5 MANDIBLES

Osteological description

The total mandible sample is comprised of thirty-six essentially intact specimens and thirty-nine incomplete ones. Photographs of selected intact mandibles are presented in Figures 5-1 and 5-2. Three specimens out of the total measurable sample of seventy-five specimens were burnt and two specimens had some shallow cut marks.

Congenitally missing teeth are a common anomaly in prehistoric domestic dogs (Allen 1920; Haag 1948; Colton 1970; Shigehara & Onodera 1984; Digance 1986; Gleeson 1970; Montgomery 1979). In this sample, missing incisors or canines were never encountered, but premolars were very often missing and third molars occasionally. Pairs of mandibles from the same individual were often missing the same teeth, but this was not always the case. Consequently, right and left mandibles from the same individual are treated as discrete elements in the examination of tooth anomalies.

Table 5-1 presents the incidence of congenitally absent premolars and molars for the eighty-one mandibles in this study which could be assessed for this trait (this includes a few specimens that could not be used in the osteometric analysis). Only ten of these eighty-one mandibles had a full complement of teeth. The loss of premolar 1 (P1) was most common, either by itself or with other teeth, and this anomaly occurred in 81.5% of the sample. Premolars 2, 3 and 4 (P2, P3, P4) were rarely missing on their own and were occasionally missing along with P1. In one instance, P1, P2 and P3 were missing in the same individual (Figure 5-3). Lower molars 1 and 2 (M1, M2) were never missing, and molar 3 (M3) was missing in addition to P1, a situation that occurred in two individuals.

Missing lower premolars, especially P1, appear to be a common North American tooth anomaly for indigenous dogs (Colton 1970; Lawrence 1968; Allen 1920). In contrast, Shigehara and Onodera (1984) reported no incidence of congenitally absent lower P3 or P4 out of a sample of eighteen Jomon period dog mandibles, while incisors and canines were occasionally reported missing. G.R. Clark's (1995) study of prehistoric kuri from New Zealand reports a missing or extra third molar as the most commonly occurring anomaly: the first premolar was rarely absent in his sample.

The variety of tooth anomalies reported in samples of prehistoric dogs from different regions of the world suggests the possibility that unique patterns of tooth development may become fixed in discrete populations and that there may be no general pattern for all dogs.

As is evident from the specimens shown in Figures 5-1 and 5-2, a consistent feature of this sample is the curved shape of the posterior edge of the coronoid process. Olsen and Olsen (1977) discuss this distinctive shape of the ascending ramus, which is shared by the Chinese wolf (C. lupus chanco) but not the North American wolf or the coyote; the ascending ramus has a straight rear edge in both later species. They present this fact as evidence that the Chinese wolf was the ancestor of North American dogs.

Sex determination and sex ratios

A total of sixteen mandibles were determined to be female and fifty-five male for the specimens that were intact enough to be assessed according to the subjective criteria discussed in Chapter 1 (depth and definition of the condyloid crest). The sex of seven specimens could not be determined. The distribution of the sexes within the total sample is very unequal (more than 3:1 in favour of males), although the ratio within the intact sample (i.e. the sample used to characterize "breed" types) was slightly less biased, being 2:1 in favour of males (23 males/13 females).

After division of the intact sample at the mean of the greatest length (described below), eleven males and eleven females made up the type 1 sample; twelve males and two females made up the type 2 sample. When fragmented specimens were classified, this added seventeen males and three females to type 1, and twelve males to type 2

Altogether, twenty-eight males and fourteen females comprised the type 1 sample, while twenty-four males and two females comprised the type 2 sample. Even if known paired specimens are counted only once, the ratio of females to males remains essentially the same (23 males:11 females, type 1; 18 males:2 females for type 2). As with the cranium sample, this difference in ratio of males to females may indicate deliberate husbandry of the small dog type and is evidence in favour of it representing the wool dog.

Figure 5-1. Photos, right mandible examples (female), top to bottom: specimen #0800, #2003, #2660a.

Figure 5-2. Photos, right mandible examples (male), top to bottom: specimen #0108E, #0519, #2412A, 3018.

Table 5-1. Incidence of congenitally absent teeth in 81 mandibles (10 had a full complement of teeth).

