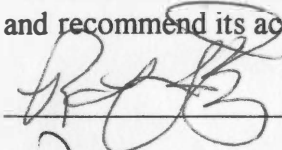


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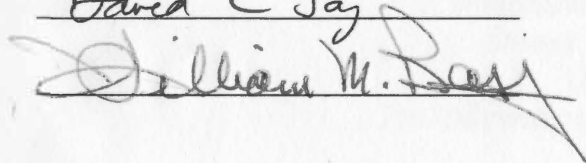
I am submitting herewith a dissertation written by Melissa G. Muendel entitled "Dental Microwear Analysis of Averbuch: A Dietary Reconstruction of a Mississippian Culture." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a Major in Anthropology.

  
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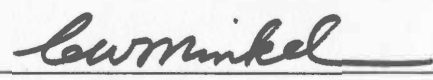
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\_\_\_\_\_  
Associate Vice Chancellor and  
Dean of the Graduate School

**DENTAL MICROWEAR ANALYSIS OF AVERBUCH:  
A DIETARY RECONSTRUCTION OF A MISSISSIPPIAN CULTURE**

**A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville**

**Melissa Grace Muendel  
December 1997**



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**DEDICATION**

**For Mommy and Daddy**

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Members of my committee: Dr. William Bass, Dr. Richard Jantz, Dr. David Joy, and especially Dr. Murray Marks, for each contributing so much in his own way to my project; Dr. Peter Ungar, University of Arkansas, for the use of Microware 3.0 and his vital input into my project; Ms. Ann Reed, University of Tennessee, who supervised my statistical process; Mr. Matthew Westbrook, who printed my micrographs and endured my tirades; Ms. Melissa Whitt, who labored on the databases for me; Ms. Lisa Markle, who kindly helped me with the tables and editing; Mr. Dennis Denton, my visual information consultant and friend, and any other friends who actually took an interest in me and my goal and gave me encouragement. Thank you.

## ABSTRACT

This dissertation reconstructs subsistence patterns of the inhabitants of Averbuch, a prehistoric late Mississippian culture, using SEM (scanning electron microscopy) to quantitatively assess the dental microwear of the permanent adult second mandibular molar of a selected skeletal sample from the Averbuch archaeological site. A comparison among the patterns of the Averbuch and those reported from other prehistoric sites in the United States is presented. The study uses the mesiolingual cusp (metaconid) tip facet (Kay and Hiiemae, 1974) of the mandibular permanent second molar to measure dental microwear features. Every cusp in the human mouth has an occlusal relationship to the corresponding dentition revealed by wear facets. Like cusps, wear facets can be identified and studied and differences in the shape, size, and position of the cusps result in the difference and size of the wear facets which reflect evolutionary change in the molar function (Jordan et al., 1992). The Averbuch series offered a unique opportunity since no published microwear analysis of any Middle Cumberland Culture or a Mississippian “manifestation” exists. Averbuch represents three distinct cemeteries; two which may be contemporaneous; the third predating the first and second. Since, the site was only occupied for about 50 - 100 years (Eisenberg, 1986; Konigsberg and Frankenberg, 1995) any dietary changes within that time, as well as any quantifiable differences between sexes, among/between cemeteries, among age groups, and along the age continuum are discussed. SEM results were compared to the local/regional archaeological flora and faunal. This study addresses the following questions:

1. Are there quantifiable sex differences in dental microwear?
2. Are there quantifiable age differences in dental microwear?
3. Are there dietary differences among ages observed by dental microwear?
4. What are the intra and inter-cemetery differences in diet and are these differences related to sex and/or age?

How consistent are the dental microwear patterns and features within this population? What is the relative amount of vegetable matter in the diet? What does the relative amount of vegetable matter in the diet say about the regional Mississippian subsistence in general, and specifically, about the Averbuch population?

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## **CHAPTER ONE - Introduction**

### **What is Dental Microwear?**

Dental microwear is the microscopic study of the pits and scratches that form on a tooth's occlusal surface as the result of use, and the patterning of these events reflect dietary composition across time (Ungar, 1996a). Using scanning electron microscopy (SEM), dental microwear analysis (DMA) examines enamel/dentine abrasion, irregularities, and pits and scratches on skeletal and fossil teeth to make taxonomic assessments (Pastor, 1992) and clarify dietary and/or nutritional suppositions. Diet can be estimated by measuring pits and scratches that food and food preparation implements leave on the teeth. Since those measurements represent metric data, they can be statistically analyzed for comparisons and differences between the pits and scratches by sex, among different age groups, and across cultures and time. While such results probably will not reveal a one - to - one relationship between food and microwear feature, they can hint at dietary similarities, which may or may not support other lines of evidence from prehistoric populations.

Previous pioneer dental microwear research has focused on the occlusal surfaces of human and non-human primate molars for clues about subsistence patterns, dietary composition, and food consumed. Studies of human populations have provided insight into the subsistence strategies employed between hunter-gatherers and agriculturalists.

Research has suggested that dental microwear analysis can characterize whether an extinct animal was a browser or a grazer (Walker et al., 1978). Other research has shown that biomechanics of mastication can vary as evidenced by microwear patterning (Gordon,

1982). Most research concludes that it is very difficult to directly associate specific food processing techniques, particular types of food, or environmental factors based directly on microwear (Pastor and Johnston, 1992; Peters, 1982). Nevertheless, particular occlusal events and inter-proximal facets can be partially correlated with subsistence patterns and select food preparation techniques. Still, SEM can recognize broad characteristics that signal dietary differences. Heavily pitted and scratched occlusal molar surfaces signify that some object, harder than enamel, was being dragged across the grinding surface during the chewing stroke reflecting the artificial, yet common inclusion particles of nuts, bones, seeds, stone, etc. (Teaford, 1991). Shearing facets (discussed later in this chapter) on molars indicate a diet where teeth are used to tear food, meat and vegetable matter, and a combination of these facets and pits indicate a diet consisting of mixed properties (Turner and Machado, 1983; Ungar, 1996b)

Dental microwear analysis using SEM likewise has been used successfully to study the diets of fossil or extant non-primate mammals (Kay and Covert, 1983; Rensberger, 1978; Teaford and Walker, 1983; Ungar, 1990, 1996b; and Walker et al., 1978;) extant primates, wild trapped or museum specimens, (Teaford et al., 1994; Teaford and Oyen, 1989; Teaford and Runestad, 1992; and Ungar, 1990, 1994a, 1994b) non-human primates (Gordon, 1982; Teaford et al., 1984) early hominids and fossil primates (Covert and Kay, 1981; Gordon, 1984b; Grine, 1981, 1984, 1986, 1987; Grine and Kay, 1987; Puech et al., 1983a; Puech et al., 1986; Ryan, 1980; Ryan and Johanson, 1989; Teaford et al., 1996; Ungar and Grine, 1991; and Ungar and Teaford, 1996;) and prehistoric humans (Bullington, 1991; Fine and Craig, 1981; Gordon, 1986, 1990; Harmon and Rose, 1988;

Hojgaard, 1985; Marks et al., 1985; Molleson and Jones, 1991; Pastor, 1992, 1993; Pastor and Johnson, 1992; Puech et al., 1983b; Rose, 1984; Rose and Marks, 1985; Rose et al., 1985; Shkurkin et al., 1975; Teafor, 1991; and Teafor and Tyenda, 1991). Although microwear research has been performed on anterior teeth (incisors) (Ungar, 1990, 1994a, 1994b; Ungar and Grine, 1991; Ungar and Teafor, 1996) occlusal wear patterning has concentrated primarily on molars. Such is the focus of this research.

The principal purpose of this study is to test for association between microwear analysis and subsistence patterns using a sample of molars from Averbuch cemeteries. Factors tested are inter- and intra-cemetery differences by gender and age. If differences are significant, they should be quantitatively distinguishable by DMA.

Research on the use of dental microwear analysis involving the SEM to address subsistence patterns in prehistoric human populations is in the formative stages. Early research was concerned with the evolution of diet and tooth shape (Covert and Kay, 1981; Fine and Craig, 1981; Hinton, 1982; Hylander, 1977; Puech, 1979). Tooth use and wear was the predominant topic posed by research on extinct mammals and early hominids. (Grine, 1981, 1984, 1986; Grine and Kay, 1987; Puech et al., 1983a; Puech et al 1986; Ryan and Johanson, 1989) More common, dental microwear analysis has been employed to observe the patterns, angles, and degrees of wear to assess mastication. (Gordon, 1984a; Peters, 1982; Teafor, 1991, 1994). Microwear studies of human populations demonstrate that some of the non-occlusal buccal and lingual surfaces could also provide evidence for subsistence patterns between hunter-gatherers and agriculturalists (Fine and Craig, 1981; Lalueza et al., 1993; Puech, 1976, 1983b). Fundamental to most of this research was a



time-honored conclusion that wear for given age is greater on the occlusal surfaces of hunter-gatherers than agriculturalists (Bullington, 1991; Gordon, 1986, 1990). Most dental wear studies, both macroscopic and microscopic, have revealed that hunter-gatherers generally consume coarser foods (Bullington, 1991; Gordon, 1986; Marks et al., 1985; Smith, 1984; Teafor, 1991) while agriculturalists eat refined foods. This *a priori* assumption was tested on the Averbuch sample and the results substantiated by quantitative microwear analysis.

Subsistence patterns and/or activities have been loosely defined as how food was obtained -- commonly thought as hunting and gathering and agricultural. Nutrition also can be inferred by looking at the paleopathological data obtained from dental and skeletal markers and from any archaeological data for food processing (Cohen and Armelagos, 1984; Gilbert and Mielke, 1985; Klepinger, 1992).

