiqsehs	alezawad (the gnawer; mouse) wôbikwsos (a mouse, literally	

		little white rodent person)	
mouth (stream)		madôbaskika (grassy river mouth) zôgedahlôk (mouth of a river, where or when it flows out) zôgitegwa (the river comes out, the mouth of a river)	aholi (mouth)
new	pili	wski (new, young, raw, fresh)	adageʔi / ijeʔi
ocean	supeq (ocean, salt water)	mamilizobagwa (the open ocean, the high sea) zobagw (ocean, sea)	amegwoʔi
old	kancoqi (ancient, very old) 'kani (old, ancient) kansuhsuwi (ancient, old, from long ago)	gici (big, great, old) negôni (old, ancient)	agayvli / uweti
old man	ktaqhomuhs		utvsohnvʔi
one	neqt (counting; once) pesq (counting)	bazegw (counting) negweji (PT)	sagwu
opening			asduʔiʔa / udlanvda / ulsduʔida (open)
orange	sqoccihte (it is orange in color)		
otter	kiwonik	onegigw	
path/road	elkepolasik (beaten path) - tosson (road, path???) awt (road, street; route) kskomawt (shortcut path or road)	ôwdisiz (a little path) ôwdi (path trail road street)	nvnohi (road) ganvhnvʔi (route)
penninsula	mataweyu (it extends out into the water, is surrounded by water) qesaweyu (it forms point or peninsula)		
pine	kuw 1, kuwes (white pine)	basaakw (red pine) goa (white pine)	nohji
pond	qotasq (pool, pond, lagoon) walcopeq (puddle, small pond)	bedegwôbagw (a round pond) bizewakamigwinebesiz (a little wilderness pond - refers to a bog pond without fish) bôbagw (pond, bay, basin) gwenibagw (long bay or pond) kskôgama (wide pond) nebesiz (a pond, little lake) nebiz (a small water, a pond) pôbagw (pond, bay)	vdali
purple	sunapocihte (it is purple in color)		

rapids	kapsq (waterfall, falls; rocky river bed with rocks exposed so water is 'boiling')	bôntegwijoan (a rapid, literally it is falling river current) ginijoan (it is a strong current, a strong rapid) bôntegw (a rapids, falls) wôbijoan (it is white current, white water rapids)	
red	mqeyu, pqeyu (s/he it is red) pqi (red)	mekwi	gigage
river	sip (river) mocapskicuwon (it is difficult rocky stretch in river, hard to canoe through) nalapekik (quiet stretch in river - Maliseet)	tekw	uweyvʔi
rock	ponapsq (rock, stone)	abagapskw (flat rock) olapska (nice rock) gitapska (great rock) mekwapskw (a red rock)	dahlihgeha / nvya
salt	salawey	ziwan	ama
seashore		senojizobagwa (the seashore, sea coast)	
shore	cicokayiw (ashore, on the shore) eli-sonutakomek, sopayakom (along lakeshore, along edge of lake) sitom (shore, beach coast; riverbank) sonutamkiw (along beach, along gravelly or pebbly shore)	gipakik (shore, edge of land from the water)poômkak (a sandy shore) senojiwi (the shore; at, on, by the shore)	amayuhldi
short	cilkatokot (something stringy, it is short) cilkeyosson (It is small and short)	bokwi (short in length) daakwi (short)	asgwalaʔi
small	apsapske (rock/potato, it is small) apsaskute (it is a small field) apsi (small, little)apsutenehsiw (it is a small town or village) walineyosson (there is a small cove, crater)	biwi (small, fine, thin)	ayohli / usdi
spring	kisuwopeq (warm spring) ktopeq (spring) tkopeq (cold spring)	tekebi (cold water, a spring) waijijoan (it (water) runs all the time, it is a spring)	ganugogvʔi / gogeyi
stone	ponapsq (rock, stone)	asen / sen (a stone)	
stream		ojebategw (narrows of a stream) sibategwiz (a little channel, a little side stream encountered going downriver, a side stream)	

swamp	pkuwahq (bog, swamp, heath) walcoq (swamp, bog, wetland)	megoakw (a swamp) odagejaga (swampy ground, literally damp dirt)	
tall	spahte (it is tall, in a high place) speyu (it is tall, is high)	gwanak (long inanimate one, tall inanimate one)	
three	nihi (counting) nihikehs (thrice) nohonul (there are three)	nas (counting) nasobaga (three waters, three bays or lakes)	joʔi
thunder	petakiyik	Badôgi (a Thunder, a Thunderer)	ahyvdagwaloʔa / ahyvdagwalosgi
town	apsutenehsiw (it is a small town or village) uten (town)		gaduhvʔi
turkey	nem	nahama (wild turkey)	gvna
turtle	cihkonaqc, mikcikc	doleba (turtle) aligedaid (the way he jumps; the jumper, he that jumps, the snapping turtle) mikinakw(tortoise, turtle shell; also a water bug shaped like a turtle, the Water Boatman; also a priest's chausable) zobagwidoleba (a sea turtle)	
two	nis, tapu (counting) nisonul (there are two)	niz (counting)	taʔli
upriver	nolomiw, pithawiw (upriver) nolomopeq (the water upriver)	agwedai (a place upriver)	jogi (upstream)
valley		pasahana (a longitudinal valley) wôlhana (a valley, a hollow)	ukedaliyvʔi
village	apsutenehsiw (it is a small town or village) uten (town)	Alnôbaiodana / Alnôbaodana (an Indian village) odana (town, village, settlement)	
water	conopeq (still water) mocopeq (muddy or murky water) 'samaqan (water)	agwejagebaga (dirty water; it is dirty water) bakabagw (clear water) baskaba (it is open water) dabsidema (low water, shallow water) gezebagihla (water flows fast) ginijema (strong water, ie very deep water) molôdema / môlojema (deep water) nebi (water, liquid, sap) pibegan (roily water) pibeganbi (muddy water)ziboinebi / ziboobi (river water)	ama
wolf	malsom	môlsem	wahya

woods	etoli-mocimkahqihkek (in thick woods) kcihq (woods, forest)	gipiwioho (it is woods, forest)	ada (wood)
yellow	wisawi (yellow) wisawiyu (it is yellow)	wizôwigek / wizôwigen (it is yellow)	