	Missing tooth or tooth combination								
Side	P1	P2	P1 & P2	P3	P1 & P2 & P3	P4	P1 & P4	P1 & P3	P1 & M3
R	27	0	1	1	1	1	0	0	2
L	33	1	2	0	0	0	1	1	0

Type classification

The sample of thirty-six intact mandibles was divided into two subsamples at the mean of the total length measurement (#1), at 128.3 mm. The subsample of small mandibles (type 1) has twenty-two members with a mean of 121.6 mm and the large mandible subsample (type 2) has fourteen members with a mean of 138.8 mm (Tables 5-2a & 5-2b).

Figures 5-5 to 5-8 show the distribution of specimens, by type, when various pairs of measurements are plotted in relation to each other. The scatter of points for the carnassial alveolus (#14) vs. the total length dimension (#1) demonstrates how variable the length of M1 is within each of the dog types, suggesting it is a measurement that is much too variable to be a diagnostic character for either breed (Fig. 5-8).

The fragmented mandible sample was classified to type using the analysis results from the intact sample. The results of this classification are presented in Table 5-3. As for the cranium sample, the range of measurements for many of the dimensions overlap to some degree and specimens were assessed as belonging to type 1 if the available measurements for a fragment fell within the reported range for its type without being in the range of overlap of the range for type 2. Specimens were assigned to type 2 if the available measurements fell within the reported range for type 2 without being in the range of overlap of the range of type 1. If most of several values were in the range of overlap but one or more values clearly fell within the range of one distinct type, the specimen was classified as belonging to that type. Those specimens that could not be confidently assigned to one type or another were not included in the tables.

Discriminant function analysis

The discriminant analysis for that portion of the sample for which measurements #1, #4, #7, #17, #19, and #20 were available (n = 31) indicate only one specimen may have been misclassified, as the analysis produced a probability of group membership that was less than 5% (Table 5-2a). This specimen had been identified as a small dog according to its total length dimension, but dimensions other than length indicate it was an especially robust animal.

Previously reported Northwest Coast material: type classification

Previous studies on Northwest Coast dog remains have concentrated on mandibular measurements for much of their statistical analysis. However, as discussed in Chapter 1, Gleeson's (1970) study predates the publication of standard measurements (von den Driesch 1976) used in this analysis. Both he and Montgomery (1979) used measurements as defined by Haag (1948) or ones very similar and few of these are identical to those found to be useful in discriminating between breeds in this study. The only bone measurements presented by Digance (1986) are for the depth below the centre of M1, as he otherwise utilized only tooth measurements for his statistical analysis. It was unfortunately not possible to locate either Gleeson's or Digance's original mandible assemblages for re-examination.

Only a few measurements originally reported by Montgomery and Gleeson are comparable to the significant dimensions used in this study (Table 5-4). Only one of the five mandibles of adult individuals reported by Montgomery falls into the large type as defined by this study and three are clearly of the small type. One lacks enough comparable dimensions to be classified.

Of interest is that all ten of the mandibles reported by Montgomery, including the five subadults not included in this osteometric comparison, showed congenital absence of lower premolar 1. One of the adults was also missing P2 but none were lacking P3 or P4 in addition to P1.

Only three of the five mandibles recovered from prehistoric strata at Ozette (Gleeson 1970) were complete enough to compare to this assemblage and the measurements of these are also presented in Table 5-4. One specimen can be classified as a small dog and another as a large one. The third remains of questionable type. Of the five prehistoric mandibles reported by Gleeson, two showed congenital absence of lower premolar 1 and an addition two were missing both P1 and P4. One mandible had a full complement of teeth and none were missing P2.

Measurement
Number **Measurement description**

#1........Total length: condyle process (CP)-infradentale (Id)
#2........Angular length: angular process (AP)-infradentale (Id)
#3........Indentation length: indentation between the condyle process (CP) & angular process (AP)-infradentale (Id)
#4........Condyle/canine length: from the condyle process (CP) to aboral border of canine alveolus
#5........Indentation/canine length: from the indentation between the condyle process (CP) & angular process (AP) to aboral border of canine alveolus
#6........Angular/canine length: from the angular process (AP) to aboral border of canine alveolus
#7........Tooth row length: from aboral border of M3 alveolus to aboral border of the canine alveolus
#9........Cheek tooth row length: alveolus of M3 to alveolus of P2 from lingual side; when P1 is missing
#10.......Molar row length: length of M1 to M3 from lingual side
#11.......Premolar row length: length of P1 to P4 from buccal side
#12.......Premolar row length : length of P2 to P4 from buccal side; when P1 is missing
#14.......Carnassial alveolus length: along lingual side of M1
#17.......Thickness of horizontal ramus: at oral border of M1 alveolus, at right angles to basal border, lingual side
#18.......Height of vertical ramus: from angular process (AP) to coronion (Cr)
#19.......Thickness of horizontal ramus: at aboral border of M1 alveolus, at right angles to basal border, lingual side
#20.......Thickness of horizontal ramus: between alveoli of P2 & P3, at right angles to basal border, lingual side