In earlier studies, skeletons from archaeological excavations were examined for paleopathological lesions and read as diagnostic tools for biological stress markers. There are numerous reports dealing with paleopathological diagnosis and interpretations of skeletal populations (Brothwell and Sandison, 1967; Steinbock, 1976; Verano and Ubelaker, 1992). This study will concentrate on only the Averbuch skeletal population (see Berryman, 1981, 1984a, 1984b; Eisenberg, 1986, Guagliardo and Jablonski, 1984; Jablonski, 1981, 1984a, 1984b). Stress markers, such as enamel hypoplasias, dental caries, and Harris Lines, have been interpreted to signal a change in subsistence, population, increasing pathogen contact, disease, resulting in overall decline of health. Pastor (1993), who studied the teeth from mesolithic and chalcolithic sites in India, questioned if

correlations may exist between diet and nutritional condition of individuals, as revealed by dental microwear and paleopathological indicators. An association between a specific type of dental microwear and a particular disease condition may provide information on nutritional components contributing to or improving a disease state. (Pastor, 1993).

A change in subsistence, transition from hunting-gathering to horticultural reliance can lead to a dependency on maize cultivation which is common throughout emergent Mississippian cultures. (Klippel, 1984, Klippel and Reed, 1984). Dental microwear results, consistent with the archaeological evidence indicate that Mississippian inhabitants used maize as a dietary staple and consumed proportionately fewer nuts and hard starchy seeds (Bullington, 1991, Rose et al., 1985). Evidence for these findings is seen in an increase in dental macropathology and a decrease in the occlusal attrition (Rose, 1984; Marks et al., 1985; Rose et al., 1985). Berryman (1984a, 1984b) concluded that the Averbuch crude mortality rate was high, and although warfare may have been partially responsible, biological stress, malnutrition and disease also play a role. He looked at three biological stress indicators at Averbuch: stature reduction, Harris lines, and enamel hypoplasias (Berryman, 1984a, 1984b). He also talked about the lack of burial artifacts.

“When Averbuch is compared with other large Late Mississippian sites (e.g. Moundville, Etowah, etc.), there is a notable absence of the quantity of the more elaborate artifacts and exotic materials. However, an absence of artifacts has long been a characteristic of Middle Cumberland graves” (Berryman, 1984a; 8).

His conclusions that the collapse of the Mississippian culture in the Nashville basin was due to problems with 1) population pressure, 2) warfare, 3) food shortages, 4) the

reassignment of food procurement activities to other individuals, and 5) soil depletion (Berryman, 1984a).

Eisenberg (1986) studied the physical evidence for health and disease at Averbuch to answer questions regarding the prehistoric population density, diet, and cultural termination in the Nashville Basin. Her findings suggest that infectious disease and nutritional deficiencies were prevalent. Iron deficiency anemia may have been due to the “malabsorption” of available nutrients from the soil, infectious diseases, or a diet comprised largely from maize (Eisenberg, 1986). She compared the health condition of the inhabitants of Averbuch with other inhabitants from late non-marginal Mississippian sites: Dickson Mounds (Lallo, 1973); Hardin Village (Cassidy, 1972); Kane Mounds (Milner, 1982); Lubbock Creek (Powell, 1980); Moundville (Powell, 1985); and Toqua (Parham and Scott, 1980) to determine how the consequences of disease varied on the regional plane during the Mississippian period. She concluded that

“ the incidence of infectious pathology and dietary problems in the Averbuch series is squarely within the range, and sometimes considerably higher than the frequencies observed elsewhere” (Eisenberg, 1986; 168).

Dental microwear analysis has yet to be employed successfully to assess a population’s health, but the suggestion has been made that D.M.A. could be used in conjunction with other paleopathological conditions to assess the health status of a population (Pastor, 1993). This highly statistical and technical process is just beginning to be used in conjunction with other skeletal analyses for evaluating health. Dental microwear analysis is an additional tool for appraising the subsistence patterns and possible food



preparation techniques of the inhabitants at Averbuch. It should be used in conjunction with the other biological studies of the Averbuch (Berryman, 1981, 1984a, 1984b; Jablonski, 1981; and Eisenberg, 1986) to assess the overall health of that population.

This research includes faunal and floral laboratory processing results of the Averbuch archaeological collection in an attempt to answer the aforementioned proposed questions and hopes to serve as a model for subsistence patterns in other prehistoric cultures.

Although dental microwear analysis has not been utilized frequently on teeth from prehistoric human populations for subsistence reconstruction, D.M.A. has been widely used for dietary reconstruction for early hominids and primates (Gordon, 1982, 1984; Grine, 1986, 1987; Teaford and Runestad, 1992; Teaford and Walker, 1984; Teaford et al., 1996; Teaford et al., 1994; Walker, 1981; Ungar, 1996b). Commonly, dental microwear analysis seeks to understand the pattern symmetry and the angle of wear to indicate the age of the subject as well as the jaw movement (Teaford, 1994).

Mastication depends on a chain of events which involve the rhythmic opening and closing of the jaw and specific movements of the tongue. There is also a tremendous amount of pressure exerted from the force on the food during mastication. This pressure, of course is dependent on the texture of the food (Berkovitz et al., 1992).

Humans generally chew on one side or the other. There are two phases of mastication or chewing which have been observed depending on the type of food. Phase I is the puncture/crushing phase when hard food is first contacted and crushed/pierced/punctured between the teeth without tooth to tooth contact. This action

would be defined as tooth-food-tooth contact (Berkovitz et al., 1992). The second phase, Phase II is the shearing stroke or shearing phase when food has been sufficiently reduced by saliva. This tooth-tooth contact produced attrition facets with “characteristic directional scratch lines”(Berkovitz et al, 1992: 98). The action of the teeth depends on morphology of teeth, movement of the mandible and forces generated by the contraction of the muscles. The chewing cycle involves three basic movements or strokes of the maxilla in relation to the mandible .

From a position in which the jaw is open, the closing stroke results in the teeth being brought into initial contact with the food. This is followed by the power stroke when the food undergoes reduction. Movement of the mandible in this phase is slower than that in the closing stroke because of the resistance caused by the food. Finally, there is the opening stroke, when the mandible is lowered, with an initial slower stage followed by a faster stage. From an open position, the mandible is moved upwards and outwards, bringing the buccal cusps of the maxillary and mandibular teeth on the working side in contact. The teeth may not initially contact each other during the initial masticatory cycle. In the power stroke, the mandibular teeth then slide upwards and medially against the maxillary teeth to momentarily attain intercuspal position. Following attainment of the intercuspal position, the mandibular teeth continue downwards and inwards against the maxillary teeth (the lingual phase). The opening stroke then follows and the cycle is repeated. While the teeth on the working side are moving through the buccal phase, those on the balancing side are in the lingual phase but in the reverse direction (Berkovitz et al., 1992: 99).

Facets are formed, where teeth pass each other. Shearing facets or buccal facets are formed in Phase I of the chewing stroke and appear on buccal facing sides of mandibular molar cusps and on lingual facing sides of maxillary molar cusps when the occluding faces of the teeth slide in parallel planes during mastication (Kay and Hiiemae, 1974; Teaford, 1988b). Lingual (crushing/grinding) facets, are formed in Phase II of the chewing stroke on the lingual surfaces of the mandibular molar buccal cusps (Kay and

Hiiemae, 1974; Teaford, 1988b). The first researcher to delineate two-phase jaw movement of the mandible during primate mastication was Mills (1955). After examining gorilla skulls from a museum collection both macroscopically and microscopically he saw different striations and wear facets on both maxillary and mandibular molars. He developed two phases, the lingual and buccal phases of mastication. His lingual phase applied to the action of the mandible resulting in the cheek (buccal) cusps of the mandibular molars shearing past the buccal side of the lingual cusps of maxillary molars. His buccal phase consisted of the mandible moving in such a motion so that the buccal side of the buccal cusps of the mandibular molars slide up against the lingual side of the maxillary molar buccal cusps. Mills classified the facets as to whether they were buccal or lingual according to the mastication phase in which they produced.

Kay and Hiiemae (1974) also described two phases of mastication. They described the buccal (shearing ) facets or Phase I facets because they were made during Phase I movements during mastication of the mandible and maxilla. Phase I facets are formed on the buccal facing sides of the mandibular molars cusps and on the lingual facing sides of maxillary molar cusps. Lingual (crushing/grinding) facets are formed during Phase II of mastication and appear on the lingual sides of the mandibular molar buccal cusps.

In accordance with other dental microwear researchers, Phase I facets refer to shearing (buccal) facets and Phase II facets refer to crushing /grinding (lingual) facets. The numbering of the facets for microwear analysis is based on Kay's (1977; Kay and Hiiemae, 1974) research (Rose, personal communication, 1997; Ungar, personal communication, 1997).

Dental microwear studies focus only on the chewing (occlusal) surfaces of the teeth, and close inspection of the progression from chewing to non-chewing surfaces should reveal less microwear. Teeth will begin to show significant microwear as they occlude. Thus, teeth that are not in occlusion will show little if any wear and the degree of wear will vary with the stage of eruption of the tooth and the general rate of wear of the dentition (Teaford, 1988b). The observed wear on particular occlusal surfaces of the teeth occurs in fairly regular patterns since the jaw movements that caused the wear also follow regular patterns. For example, on shearing facets along the sides of teeth, the bulk of the wear features will be scratches running roughly parallel to each other. On crushing facets bordering the central basins of teeth, wear features should reveal greater variation in size, shape, and orientation, because they can be caused by a variety of movements, (i.e., puncture/crushing and phases I & II of the power stroke of chewing) (Teaford, 1985).

I chose the metaconid tip facets for scanning because it is different from Phase I (shearing) and Phase II (grinding) facets in wear and function (Kay and Hiiemae, 1974; Gordon, 1984a; Teaford, 1985) and because it is one of the earliest developments of facet production (Gordon, 1984a). Gordon (1984b) says “because occlusal wear facets form at constant locations on teeth of the same species sampling procedures make site selection consistent from tooth to tooth.