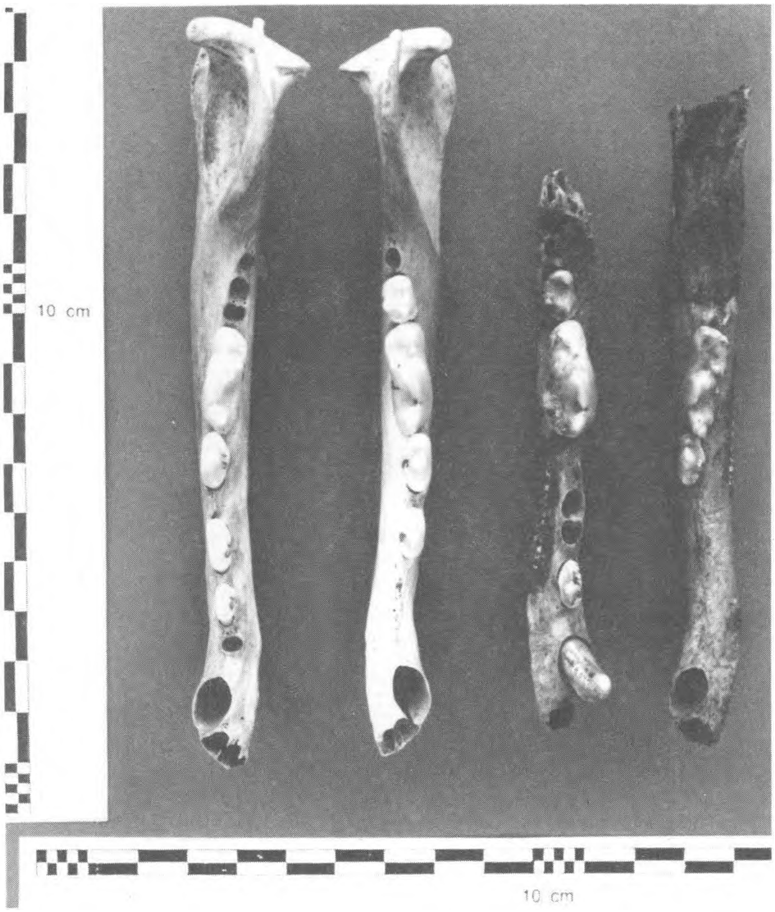

Figure 5-3. Examples of mandibles with congenital tooth anomalies (absent teeth), left to right: specimen 1010a1 (R), no missing teeth; specimen #1010a (L), premolar 1 and 2 mising; specimen #1444 (L), premolar 4 missing; specimen #2001 (R), premolars 1,2, and 3 missing.

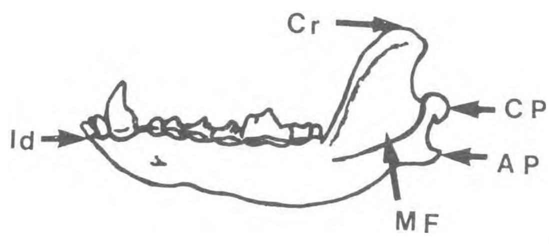

Figure 5-4. Diagram of mandible, marked with reference points used in measurement descriptions (except for MF, which is the masseteric fossa used for determining sex).

Table 5-2a. Univariate statistics of mandible sample, division at the mean (1), measurements #1-10 and results of multivariate crossvalidation of type classification.

Specimen	Sex	Side	Type	** % Probability of group membership	Measurement code number (1)	2	3	4	5	6	7	8	9	10
1443	F	L	1	100.0	103.0	104.0	101.3	85.0	85.2	86.8	63.8		60.4	32.7
0805K	F	L	1	100.0	112.2	110.6	107.7	93.7	91.0	92.8	66.8		63.4	33.9
2619	M	L	1	100.0	114.0		107.9	100.4	95.8		66.7		60.0	31.1
1205	F	R	1	99.6	117.0		115.0	98.5	96.0		68.8		62.9	33.2
2224A	F	R	1	98.3	119.4		115.8	102.0	99.6		70.9		65.4	31.9
0527	M	L	1	-	119.5	114.0	120.5					66.5	62.5	32.9
0113	M	L	1	100.0	119.5		112.7	106.8	100.9		69.2		60.5	32.4
0302	M	R	1	99.6	120.0	119.3	115.0	104.4	99.2	104.3	67.9		60.5	30.5
2660	F	R	1	99.8	121.0	121.8	116.0	105.0	100.5	106.0	70.4		64.7	32.8
3002I	F	L	1	98.8	121.2	120.7	116.8	103.1	99.8	103.5	69.4		63.7	34.0
3002K	F	R	1	99.0	121.4	120.6	117.5	103.0	99.4	102.5	65.9		60.2	29.2
2013	M	R	1	98.7	122.7		117.0	105.1	100.2		69.8		63.0	34.2
0802A	M	L	1	-	123.0		118.0	107.7	103.4		71.9		63.3	32.9
0800	F	R	1	90.9	126.0		121.1	110.1	105.7		71.4		64.0	31.9
0300O	M	R	1	94.5	126.0	126.8	121.0	111.2	106.2	111.6	72.9		64.1	32.8
0300P	M	L	1	98.2	126.0		119.7	112.0	107.1		71.9		63.2	31.5
0803M	M	L	1	52.8	126.1		120.6	107.7	102.6		71.2		63.2	33.2
3003G	F	L	1	49.1	126.7	127.2	123.1	109.2	106.2	109.7	73.4		67.4	34.1
3003F	F	R	1	18.2	126.9	126.3	123.8	110.3	108.0	111.5	74.6		67.4	34.6
2004	F	L	1	76.3	127.0		121.7	108.6	104.6		73.3	70.6	66.4	35.1
3000G	M	R	1	1.8*	127.8	129.2	124.1	111.6	107.8	113.3	72.6		64.2	32.0
3000L	M	L	1	-	128.3	129.9	123.7	110.6	106.7	113.0				
2002G	M	L	2	98.3	134.8		129.5	113.3	108.0		75.6		69.6	39.0
1010A	M	L	2	-	135.0	136.8	131.3	118.3	114.5	119.9	78.0			34.7
0360Q	M	L	2	77.4	135.0		128.0	119.0	112.8		76.1		66.8	32.3
0108A	M	L	2	96.5	136.0		130.0	118.0	112.0		76.3		69.1	34.5
0108E	M	R	2	99.1	136.2	129.8		117.0	111.5		76.7		68.5	34.3
0950B	M	R	2	94.4	137.5	135.8	131.5	119.1	113.9	117.8	78.3		70.6	36.3
3018GGG	M	R	2	-	137.7		131.6	119.2	112.5		78.5			36.1
1010A1	M	R	2	98.5	137.8	138.8	132.8	120.0	115.9	122.0	78.9	74.5	69.4	33.5
1020H	M	L	2	98.3	138.5	139.8	132.5	121.8	115.9	123.3	77.9		68.5	33.9
2003	F	R	2	98.8	140.0	138.0	134.5	121.4	116.6	120.2	79.3		72.0	35.6
3018FFF	M	L	2	-	140.0	140.5	135.0	122.0	117.0	122.7	79.1			36.0
1020A	M	R	2	99.8	140.5		132.9	122.1	115.5		78.8		68.8	33.8
1011A	F	L	2	99.9	143.5	143.0	138.9	124.2	120.4	124.7	80.0		73.9	34.9
2008	M	L	2	100.0	150.5	150.0	143.8	131.9	125.9	131.1	84.0	78.3	73.0	38.0