This analysis has resulted from the observed comparisons of the occlusal facets. The development of molar cusps, their size, and wear patterns has been useful in determining jaw movement and function in extinct mammals. (Kay, 1975; Kay and Hiiemae, 1974). Evolutionary changes in tooth size can be used as evidence as a change in

diet and morphological changes can occur from behavioral changes (jaw movements) as diets change (Teaford, 1994). Gross morphological characteristics seen macroscopically on the occlusal facets are not detailed enough to determine the changes in wear and wear facets on teeth. A numbering system based on macroscopic molar angle wear planes and patterns of molar wear in hunter-gatherer populations and agriculturalists was devised to determine age and possible subsistence (Scott, 1979b; Smith, 1984; Lovejoy, 1985). Not widely used is an unfamiliar dental wear pattern observed on a Brazilian archaic skeletal population that was different from other macroscopically observed wear angles and facets (Turner and Machado, 1983). This new pattern, lingual surface attrition of the maxillary anterior teeth, or LSAMAT, was thought to be a result of a diet high in carbohydrate consumption and using the teeth as tools (Turner and Machado, 1983). Dental microwear studies also involve the size of the abrasive material and the size of the microwear feature, hardness of the food or abrasive particles, and the rates and patterns of the features (Teaford, 1994; Teaford and Oyen, 1989).

Other questions posed by dental researchers include the effect that acids or acidic foods have on teeth in terms of microwear features (Lucas and Corlette, 1991; Teaford, 1988a, 1994; Ungar and Grine, 1991). Erosion by dietary acidity can affect the entire crown and allow the surfaces to be scratched more easily (Lucas and Corlette, 1991). Are all features formed the same way, or are large features formed in a way distinctively different than small features (Teaford and Runestad, 1992; Puech et al., 1986; Rensberger, 1978). As Teaford (1994) pointed out, although much work has been done on the processes which might cause dental microwear features (Harmon and Rose, 1988; Grine,



1981, 1986; Teaford, 1988a; Teaford and Runestad, 1992), there is still much work to be done in this area.

One of the causes of dental microwear features results from wind-borne dust particles (Ungar, 1994; Puech et al., 1983b; Teaford, 1994) or abrasive material found in the food as a result of food preparation techniques and/or opal phytoliths (Grine, 1986; Walker, 1978). Vegetable matter absorbs silica from the soil and stores it in the plant tissue and these hard concretions are termed opal phytoliths. Silica within vegetable matter polishes enamel but scratches dentine (Puech et al., 1983b). The wind-born dust and sand particles are larger than silica and cut more deeply into the tooth structure. Dust is comprised mainly of quartz granules and when it is spread by the wind, everyone, and all food is at risk of being affected or contaminated by it. These “exogenous abrasives” (Teaford, 1994: 20) are the causes of dental microwear in many species (Ungar, 1994a).

As a sidebar, I have put in a caveat for *postmortem* wear on teeth which the untrained observer may mistake as dental microwear features. Grine, (1986), Teaford (1988b), Pastor (1993), and Ungar (personal communication, 1997) fully recognized the problem of mistaking diagenetic processes and artifactual marks as dental microwear features. Microwear patterns are deposited on explicit points on teeth on animals during life. At death, the dentition and skeletal remains are subjected to various forms of *postmortem* wear. If teeth have questionable markings that would not have occurred from normal use, they might be scratches from toothbrushes, dental picks or some other non-masticatory wear on teeth. Teaford (1988b) says that when analyzing fossil teeth one

should expect to lose about 30 - 40% of the sample due to artifactual or *postmortem wear* on teeth.

### **Macroscopic and Microscopic Wear**

Generally, macroscopic dental wear displays the life cycle of an individual's masticatory habits while microwear patterns indicate masticating behavior of the last months to year of life. Dental microwear can demonstrate what a person ate immediately prior to death (Pastor, 1993). This phenomenon is sometimes referred to as the "Last Supper" (Grine, 1986) who noticed this critical aspect of dental microwear analysis with species which might have seasonal dietary habits. Since eating hard objects will tend to obliterate the microwear patterns of soft foods at a more rapid rate, this phenomenon is a significant factor (Grine, 1986).

Macroscopic dental wear is commonly known as gross attrition (occlusal to occlusal contact or tooth to tooth contact) and has been used generally as a method for skeletal aging (Lovejoy, 1985; Scott, 1979a, 1979b; Smith, 1984). It has also been used to evaluate the biomechanics of mastication and an indicator, like microwear analysis, to assist in the reconstruction of subsistence and dietary patterns (Pastor, 1994; Teaford and Oyen, 1989; Teaford and Walker, 1984). Abrasion, a form of both macrowear and microwear can be produced by tooth-food contact. or tooth-tooth contact. (Pastor, 1992, 1993; Pastor and Johnson, 1992).

Macroscopically, abrasion is characterized by the cusps becoming more blunt and featureless. Macroscopic and microscopic dental wear differs in that macroscopic (commonly known as attrition) looks at wear on teeth without the aid of a microscope. Many studies have used the macroscopic method to assess diet and subsistence, age related wear patterns, cultural behavior patterns, jaw movements, and sex differences (Hinton, 1982; Puech et al., 1983; Smith 1984; Teaford and Oyen, 1989; Teaford and Walker, 1984).

Microscopic wear looks at the pits and scratches with a scanning electron microscope allowing a much higher resolution and may actually reflect diet over the past two months (Teaford, 1991; Teaford and Lytle, 1996). Dental microwear features are a result of tooth-food-tooth contact. Dietary clues of dental microwear can be complicated to differentiate because of the high number of factors likely to contribute to patterns on the wear surfaces of the teeth. Attrition (tooth-to tooth contact, or wear caused by contact of the opposing tooth surface) has been suggested to be a cause of dental microwear patterning and some researchers attempted to find microscopic traces of attrition (Kay & Hiiemae, 1974). Most commonly, the stance has been to recognize that abrasion (tooth-food-tooth contact or contact with an superficial abrasive harder than tooth enamel), is responsible for the dental wear patterning (Gordon, 1982, 1984; Rensberger 1978; Teaford and Walker, 1983). Now the most prevalent and accepted perception among dental microwear researchers is that scratches cannot form without abrasive materials in the food (Ungar, personal communication, 1997).



Microscopically, abrasion is characterized by polished and pitted surface. Currently, microwear analysis is accomplished by 1) scanning electron microscopy 2) measurement and observation of the dental microwear features, and 3) by qualitative or quantitative methods.

### **Qualitative and Quantitative Microwear Analysis**

Qualitative analyses can be used when there are easily observable differences in the amount, size, and shape of microwear features are present on the teeth. Since these features are readily discernible, mere descriptions are all required to characterize the differences. If the sample is too small to allow quantitative analysis, then a qualitative summary is all that can be warranted. Micrographs (photographs of the scanned surface of the tooth), depicting qualitative features can demonstrate dietary differences and how teeth might have been used. However, there are problems with qualitative dental microwear research. Since a feature is nothing more than a depression in the enamel of the tooth, it can occur in varying sizes, shapes, and orientations (Gordon, 1988). Gordon defines scratches as linear features with a discernible orientation. Gouges are a small subset of scratches and have more than one angle of orientation. Pits are features which have equal length and breadth measurements and no apparent angle of orientation (Gordon, 1988).

Harmon and Rose (1988) clarified their qualitative observations into four categories: 1) compression fractures (pits), 2) polish, 3) striations, and 4) striation margin morphology. They used these four characteristics to discuss the microwear features in an

attempt to reconstruct prehistoric diets in North America. Their analysis was derived from SEM micrographs from 49 individuals representing 13 archaeological sites (Harmon and Rose, 1988).

They described these observations in the following manner:

**Compression fractures**, more commonly known as pits, are a result of a hard particle, nut hull, rock or bone fragment, being crushed between the occlusal surfaces during the chewing stroke. The underlying affected enamel collapses leaving a “pit” or compression fracture that may imply diet (Rose and Marks, 1985). For instance, in the Red River and Lower Mississippi River Valley, these pits are not seen on any of the examined teeth from populations where maize-dependent agriculture is established ( Rose and Marks, 1985). Evidence from this research shows that pits and compression fractures on molar teeth of prehistoric North Americans were commonly associated with the as diet of nuts and “non-pitted fruits.”(Marks et al., 1985).

**Polish** is the area of flat featureless enamel usually caused by the silica in a very vegetable rich laden diet and it varies in degrees of smoothness (Puech et al., 1983a). The raised mounds of smoothed/polished enamel are actually the end of the enamel prisms brought into relief . Walker et al., (1978) attribute polishing to the smoothing properties of the silica in leaves. It is also possible that polishing can be caused by fiber which contains very small grit particles which act as polishing buffers (Puech et al., 1983a).

**Striations** are linear depressions which appear as troughs. Harmon and Rose (1988) described them according to size: small, medium, and large. These striations on the occlusal surfaces of molars can be caused by the use of stone tools to process food; nuts,

berries, and vegetable matter (Rose and Marks, 1985). Small striations are defined as less than 1mm in width (as measured on the micrograph), regardless of the length. Medium striations are between 1mm and 2mm in width. Large striations are greater than 2mm in width.

**Striation margin morphology** refers to the relative sharpness, roughness, roundness of the striation troughs and margins. Harmon and Rose (1988) found that when used in conjunction with computing mean striation frequencies, margin morphology can be very helpful. For instance, the margins of the striations and troughs are very sharp and serrated when first cut into the enamel. These rough areas are eventually rounded when future polishing and striations are laid down by the further ingestion of food. The proportion of sharp striations can be calculated and interpreted in light of the three other factors (Harmon and Rose, 1988).

The Harmon and Rose research based on the qualitative method, made three conclusions: 1) the preponderance of compression fractures on the teeth indicated a diet with many nuts or fruits with hard seeds. In the North American southeast, compression fractures are consistent with a consumption of hickory nuts. 2) The amount of enamel polishing can be used to determine the consumption of vegetable fiber in the diet. In the North American southeast, vegetable consumption decreases over time, indicated by the decline of enamel polishing. And 3), the study of striation margin morphology in conjunction with enamel polishing and dental attrition can lead to understanding the changes in diet and food processing techniques. In the Caddoan region this transition from

stone utensils to wooden food preparation items was confirmed by the dental microwear data (Harmon and Rose, 1988).