Statistics	Measurement code numbers (1)	2	3	4	5	6	7	8	9	10
total count	36	21	35	35	35	19	34	4	32	35
total mean	$\boxed{128.3}$	128.7	123.2	111.2	106.8	112.5	73.5	72.5	65.6	33.7
total std	9.9	11.3	9.3	9.4	8.5	11.0	4.8	4.4	3.8	2.0
total min	103.0	104.0	101.3	85.0	85.2	86.8	63.8	66.5	60.0	29.2
total max	150.5	150.0	143.8	131.9	125.9	131.1	84.0	78.3	73.9	39.0
total CV	7.73	8.74	7.52	8.48	7.98	9.78	6.47	6.05	5.80	5.82
type 1 count	22	12	22	21	21	11	20	2	21	21
type 1 mean	$\boxed{121.6}$	120.9	117.3	105.0	101.2	105.0	70.1	68.6	63.4	32.7
type 1 std	5.9	7.6	5.7	6.4	5.7	8.2	2.8	2.0	2.2	1.4
type 1 min	103.0	104.0	101.3	85.0	85.2	86.8	63.8	66.5	60.0	29.2
type 1 max	128.3	129.9	124.1	112.0	108.0	113.3	74.6	70.6	67.4	35.1
type 1 CV	4.89	6.30	4.85	6.14	5.59	7.76	3.95	2.99	3.40	4.24
type 2 count	14	9	13	14	14	8	14	2	11	14
type 2 mean	$\boxed{138.8}$	139.2	133.3	120.5	115.2	122.7	78.4	76.4	70.0	35.2
type 2 std	4.0	5.2	4.0	4.1	4.1	3.8	2.0	1.9	2.0	1.7
type 2 min	134.8	129.8	128.0	113.3	108.0	117.8	75.6	74.5	66.8	32.3
type 2 max	150.5	150.0	143.8	131.9	125.9	131.1	84.0	78.3	73.9	39.0
type 2 CV	2.91	3.71	3.02	3.38	3.59	3.07	2.57	2.47	2.91	4.91

* misclassified according to multivariate analysis, at < 5% probability of group membership.

** this is the probability of group membership, variables 1,4,7,17,19,20 together.

Table 5-2b. Univariate statistics of mandible sample, division at the mean (1), measurements #11-21

				Measurement code number											
Specimen	**Sex**	**Side**	**Type**	**11**	**12**	**13**	**13A**	**14**	**15**	**15A**	**17**	**18**	**19**	**20**	**21**
1443	F	L	1		29.9			20.1	8.3	6.0	17.1		18.2	15.6	32.8
0805K	F	L	1		33.0			21.0			16.7	43.0	18.6	17.5	
2619	M	L	1		30.0			19.5	8.2	5.9	18.5		18.4	16.7	33.8
1205	F	R	1		31.8			19.2	8.5	6.3	20.5	44.0	20.9	18.0	
2224A	F	R	1		33.9			19.7			20.6		20.6	17.8	
0527	M	L	1	36.2	33.0			20.9			19.1	50.0	20.0	17.6	
0113	M	L	1		28.8			19.1			19.5	47.0	22.4	18.5	
0302	M	R	1		31.5			18.1	7.5	5.6	20.1		21.0	16.6	32.1
2660	F	R	1		33.3			21.2			20.0	49.0	22.1	17.9	34.0
3002I	F	L	1		33.0			21.7			19.6	49.8	21.8	16.9	
3002K	F	R	1		32.3			20.9			19.1	49.8	21.9	17.2	
2013	M	R	1		30.7			22.2			19.7		21.3	18.0	
0802A	M	L	1		31.7			20.0			20.6		21.2	18.9	
0800	F	R	1		32.1			19.2	7.8	5.9	21.2		22.2	17.5	32.7
0300O	M	R	1		33.1			21.3			22.1	48.8	21.7	19.9	
0300P	M	L	1		33.3			20.7			22.2	49.7	22.8	19.3	
0803M	M	L	1		31.7			21.8			24.0		25.0	21.6	
3003G	F	L	1		35.0			21.3	8.0	5.8	20.5	49.5	21.9	17.0	
3003F	F	R	1		35.1			21.5			20.7	50.4	21.9	16.9	
2004	F	L	1	37.7	33.5			22.1	9.1	6.6	22.4		22.7	21.1	
3000G	M	R	1		33.3			19.8			21.9	54.0	23.2	18.9	35.2
3000L	M	L	1		33.0			20.6			20.8	53.3		18.3	
2002G	M	L	2		32.8			25.6			23.2		24.1	19.2	
1010A	M	L	2					20.7			21.3	53.7	21.8	18.1	
0360Q	M	L	2		35.0			19.0			24.0		24.7	19.1	
0108A	M	L	2		36.4			20.8			25.0		25.2	19.5	
0108E	M	R	2		35.6			20.5			24.3		24.6	18.8	
0950B	M	R	2		35.8			22.9			23.8	56.5	24.0	21.8	
3018GGG	M	R	2					21.4			23.2		24.3	19.2	
1010A1	M	R	2	41.8	36.9	20.2	7.4	19.8			23.8	55.5	23.7	20.4	
1020H	M	L	2		35.5			19.8			24.3		23.4	20.5	
2003	F	R	2		37.5			22.3	9.0	6.4	23.3	55.8	24.3	20.7	
3018FFF	M	L	2					22.4			22.4	56.3	23.3	18.7	39.3
1020A	M	R	2		35.4			20.8			23.9		23.3	20.1	
1011A	F	L	2		38.9			21.4	8.4	6.7	24.5	57.6	24.7	20.6	
2008	M	L	2	42.4	37.5			22.6			27.3	60.2	27.4	23.5	

Statistics	Measurement code numbers											
	11	**12**	**13**	**13A**	**14**	**15**	**15A**	**17**	**18**	**19**	**20**	**21**
total count	4	33	1	1	36	9	9	36	20	35	36	7
total mean	39.5	33.6			20.9	8.3	6.1	21.7	51.7	22.5	18.8	34.3
total std	2.6	2.3			1.4	0.5	0.4	2.3	4.4	2.0	1.7	2.3
total min	36.2	28.8			18.1	7.5	5.6	16.7	43.0	18.2	15.6	32.1
total max	42.4	38.9			25.6	9.1	6.7	27.3	60.2	27.4	23.5	39.3
total CV	6.67	6.90			6.59	5.91	5.85	10.63	8.52	8.83	8.94	6.60
type 1 count	2	22	0	0	22	7	7	22	13	21	22	6
type 1 mean	37.0	32.4			20.5	8.2	6.0	20.3	49.1	21.4	18.1	33.4
type 1 std	0.8	1.5			1.1	0.5	0.3	1.7	3.0	1.6	1.4	1.0
type 1 min	36.2	28.8			18.1	7.5	5.6	16.7	43.0	18.2	15.6	32.1
type 1 max	37.7	35.1			22.2	9.1	6.6	24.0	54.0	25.0	21.6	35.2
type 1 CV	2.03	4.74			5.25	5.83	5.14	8.12	6.01	7.42	7.79	3.06
type 2 count	2	11	1	1	14	2	2	14	7	14	14	1
type 2 mean	42.1	36.1			21.4	8.7	6.6	23.9	56.5	24.2	20.0	39.3
type 2 std	0.3	1.5			1.6	0.3	0.1	1.3	1.9	1.2	1.4	0.0
type 2 min	41.8	32.8			19.0	8.4	6.4	21.3	53.7	21.8	18.1	39.3
type 2 max	42.4	38.9			25.6	9.0	6.7	27.3	60.2	27.4	23.5	39.3
type 2 CV	0.71	4.24			7.50	3.45	2.29	5.42	3.28	4.99	6.83	0.00

Table 5-3. Mandible fragments, type classification.