The quantitative method for dental microwear analysis is primarily a statistical process as opposed to a visual one (Gordon, 1988). This method commonly has concentrated on the dental microwear formations and their association with forms of tooth use (Teaford, 1991). Gordon denotes several problems with quantitative analysis which can have significant results on dental microwear research: 1) Sampling bias has been small in most research because of the time constraints and difficulty; 2) the effect of SEM instrumentation on feature visibility will affect counting features; 3) the differences in magnification will affect the frequency count; and finally 4) the interpretation of variability which can be found within populations where dietary variability is presumed not to exist. The most difficult aspect of quantitative dental microwear analysis is that enormous amounts of time are required to put out very little data (Gordon, 1988). However, recent developments in the measurement of dental microwear features has reduced some of that tremendous amount of time resource devoted to the collection of data with the introduction and use of *Microware 2.2* and *Microware 3.0* (Ungar, 1996a, 1997). *Microware 2.2* and *Microware 3.0* a beta test update, allow microwear features to be measured with a mouse from micrographs loaded on a personal computer. This program runs in a Windows 95 format or Windows 3.1 format. Elaborate efforts, using a ruler, protractor, acetate sheets, and the knowledge of distinguishing a pit from a scratch are now obsolete. In earlier research, a micrograph was overlaid with an acetate sheet on which the researcher drew the observed pits and scratches and their relationship to Weibel grids. They had to measure

those features with a ruler and calculate the degree of orientation as well as the length and width of each feature. Data had to entered into a computer so that means and standard deviations could be calculated. *Microware 3.0* allows the researcher to load the picture into the computer and using the mouse, click on the two ends of each major and minor axis of each feature (4 points). The computer measures the major axis length, major axis slope, minor axis length, and minor axis slope and counts the number of features. For each tooth, the program calculates the major axis length mean, major axis length, standard deviation, minor axis length mean, minor axis length standard deviation, preferred orientation mean, preferred orientation standard deviation, major/minor axis ratio mean, major/minor axis ratio standard deviation,  $r$  (a measure of concentration), number of features, pit tally, pit length mean, pit length standard deviation, pit width mean, pit width standard deviation, scratch tally, scratch length mean, scratch length deviation, scratch breadth mean, scratch breadth standard deviation, scratch orientation mean, scratch orientation standard deviation and scratch  $r$ . The program recognizes a pit if the length to breadth of the feature is 4:1. The data then can be placed into databases or spreadsheets for statistical manipulation.

Some researchers have used 100x - 200x magnification, (Gordon, 1982; Grine, 1986; Puech et al., 1983b; Ungar, 1990; ) while others concentrated at 500x. (Bullington, 1991; Harmon and Rose, 1988; Marks et al., 1985; Pastor, 1992, 1993, Teaford et al., 1994; Teaford and Walker, 1984; Ungar, 1996; Ungar and Grine, 1991). Other researchers have even used higher magnification for their analysis (Harmon and Rose, 1988). The optimum magnification is that one which allows the greatest ease of measurement of the features. Lower magnifications allow more of the tooth's surface to be examined but don't

allow as much accuracy as higher magnifications (Gordon, 1988). The obverse is likewise true, the higher the magnification, a smaller number of features are measurable (See micrographs from tooth #1, at 100x, 200x, 300x, 400x, and 500x in APPENDIX D). Comparisons of data from one prehistoric population to another are largely depend on the comparability of the magnification of the scanning electron. microscope. While employing the quantitative method, researchers may incorporate multivariate and univariate techniques (Pastor, 1992, 1993), while qualitative observations can produce nominal data for Chi squares (Fine and Craig, 1981).

This study employed the quantitative method for studying the dental microwear features from Averbuch, since I had access to *Microware 3.0*. Knowing the intra population differences would yield less startling results in dental patterning; I concentrated on the quantitative method. Furthermore, I also was ambivalent about using qualitative methods, as I felt the qualitative descriptions were too ambiguous. Since, the qualitative method is used for easily observable differences in the amount, size, and shape of microwear features, I chose the quantitative method after scanning the first ten teeth of my sample. I encountered much variation in the dental patterning of the wear.

Most of the prehistoric dental microwear research has focused on the qualitative method with handfuls of quantifiable data. To a large extent researchers who studied fossil primates, hominids, and extant mammals have used the quantitative method. I wanted to use the quantitative method on a prehistoric sample even though no comparative quantitative data exist using *Microware 3.0*. Results of this research would serve as a source of quantitative data for southeast prehistoric populations. More data can be added

to this as more prehistoric populations are studied and more quantitative dental microwear data collected.



## CHAPTER TWO - History Of Dental Microwear Analysis

Dental microwear analysis is a recent development (about twenty years old) and was not used to its potential because of the difficulty of obtaining fossil and wild animal teeth, making casts of teeth, preparation of the teeth for SEM analysis, the enormous cost of using the scanning electron microscope, and the difficulty and the time consumption of measurement of the features. Research was incredibly exhausting which accounted for the small samples of teeth described in the microwear literature. Harmon and Rose (1988) used 49 teeth from 13 sites for sampling. Teaforde (1991) used 27 maxillary molars from three American Southeast sites (pre contact, early contact, and late contact) for quantitative analysis. And Pastor (1993) used 31 molars specimens from three Gangetic site in India for quantitative microwear analysis.

Researchers used the occlusal surfaces of the teeth of human, and non-human primate molars for clues about the properties of food (Ungar 1992), and differences in tooth function and its relationship to shape (Teaforde, 1996; Teaforde et al., 1996). Some studies have used microscopic analysis to study the damage on fossil, prehistoric, or extant teeth for making nutritional and dietary inferences and well as mastication and jaw assessments (Kay and Covert, 1983). Walker (1978) used dental microwear analysis to see if the extinct animal was a browser or grazer. Other researchers, concluded that it was extremely difficult to directly associated microscopic striae with a particular type of food, food preparation or an environmental cause (Gordon, 1986; Peters, 1982). However, specific microwear pattern on the facets of dental crowns can partially correlated with diet,

feeding behaviors, and food preparations in early humans, non-human primates, prehistoric, and modern human populations (Kay and Covert, 1983, Teafor and Lytle, 1996). Much of the early work on dental microwear analysis was done on fossil and modern mammals, rather than humans (Kay and Covert, 1983; Gordon, 1982; Rensberger, 1978; Teafor and Walker, 1983, 1984; Walker et al; 1978). Early studies were interested in the biomechanics of mastication and whether an animal was a soft feeder or a hard feeder; patterns which are identifiable on the teeth (Teafor, 1988; Walker et al., 1978). With the advent and use of scanning electron microscopy (SEM) researchers have been able to see patterns on teeth as consequences of use. Casts from extant mammals, primates, and hominids, and living subjects have been used for analysis. Since I was not using museum specimens, fossil teeth, or teeth from living subjects, casting of the teeth was not necessary, and I was able to put the “wet” sample in the vacuum chamber of the scanning electron microscope. (For details of casting procedures for dental analysis please refer to Rose, 1983; Pastor, 1992, 1993; and Teafor and Oyen, 1989b).

The amount of research using the SEM for dental microwear analysis to aid in reconstruction of diet of prehistoric populations has been modest. What has been done has been confined to North America (Bullington, 1991; Gordon, 1986; Harmon and Rose, 1988; Marks et al, 1985; Rose and Marks, 1985; Rose, 1984; Ryan and Johanson 1981, 1989; Shkurkin et al., 1975, Teafor, 1991); Egypt (Puech et al., 1983b); India (Pastor, 1992, 1993; Pastor and Johnson, 1982); Japan (Hojo, 1989) and Syria (Molleson and Jones, 1991). Shkurkin and associates (1975) were some of the first researchers to use the scanning electron microscope for comparisons of human molars between contemporary

Americans and “paleo-Indians.” Their study concluded that the SEM was a useful tool for comparisons between humans groups cross-culturally, and that different populations showed different wear of the enamel surface. They related these differences to diet and were some of the first to suggest that subsistence patterns and dietary reconstruction could be determined from microscopic wear analysis of the features of prehistoric individuals (Shkurkin et al., 1975). Ryan and Johanson (1980, 1989) looked at microwear on the anterior teeth of prehistoric Eskimo and Late Woodland Indians and found heavily pitted, chipped, and deeply scarred occlusal and labial surfaces. Since ethnographic data about the Eskimos were available, the researchers concluded that the Eskimos used their front teeth for non dietary activities, such as clamping and holding abrasive objects. Other microwear studies by Rose and associates (Harmon and Rose, 1988; Rose 1984; Marks et al., 1985; Rose and Marks 1985) give valuable qualitative comparative data from other prehistoric archaeological samples of teeth. They found that grit particles do not significantly change the width of scratches on enamel surfaces but change the size of pits.

Dental microwear analysis was conducted on the dentition from twenty individuals at Seminole Sink in Texas, an archaic site (Marks et al., 1985). Interpretation of the SEM data were compared to the faunal and floral analyzes from comparable sites. The second mandibular molar, mesiolingual cusp was used, but magnification was at 1500x. The researchers concluded that a high correlation existed between the presence of hickory nuts and compression fractures on molar. Polishing of the enamel is consistent with a high fibrous diet, and the diet was coarse, with a large ingestion of numerous seed and non-pitted fruits, requiring large mastication forces.

Rose and Marks'(1985) work at the Alexander house examined burials associated with a Mississippian occupation. They concluded, based on the SEM results and ensuing analysis that the absence of compression fractures (pits) indicated that the inhabitants of this site processed their nuts differently or the individuals died during a "nonfall" season of occupation. They also concluded that the diet was soft, "agricultural" and the food was processed with stone utensils. (Rose and Marks, 1985).

Microwear patterns were studied at Bug Hill (Rose et al., 1985) and showed an increase in the consumption of vegetable fiber and nuts in conjunction with stone preparation materials.

Kathleen Gordon's work on Zuni and Eskimo dentition (1986) showed differences in microwear patterns. She had the advantage of access to valuable ethnographic data for food and diet. The Zuni, who ate maize, had microwear features with large, broad scratches, big pits, and much roughening of the enamel. The Eskimos, who primarily had a diet of marine mammals, showed finer scratches and many smaller pits. The availability of ethnographic data was corroborated by stable isotope and trace element analysis. She concluded that microwear data in combination with ethnographic information, and stable isotope and trace element analyses can be used to distinguish paleo diets in populations where "diet and feeding behavior are as much functions of culture and technology as of the resources themselves" (Gordon, 1986: 207). She concluded that further work needed to be done on populations whose microwear features possessed less startling differences of features. Gordon (1990) also used multivariate and univariate statistical analysis for microwear data from several prehistoric populations from North America. Her samples

included marine mammal hunters, maize agriculturalists, and mixed hunter-gatherers. She had, again, access to ethnographic data and isotope and trace element analyzes for most of her samples. Her results showed that differences in dental microwear patterns resulted from dietary differences among the samples rather than differences in food processing (Gordon, 1990).

Comparable dental microwear data to the Averbuch is non-existent. The only data from the same cultural period, (Mississippian), are Bullington's (1991) study on deciduous teeth from juveniles from the lower Illinois River Valley and Rose and Marks (1985) teeth from four Mississippian burials from the central Arkansas River Valley.

Using SEM at 500x, Bullington collected qualitative and quantitative data from the micrographs which were scored qualitatively for enamel surface characteristics. She also collected feature frequencies, but did not collect feature dimensions. Her study showed that the frequency of pits on deciduous teeth increased with time and exposure to wear, regardless of the age of the individual. However, she found that the age of the individual did bias the amount of dental wear. Older individuals had less microwear than young adults and infants had less microwear than the younger adults. Based on these results, she concluded that the diet of the Middle Woodland was more hard and varied in contrast to the Mississippian.

Teaford (1991) used quantitative microwear analysis to document dietary reconstruction in the southeast. Twenty-seven maxillary first molars from sites along the Georgia and Florida coast were analyzed. They represented three different time periods in the southeastern United States. They are: 1) precontact: 400 B. P. - primarily hunting and



gathering of marine foods; 2) early contact: 1607 - 1690 A. D.; and 3) a late contact Spanish mission group: 1686 - 1702. The two last populations were more dependent on maize production than the former population group representing hunting and gathering of marine food. Teaford's results showed that the teeth of the precontact group (the hunters and gatherers of marine food) had many more pits and wider scratches than either of the other two groups. The average pit width for the precontact population showed less variation. Teaford suggested that the accidental ingestion of sand with the marine food acted as an abrasive particle which would score the teeth. The two contact groups did not have the extra grit in their maize diet. Teaford concluded that those two contact groups probably used wooden metates as shown to them by the Europeans who arrived with the development of Spanish missions as opposed to the earlier use of stone metates to process maize. These two agricultural populations, early contact and late contact, showed decreased enamel pitting. Teaford's results demonstrated a dietary shift among the populations

The teeth from Mesolithic and Neolithic Syrian groups (Molleson and Jones, 1991) were subjected to a quantitative and qualitative analysis of their occlusal surfaces. The sample size was small and no significant statistical data resulted from their analysis. However, Molleson and Jones were able to make some distinctions between the two groups. They found that food in the Neolithic Age was more coarse and harder than in the Mesolithic Age. During the Mesolithic Age, the diet was soft and contained small grains which required little crushing. This finding was corroborated by the paleobotanical

remains. The adult diet in Neolithic Age was similar , but was more varied and showed larger particles (Molleson and Jones, 1991).

Puech and coworkers (1983b) examined 603 pre-dynastic and dynastic skeletons for wear macroscopically and microscopically using Scott's (1979b) wear scale in combination with a qualitative study of the microwear features on the teeth. He concluded that degree of wear is a function of age, but wear on teeth in the same quadrant is less marked as the individual aged. He also concluded that desert Bedouin consuming the same diet as inhabitants of Arab villages had twice the amount of tooth wear, as a result of wind-blown sand in the diet causing more abrasions. Teaford also noticed that "exogenous abrasives" or "exogenous grit" (Teaford et al., 1996) such as wind-borne dust on food could be the cause of dental microwear in some species (Teaford, 1994; Teaford et al., 1994). Puech's qualitative study on the microwear features unfortunately cannot be used in comparison with other human populations because of the non-conformity of the description of the features which Puech called striations and furrows (Puech et al., 1983b).

Pastor's qualitative and quantitative research of a sample of teeth from the skeletal series of the Mesolithic site Mahadaha and chalcolithic site of Mehrgarh were the first intensive microwear studies on molar occlusal surfaces of prehistoric or contemporary human populations from south Asia. His early work on the Mehrgarh site showed a pattern distinctive to a culture having a sedentary agricultural life and a subsistence of processed grains (Pastor, 1992). His Mahadaha study also showed that microwear features of the second mandibular molar showed traits of sexual dimorphism (Pastor 1993).



Living human subjects also have not been frequently used for diet reconstruction because of the difficulty of making casts from teeth, albeit much easier from cooperative human subjects than wild animals. Teaforde and Tylenda (1991) had a longitudinal experimental study where the documented changes from nine volunteers who ate an American diet were presented. Teaforde and Lytle (1996) conducted a longitudinal study to see how switching from a coarse stone meal ground diet would change the base occlusal surface after a lifetime of a typical American diet. A baseline micrograph was taken of the subject's tooth. New pits and scratches were actually discernible after one week of a changed diet. Teaforde concluded that rates of wear varied among individuals and the amount of stone ground maize in the diet of prehistoric or historic populations may have had more abrasion than his experiment, thus increasing the rate of wear. Despite the experiment limitation, Teaforde proved that a stone ground maize diet can lead to increased dental microwear features (Teaforde and Lytle, 1996).

Currently, dental microwear research is continuing using Microware 2.2 and Microware 3.0, which are becoming the standard among the leaders in dental microwear research (Ungar, personal communication, 1997). Standardization of magnification, 500x, is becoming the norm in the industry also (Ungar, personal communication, 1997). However, only a fortunate few have access to an environmental scanning electron microscope. At this time, researchers are trying to develop a software program to work in conjunction with Microware 3.0 which will actually recognize and measure the features on the screen without any observer interference or error. A topographical approach to dental microwear analysis using a profiler to collect high resolution topographical data on tooth

surfaces was developed by Walker and Hagen (1994). The instruments, used in sub-nanometer vertical resolution and a horizontal resolutions were used on a number of beta test programs. As of now, nothing more has been developed from this method (Ungar, personal communication, 1997).

## CHAPTER THREE - Averbuch:

### **The Site and Setting**

Averbuch, named after Mr. Sidney Averbuch, owner of the site when it was discovered in 1975 is in Davidson County, Tennessee, about nine kilometers or 5.5 miles from Nashville. The approximate 11- acre site sits on a hill about 450 meters from the Drake Branch, a slow moving stream. At the bottom of a low ridge a hill extends in a southern direction making a higher area than the rest of the adjacent hill slopes. The site rose to about 540 feet above sea level before the summit was destroyed in 1975 to make way for the construction of the Royal Hills subdivision in the Bordeaux section of Nashville (Reed, 1984a, 1984b).

This area of Tennessee, in the northwest section of the middle division of the state, lies within the Nashville Basin, an area covering 15,300 square kilometers within the state of Tennessee. It is bounded by the Highland Rim, a plateau of limestone. Averbuch is well within the outer portion of the Nashville Basin and approximately 15 kilometers south of the escarpment of the Western Highland Rim, which rises about 90 meters out of an ancient depression (Reed 1984a). This region of Tennessee and the United States is called the Cumberland or the Interior Low Plateau of Eastern North America Plateau. This plateau covers an area from the unglaciated portions of southern Ohio and Indiana south through Kentucky to the Tennessee River in the northern part of Alabama (Klippel and Reed, 1984). The climate of the site is classified as humid Mesothermal with seasonally

demarcated fluctuations in both temperature and precipitation (Reed, 1984a). Rainfall is distributed fairly evenly throughout the Nashville Basin and the heaviest rainfall occurs from late December to early April (see Figure 1). The area is characterized by a diverse deciduous forest. Trees dominating the forests are: American chestnut, beech,, chinkapin oak, red oak, sugar maple, tulip, white basswood, white oak, and yellow buckeye (Reed, 1984a). In less quantity, but “no less economically important” (Eisenberg, 1986) are birch, black cherry, blackgum, butternut hemlock, hickory, red maple, and white ash (Reed, 1984a; Eisenberg, 1986). These plant resources would have been made available to the prehistoric peoples inhabiting the area for “subsistence and maintenance exploitation” (Reed, 1984a). Two miles from the site, Drake Branch joined Whites Creek. 2.6 miles later this confluence joins the Cumberland River. The soils in this area are abundantly fertile for agricultural use.

Averbuch has been described as a Middle Cumberland Culture in the Mississippian Period (Klippel, 1984). Mississippian refers to a prehistoric cultural period starting from the 9<sup>th</sup> century in some locations and lasting until the 14<sup>th</sup> century (Smith, 1978b). North American archaeologists commonly assume Mississippian to involve agriculture and ranked social organization. Full blown Mississippian cultures have been characterized commonly by a dependency on maize agriculture and a ranked social organization and hierarchy (Crites, 1984). Averbuch is considered to be Middle Cumberland Culture, which is indigenous to the central part of Tennessee and began somewhere in the 13<sup>th</sup> century and lasted until the 16<sup>th</sup> century (Klippel and Reed, 1984).