				Measurement code number											
Specime	Sex	Side	Type	4	5	6	7	9	10	12	14	17	18	19	20
1012	M	L	1					60.6	37.3		22.5		58.6	24.5	
0592	?	L	1						32.0		19.9	16.0		16.9	
1462	?	R	1							29.6	21.1	16.7			18.7
0593	?	L	1							29.6					16.6
2220	?	R	1							30.0	19.6	17.1		18.0	15.5
0581	?	R	1							30.2	18.4	18.0		19.3	15.2
0802B	M	R	1					63.5	33.2	31.6	20.5	22.0		21.4	19.6
0100	?	L	1				65.0	59.7	32.6	29.7	20.4	18.9		20.7	16.3
0340	?	R	1				72.8	66.6	34.4	33.7	21.8	21.0		21.4	18.4
0803N	M	R	1				73.2	65 3	35.0	31.8	22.0	23.4		24.9	22.0
0306	M	L	1				73.5	74.2	39.0	36.5	24.8	25.2		24.1	21.2
0805L	F	R	1	94.1	91.3	93.4	66.9	62.9	33.6	32.6	20.6	18.0	43.4	19.4	17.8
2412A	M	R	1	95.4	92.5		65.3		32.9		20.3	17.1		18.4	16.3
2412E	M	L	1	96 2	93.1		66.4	60.1	33.0	28.2	19.8	17.8	43.2	18.9	17.3
2608A	M	R	1		94.1		66.3	59.5	31.3	29.6	19.4	18.3		18.5	16.3
2609A	F	L	1		94.2	99.1	69.0	62.8	34.4	30.2	21.2	20.0		20.3	19.0
1201	M	L	1	106.5	98.2	101.8	69.0	62.9	32.8	30.9	21.3	20.2		21.1	18.0
2406	M	R	1	102.5	98.3					30.4	19.7	18.2		20.8	17.1
2207	M	L	1	101.7	98.7	103.0				32.0		19.1			16.5
0336A	M	R	1	105.6	99.0	105.0	68.9	58.7	31.9	28.2	19.9	21.2		22.6	18.4
0519	M	R	1	103.4	99.3	105.6	69.8	61.6	32.5	31.7	21.0	19.2	48.2	19.6	18.5
0337	M	L	1		99.4	104.8		59.6	30.8	30.0	18.9	19.1		19.8	17.4
1424	M	R	1	105.0	99.4					30.7	20.0	18.7		21.0	17.6
0346	M	R	1	105.0	100.3	103.8	69.6	60.4	30.4	30.5	18.9	19.5	45.5	20.3	17.5
5002RR	M	L	1	106.2	103.0		71.4	66.2						22.5	18.6
1200	F	L	1	108.1	104.5	107.8	69.3	64 0	33.3	32.5	21.9	22.8	52.0	23.7	19.2
2226	M	R	1	109.1	105.5		72.3	65.7	33.6	33.0	20.7	21.9		23.2	19.2
1013	M	R	2										56.8	25.9	
0201F01	M	L	2							35.8	22.4	25.7		25.5	21.6
0201A01	M	R	2					68 0	35.2	35.2	22.0	25.8		27.8	21.9
2000	M	L	2				76.9	68.1	33.4	35.5	20.2	22.0		21.0	18.6
2002	M	R	2				76.9	71.1	40.5	33.4	25.0	22.7		24.4	19.8
2001	M	R	2				77.3		34.0		20.5	21.3		23.3	16.2
0105	M	R	2				82.3	74.0	38.5	37.5	23.5	23.8		26.0	20.5
2624A	M	L	2	117.9	110.7		74.8	64.6	33.3	32.8	22.3	24.9	54.2	27.1	20.6
0316	M	L	2	116.6	111.8		74.1	65.0	33.9	34.0	20.4	21.4		21.8	18.7
0950A	M	L	2	117.3	113.3		77.8	69.4	36.7	34.8	21.9	23.4		26.3	22.1
1202	M	R	2	127.4	120.9	123.3	81.4	73.2	36.1	37.5	22.3	27.0		26.4	22.1
2100	M	R	2										63.1	31.4	

Table 5-4. Selected measurements and classification of previously reported Northwest Coast mandibles, from Ozette Village and Semiahmoo Spit, Washington State (Fig 1-1)

			Measurement code number *		
			2	9	14
Specimen	Side	Type	[39]	[31]	[35]
Semiahmoo 2	R	2	133 7	70.9	20.6
Semiahmoo 7	L	1	122.6	63.9	20.0
Semiahmoo 9	R	1	118.7	65.2	20.5
Semiahmoo 11	R	1	118.5	65.0	20.5
Ozette A4/XVI/3	R	1	-	61.0	(21.4)
Ozette A8/XIII/1	R	2	-	70.8	23.3
Ozette A8/XIV/1	R	?	-	68.8	21.1

* Numbers on second line are the measurement numbers used by the original authors. Values in brackets ( ) are approximate measurements.