Averbuch is in the northwest corner and identified by a ▲.

(Reed, 1984a; I.1.3)

***Figure 1: Map of the Nashville Basin Locating Averbuch***

According to Klippel and Reed (1984) our understanding of Averbuch as a Mississippian culture has been described as a culture with its own particular level of social and organizational hierarchy. Known Mississippian sites have generally been located in major river flood plains for the presence of fertile soil and the extensive amount of different species of plants and animals sustainable for human populations.

Averbuch has been called a “marginal Mississippian culture,” because the site is not situated directly on the Cumberland River (Klippel and Reed, 1984). Rather, it is located about four miles away from the Cumberland on some smaller drainage feeders to the Cumberland. Marginal in this context meant that a site had spread farther from the main rivers (Klippel and Reed, 1984). The fact that the site was away from the Cumberland River and not situated directly on it, lead Drs. Bass and Klippel, the principal investigators of the site, to suspect that the move from the Cumberland River was from population pressure in the Nashville Basin (Klippel, 1984). This population pressure hypothesis was derived from the 1) fact that the site was not directly on the Cumberland River and 2) pathological lesions and biological stress markers discovered in human skeletal remains. (Berryman, 1981, 1984a, 1984b; Eisenberg, 1986; Guagliardo and Jablonski, 1984; Jablonski, 1981, 1984a, 1984b).

Berryman (1981, 1984a, 1984b) who constructed a paleodemographic model of the Averbuch population looked at enamel hypoplasias, Harris Lines, and stature reduction. Eisenberg (1986) looked at dry bone lesions in the 887 (she counted 888) skeletons from Averbuch in an attempt to add to the knowledge of prehistoric population density and diet in the area. Guagliardo and Jablonski (1984) looked at fluctuating dental asymmetry to see



if there were any deviations from the genetically occurring symmetry of teeth. Jablonski (1981, 1984a, 1984b) was interested in the Striae of Retzius, naturally occurring bands in the development of enamel on the teeth. Digressions from the normally occurring striations into pathological bands are thought to be caused also by stress in the individual, e.g. disease and malnutrition. Current research is investigating dental and oral macro pathology, i.e. incidence and rates of caries, hypoplasias, alveolar resorption, wear, abscesses, and *antemortem* teeth loss of 600 adult and deciduous dentition from Averbuch.

There are little data on subsistence patterns and nutrition for late Mississippian sites in the Nashville Basin (Klippel 1984). Previous archaeological investigations were concerned primarily with the burials goods and the stone coffins rather than the biocultural context and paleo demographics of the site (Jones, 1876, Thruston, 1890). Crites (1984) notes that the amount of charred floral remains was less than was expected for an agricultural site and there was a deficiency of charred floral remains recovered for the amount of structures and fill (Klippel 1984).

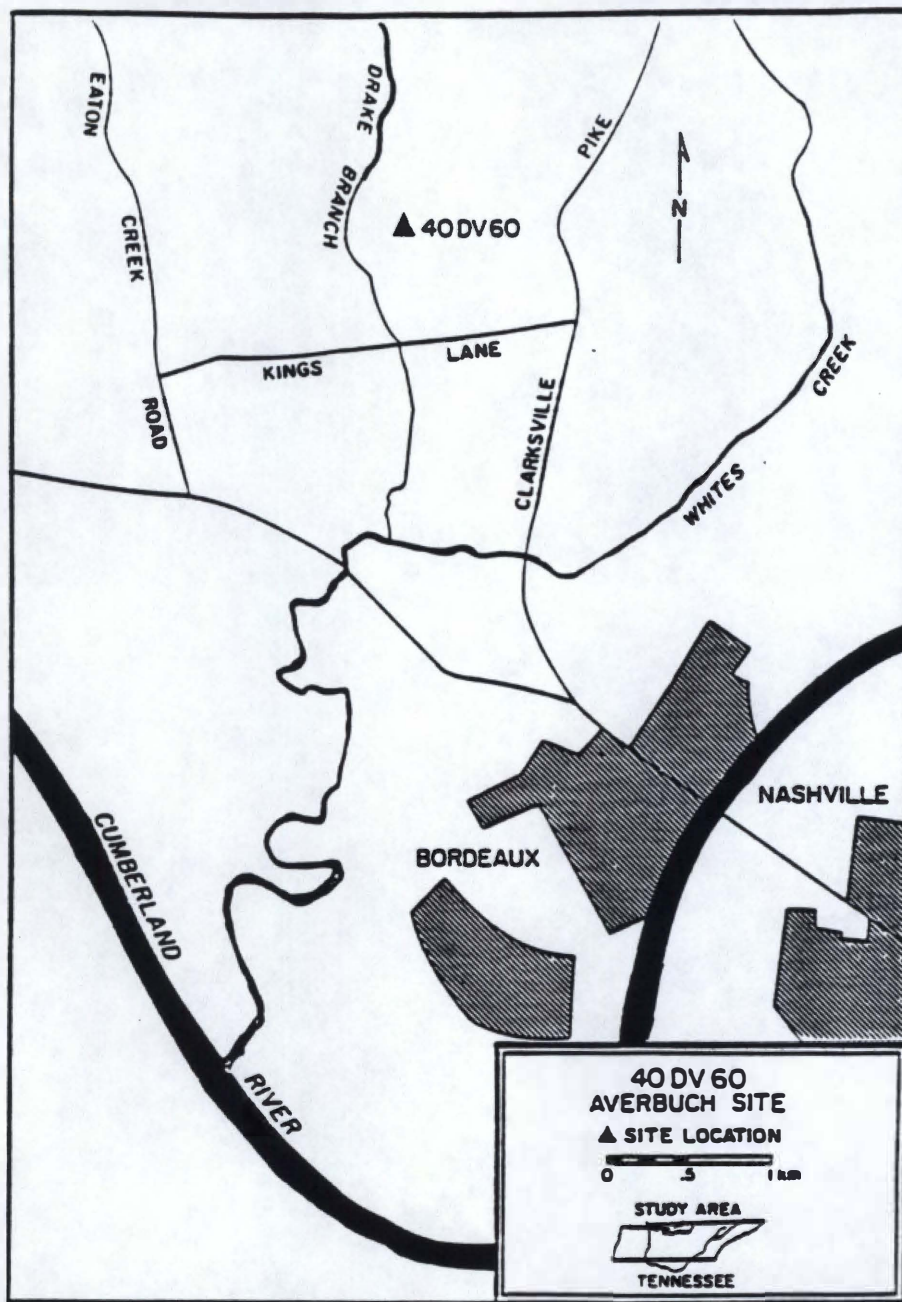
### **Archaeology of the Site**

When the stone box graves were discovered during construction for the housing development in 1975, personnel from the Tennessee Division of Archaeology monitoring the bulldozing, determined that a large Middle Cumberland Culture had been disturbed. Upon their recommendation housing construction stopped and survey and salvage work begun under the direction of D. P. Rapp, Sr. and P. Coats in 1975 under the



auspices of the Tennessee Division of Archaeology. Their objective was to determine the expanse of the site and the impact of construction made thus far. From the results of the walkover or “pedestrian” survey it was concluded that about 30% of the site had been destroyed by eight houses and road construction (Reed, 1984b). The site was also eligible for inclusion in the National Register of Historic and mitigation of the site was approved in compliance with the Archaeological and Historic Preservation Act of 1974 (Reed, 1984b). Department of Anthropology, University of Tennessee was contracted to supervise the excavation of the site, and Drs. William Bass and Walter Klippel were the principal investigators. Dr. Klippel was also the Field Project Director and Dr. Hugh Berryman and Ms. Ann Reed (graduate students at the time) were in charge of the field excavations and subsequent laboratory work (see Figure 2).

A backhoe was used to delineate the boundaries of the site to determine its relationship in size to other Middle Cumberland Culture sites. Over the course of the next year until the end of 1978, 645 graves were excavated, representing 887 individuals. All the graves in Cemetery One were excavated except for several which had already been destroyed by construction of a street (Berryman, 1984a). Every uncovered grave in Cemetery Two was excavated. Some of the graves had been destroyed by earlier plowing. The burials in Cemetery Two were not as deep as the burials in Cemetery One and Three. All the burials in Cemetery Three were excavated except for four graves. In addition, part of the cemetery which ran beneath a street could not be excavated (Berryman, 1984a). The majority of the burials were confined to the three “separate and distinct” cemeteries, although a small number was found in the accompanying

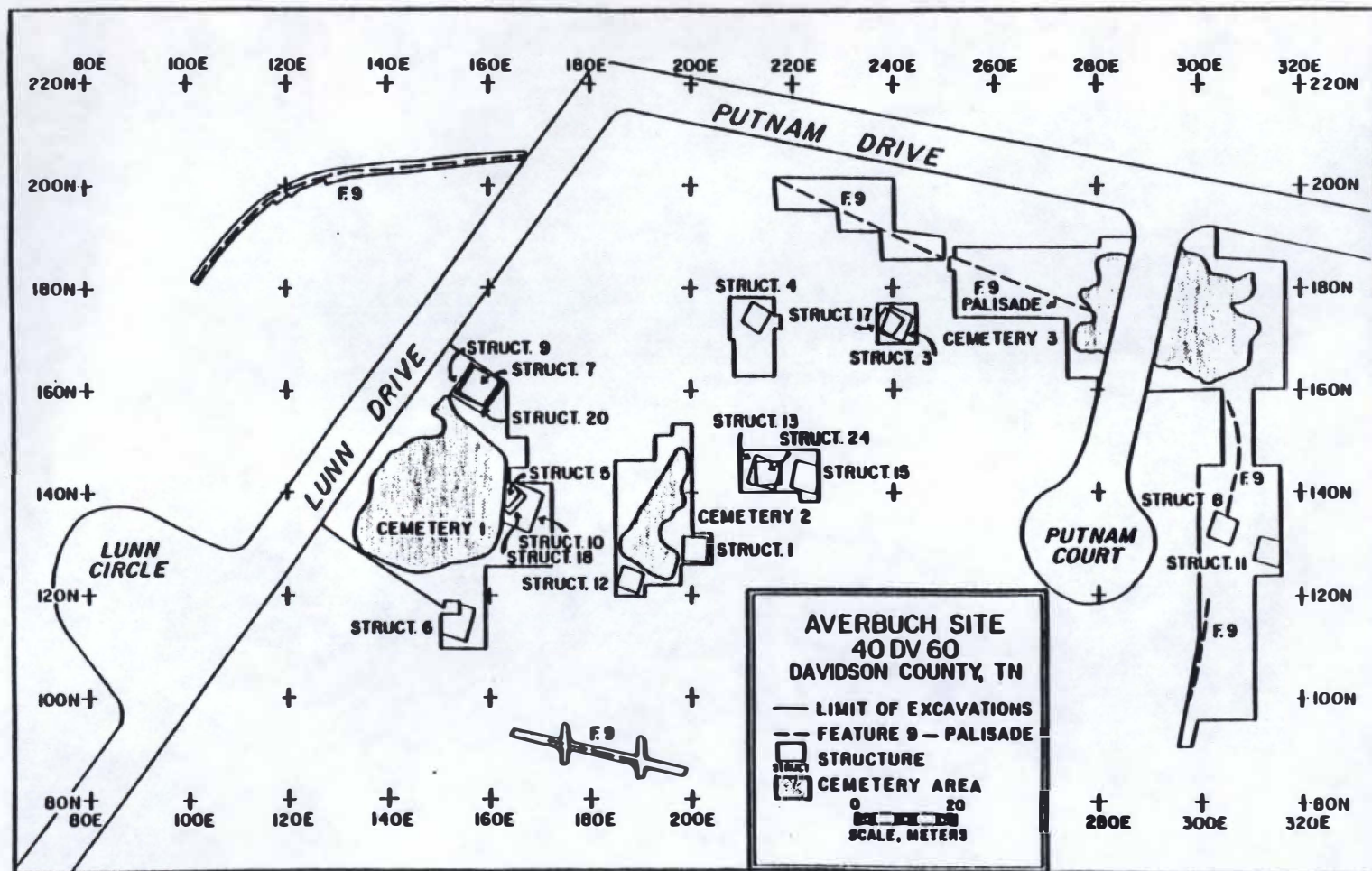


(Reed, 1984a; I.1.2)

**Figure 2: Location Map of Averbuch**

structures (Berryman, 1981) (see Figure 3). The remains of a palisade wall were found by a backhoe trenching to delineate the site. This palisade wall surrounds most of the site except for Cemetery Three in the northeast corner of the site, which the palisade wall cuts through. As a result Cemetery Three is thought to predate the palisade wall and Cemetery One and Cemetery Two. A radiocarbon analysis of the wood from the palisade wall dated the wall between 1273 and 1489 with a mid point of 1363. Applying the Monte Carlo Method to radiocarbon dating to some of the radio samples from the Averbuch site, Konigsberg and Frankenberg had a median start date of 1285 and a median end date of about 1400 and a temporal span of about 100 year (Konigsberg and Frankenberg, 1995).

Cemeteries One and Two are on the western portion of the site and wholly contained within the wall. Cemetery One is the largest and cuts through some earlier structures. The dates of Averbuch are given as 1275 A. D. - 1400 A. D. and it is thought to have been occupied approximately 50 - 100 years. The lack of "artifact homogeneity" (Klippel, 1984) and the lack of "extensive midden accumulation" (Klippel, 1984) encouraged Klippel to argue for an occupation less than one century during the fourteenth century (Klippel, 1984). Berryman's (1984a) estimate of the duration was probably not exceeding 25 years. Regardless of whose estimate is used for duration of occupation,(Berryman, 1984a; Eisenberg, 1986, Klippel, 1984; Konigsberg, 1995) the consensus is that the site was occupied somewhere between 25 and 100 years.



(Reed, 1984b; I.3.8)

*Figure 3: Location Map of the Cemeteries*



## **Burials**

Every excavated skeleton was assigned age and sex by Berryman, when relevant skeletal information was available (Berryman, 1981, 1984a, 1984b). The cemeteries were thought to be deficient in infants until 30 fetal to 2.5 year old skeletons were found under house structures throughout the site. Cemetery One, containing 564 individuals, is the largest of the three cemeteries. The ratio of males to females is about equal. Males accounted for about 32.6%; females 29.8%; and unsexed 37.8%. Cemetery Two has 98 individuals and a higher male female ratio. Males account for 41.3%; females, 24.9%; and unsexed individuals, 35.23%. Cemetery Three, the earliest cemetery, with 190 burials has about the same ratio of males to females. Males account for 33.05%; females 31.19%; and unsexed individuals, 35.75%. Berryman's demographic reconstruction (1981, 1984a) concluded there was no exclusion of any sex or particular age group from the three cemeteries. Obviously the unsexed individuals (n=315) are children under the age of 15.5 years of age. The only exception is the discovery of the 30 infants buried within the house structures encountered throughout the site. Also, not all the house structures were excavating, preventing the possibility of recovering more infant burials. Because there are three distinct cemeteries the individuals may not be contemporaneous. Of the 645 graves excavated 457 were single burials. Almost one third, 29.2 %, of the burials had more individual interred in them; 6.8% contained more than two; and 1.4% contained more than three. In some instances males were joined with females suggesting a connubial

relationship, while infants were placed with female adults implying a consanguineal relationship (Berryman 1984a, Eisenberg, 1986).

### **Results of the of the Floral and Faunal Analysis**

Biocultural data collected from other Middle Cumberland sites, within a Mississippian manifestation, have been insufficient for dental microwear comparisons. To date, this dental microwear study is the first of its kind to be done on a Mississippian site in Tennessee and consequently the comparisons to other dental microwear features from other Mississippian sites are largely dependent on the comparable subsistence regimes of other Mississippian sites. Food preparation items recovered from archaeological excavations including grinding stones of mortar, pestles, pounders (metates); can provide information on diet and food consumption. But, complicating the understanding are unknown storage techniques and processes which can mask or give a distorted view of diet. (Gordon, 1986) Using the analysis from recorded paleoethnobotanical screenings can be difficult for determining paleodietary habits , because those screenings do not tell food storage or food preparation techniques.

Samples from carbonized plant remains came from excavated structures (68.36%), features (29.42%) and stone box burials (2.2%) (Crites, 1984). The results from the screening at Averbuch showed that Northern Flint maize was the predominant botanical vestige. Other paleobotanical remains recovered were: lambs quarter, black walnut, butternut, and acorn, persimmon (although the number of seeds recovered was so small

that the seeds may not have been consumed (Crites, 1984). Honey locust seeds were found. Although they are not edible, the pulp of the fruit can be used in the preparation of tea. Persimmon and honey locust seeds were probably not eaten but used in the preparation of food. (Crites, 1984). Other seeds, grapes, blackberry, raspberry, knotweed, sunflower ash, blackgum, ironwood and blackhaw were also recovered. A variety of bean (*phaseolus vulgaris*) was also recovered. Maize was the most prevalent plant food recovered from the features (Crites, 1984). Wild plant food remains were scarce (Crites, 1984).

Bones recovered from Averbuch were classified into four categories: mammal, bird, fish, and reptile or amphibian (Romanowski, 1984). In addition to the labeling and processing for curating the bone, the bones were examined to see if they had butchering marks on them; were burnt, or had been gnawed, evidences of some cultural application. Butchering cuts were identified on predominately white-tailed deer, elk, turkey and Canada goose and snow goose. Minimal specimens of butchering were found also on a black bear, raccoon, striped skunk, fox, Eastern cottontail rabbit, opossum and an Eastern mole (Romanowski, 1984). Other mammal remains found at the site were mountain lion, beaver, woodchuck, domestic dog, gray fox, red fox, muskrat, Eastern Fox squirrel, Eastern Gray Squirrel, Eastern chipmunk, mink, shorttail shrew, Southern bog lemming, vole, Eastern woodrat, rice rat and mouse. In addition to the mammal remains with butcher marks, the following mammals could also have been used for consumption: beaver, woodchuck, raccoon, squirrels, chipmunks, and skunks (Romanowski, 1984).



Turkey was the most predominant bird remain found at Averbuch making it fourth in rank of meat producers, behind elk, white tailed deer, and bear. Elk and white-tailed deer together made up 50% of the estimated meat weight (Romanowski, 1984). Smaller amounts of other bird remains - bobwhite, a small quail, sandhill cranes, and pied-billed grebes could have been eaten.

Fish provided an excellent source of protein and were probably a common food staple. Fish were obtained by nets, fish traps, spears, or hooks. Fish recovered at Averbuch were freshwater drum and catfish (the most predominant species), gar, minnow, stoneroller, sucker, redhorse, sunfish and bass (Romanowski, 1984) .

Turtles, including one snapping turtle, and snakes remains were also found at Averbuch. All of these reptiles could have been used for consumption (Romanowski, 1984). Although amphibian remains were recovered, they were not plenty and probably too small to offer much food. Frogs were found, and provided a tasty source of food, but for the amount recovered, they would not have been a major source of food (Romanowski, 1984). Mollusks, bivalves remains were recovered and probably used for food. Since Averbuch is within the migratory flyway, many fowl, including turtles, many species of fresh water fish, and seventy six species of mussels were found in the nearby Cumberland River (Romanowski 1984) which could supplement an agrarian diet. Averbuch was ideally situated to exploit many resources and the inhabitants were in an excellent environment for hunting and eating the available game and cultivating maize.

Basins, or pits containing surface fired areas of burned and fire spalled limestone were identified as cooking facilities based on the evidence of fire cracked rock and the use

of limestone for retention of heat (Reed and Klippel, 1984). Three corn cob pits, referred to as smudge pits (Reed and Klippel, 1984) were filled with charred or carbonized kernels and cobs of corn.