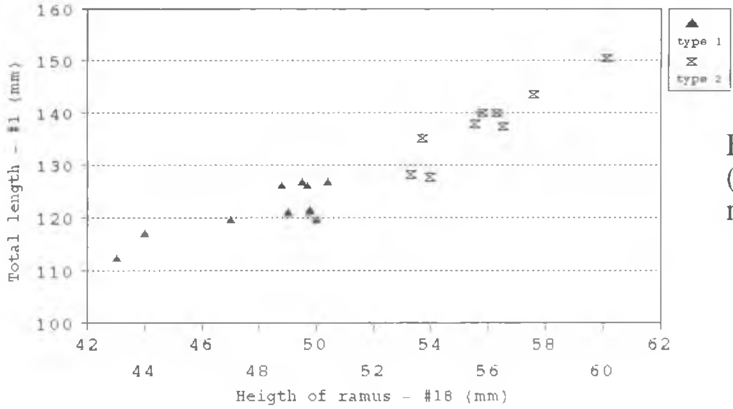

Figure 5-5. Plot of mandible measurement #1 (greatest length) vs.#18 (height of ascending ramus).

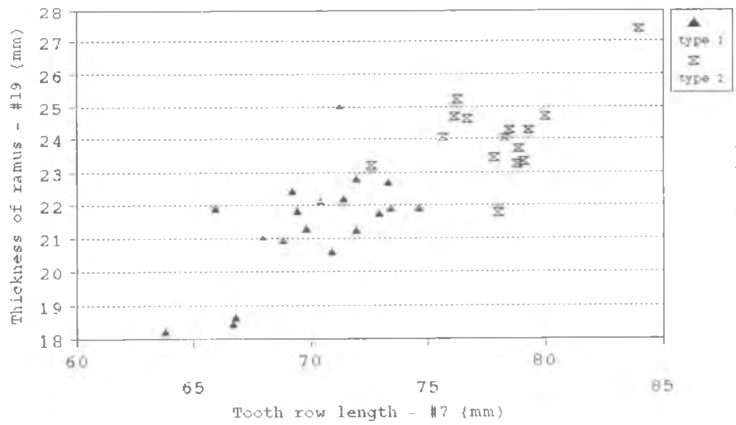

Figure 5-6. Plot of mandible measurement #7 (tooth row length) vs.#19 (thickness of horizontal ramus).

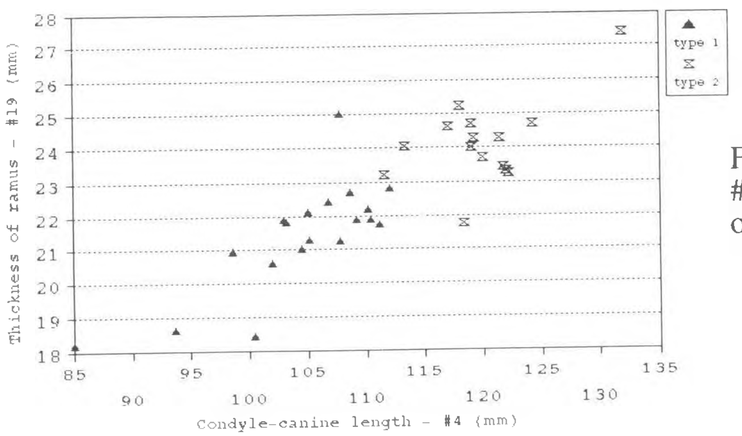

Figure 5-7. Plot of mandible measurements #4 (condyle-canine length) vs. #19 (thickness of horizontal ramus).

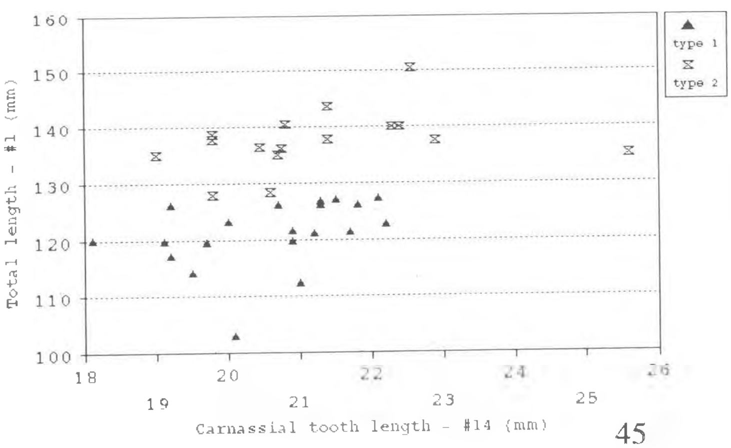

Figure 5-8. Plot of mandible measurement #1 (greatest length) vs.#14 (carnassial alveolus length).