Dippers made from turtle shell could have been utilized for food processing. Modified shells were found within ceramic vessels and in seventeen burials at Averbuch (Romanowski, 1984). Pounders or metates were not recovered (Klippel, personal communication, 1997; Reed, personal communication, 1997).

### **Prehistoric Diet and Subsistence Patterns at Averbuch**

The term Mississippian has changed over the years. It was originally a term referring to a geographic region that consisted of an area which distributed Middle Mississippi pottery family (Scarry, 1995). Subsequently the term was used to refer to the prehistoric groups which shared a minimal set of material attributes, including shell-tempered pottery, rectangular wall trench houses, and flat-topped pyramidal mounds (Scarry, 1996). Recently Mississippian has incorporated more than just the material characteristics to included definitions of economy, political organization and social hierarchy.

Today, when we discuss the late prehistoric and protohistoric peoples of the Southeast, we talk of hereditary chiefs, ascribed social inequality, and differential access to resources. We discuss diet and the role of agricultural production in the evolution and maintenance of the Mississippian societies. We look for evidence of exchange between groups and at production within societies (Scarry, 1996: 13).

Now, Mississippian refers to those groups of people who lived in the prehistoric Southeast and practiced cleared-field agriculture with maize as the dominant crop, had hierarchical political organizations with evidence of defined status differentiation, and who shared a set of religious cult institutions and “pan regional ideological systems” (Rogers, 1995). This definition excluded the Timucuan chiefdoms and other societies of peninsular Florida, the Fort Ancient and other nonranked agricultural societies of the Midwest and Northeast, and the agricultural Siouan and Algonquian societies of the Middle Atlantic Coastal Plain (Scarry, 1996).

One of the most consistent themes in the discussion of Mississippian subsistence economies has been the dominant position that corn played in the diet. Evidence abounds in archaeological botanical samples and in trace element studies of human skeletal remains (Rose et al., 1991).

“Little is known of Middle Cumberland subsistence systems” (Crites, 1984: I.12.1). As a Middle Cumberland Culture within a Late Mississippian manifestation in the central Tennessee basin, the inhabitants of Averbuch likewise were considered to be agriculturalists and maize dependent with a supplement of fowl, mammal meat, freshwater mussels and fish, amphibians, nuts, sumpweed, grapes, and sunflower seeds (Crites, 1984; Romanowski, 1984). As a Mississippian site the supposed and expected subsistence pattern would commonly be a maize agricultural society complemented by fish and mussels from the freshwater Cumberland River (Klippel, 1984). These assumptions about Mississippian subsistence systems however can be paradoxical. In fact, through paleobotany recovery and processing, the floral and faunal remains provide the evidence

that the diet at Averbuch was more broadly based and not as dependent on maize agriculture as other Mississippian sites (Klippel 1984).

Crites' states that "to interpret season of abandonment of structures is just as distorted by the botanical record as are efforts to reconstruct subsistence patterns"(Crites, 1984: I.12.16). He concluded that

if paleoethnobotanical samples provide only a distorted view of diet and seasonality, indications of nutritional structure of the diet, as derived from plant remains, are masked by plant processing and storage techniques, deposition and disposal patterns, differential preservability of plant parts, and the biases of field recovery and lab processing methods (Crites, 1984, I.12.16).

But, if maize is the bulk of the dietary staple of Middle Cumberland Cultures, then the paleobotanical analysis of the Averbuch site would indicate the probability of protein/amino acid deficiencies for the population. This would corroborate the stress indicators observed on the skeletal remains as discussed in Chapter One and earlier in this chapter (Berryman, 1981, 1984a, 1984b; Eisenberg, 1986; Jablonski, 1981,1984; Guagliardo and Jablonski, 1984).

## CHAPTER FOUR - Materials and Methods

I performed the following steps in order to assure strict authority over the research.

1. Identification of the target sample (teeth) which included manipulation of two data bases
2. Collection of the teeth
3. Cleaning of the teeth
4. Mounting of the teeth
5. Scanning the teeth
5. Measurement of the features
6. Statistical analysis of the data

### Sample Selection

To begin the research I had to identify those individuals (as identified by burial numbers) which had a permanent second mandibular molar with a first molar adjacent to it. The use of the second mandibular molar was not chosen indiscriminately. It had been the tooth of choice for analysis for many researchers (Grine, 1986, Gordon, 1982, Teaford and Walker, 1984; Rose and Marks 1985; Marks et al., 1985; Pastor, 1993). Individuals (identified by burial numbers) which had either a non-pathological left (#18) or right (#31) second mandibular molar (but only if a non-pathological first molar was *in situ* mesial to the target tooth) were used for this study. An *antemortem* loss of a first molar can result in



a mesial shift of the second molar altering the occlusal pattern on the mesiolingual cusp. When teeth are in malocclusion, discrepancies in the analysis of wear can occur (Marks, personal communication 1997; Puech et al., 1983b).

I used a combination of two databases to earmark my target sample. I used the database devised by Berryman (1981) because it had sex and age assignments for each burial. After some formatting, I combined it with *Osteo.mdb* a Microsoft Access database of the Averbuch skeletal material created by Dr. Lyle Konigsberg (NSF Grant; SBR-9307693; 1993-1994) of the University of Tennessee. *Osteo.mdb* included metrics and indices for crania and post cranial skeletal remains, dental development and wear marks for teeth. Age and sex assignments were not included in *Osteo.mdb* which required combining the two databases. I decided to employ Berryman's ages and sex assignments so they would compare with current and possibly future research.. For example, Jablonski, Berryman, and Eisenberg conducted their research using Berryman's age and sex assignments. Dental measurements were recorded and all statistics computed based on Berryman's ages and sexes (Jablonski and Guagliardo, 1984). Berryman's life tables and ages provided Eisenberg background for her subsequent work on biocultural insights from paleopathology at Averbuch (Eisenberg, 1986). All or most of the aging and sexing techniques that Berryman used for his analysis are used still today in forensic and biological anthropology. There is no reason to suspect that his aging and sexing techniques are inaccurate.

Since, Berryman's age definitions were narrowly demarcated, it was decided I should group his 34 age groups into four broader categories: <20; 20-29; 30-39; and 40+.

This would allow greater ease for statistical procedures and a hope that any significant differences among the age groups would show up more readily in four broader categories. Included in *Osteo.mdb* are the dental wear scores (Smith, 1984) and tooth development phases (Moorrees, Fanning, and Hunt, 1963).

Using both databases, Berryman's and *Osteo.mdb* I created my own database.

From *Osteo.mdb* I retrieved information dental wear scores (Smith, 1984) for the right first mandibular molar, right second mandibular molar, left first mandibular molar, left second mandibular molar and dental developmental scores (Moorrees, Fanning, and Hunt, 1963a and b). From Berryman's database I retrieved burial numbers, cemetery, age, and sex information. After combining those two sets of data, I had my own database, which I converted into a Microsoft Excel spreadsheet. Thus I was provided with a list of every burial which had either both left or right permanent first and second molars, age and sex assignment, and cemetery affiliation. From that list, (n=341) I divided the burial list three different ways:

1. into four ( 4) age groups:
  - 1 } less than 20; <20
  - 2 } 20 - 29
  - 3 } 30 - 39
  - 4 } more than 40; 40+
2. into the three (3) cemetery groups:
  - 1 } Cemetery 1
  - 2 } Cemetery 2
  - 3 } Cemetery 3
3. into the two (2) gender groups:
  - 1 } male
  - 2 } female



From that spreadsheet I created tables for all burials for which age, sex, and cemetery affiliation had been assigned. Not every individual had been assigned a gender or put into one of the age categories. In a few instances, I had the appropriate dentition, but age and sex were not determined for those individuals because of a lack of more diagnostic cranial and post cranial remains . Of those 341 burials 49 burials were dropped leaving a total of 292 burials available for analysis prior to visible confirmation. I randomly selected 141 burials for my sample. I visually examined all teeth from the burials, dropping those where the second mandibular molar was completely carious or dentinous. The final tally of suitable teeth for analysis was 109 from which I drew my sample of 68 teeth. I originally had planned to work with a sample of three from each of the 24 sets (3 cemeteries x 4 age groups x 2 sexes); for a total of 72 teeth. However, there were no teeth representing my criteria for females from Cemetery 3 in the 40+ age group and only two teeth were available for males in the 40+ age group in Cemetery 3. This brought the total sample to 68 teeth. I numbered the teeth used for the SEM analysis in sequential order starting with #1. Tooth number 1 will always relate to its corresponding micrograph (image1.bmp) and overlay or coordinate file (image1.crd).

The original teeth were used without risk to them. The alternative was to use casts of teeth, which is a long process involving impression materials and epoxy. This procedure is useful for live animals, museum specimens, or teeth which are still attached to a large portion of the bone. The teeth were cleaned with acetone for two minutes to remove any preservatives on them. Teeth were then rinsed with water and cleaned again with denatured alcohol. They were then left to air dry for two days. After positioning the teeth

in proper anatomical position on a glass slide with modeling clay, the occlusal surface of the tooth was swabbed lightly with denatured alcohol to remove any debris, dust, or dirt. Prior to being put in the vacuum chamber of the microscope, the occlusal surface was cleaned with compressed air.

### **The Scanning Electron Microscope**

These sample teeth were taken to Dr. David Joy, Director of the EM Facility in the Science and Technology Center at the University of Tennessee for SEM examination. The scanning electron microscope uses an electron beam to look at the surface topography of the specimen. At higher magnification, 500x in this analysis, a small area, in this case, the mesiolingual cusp (metaconid), can be thoroughly scanned. This electron beam causes other electrons to be emitted from the surface of the specimen. These electrons emanating from the surface of the specimen are portrayed on a cathode ray tube which makes the resulting image look like a television picture. In actuality, the resulting picture is an image of variations of brightness caused by the emanating electrons. Since any dirt, debris, or dust, can change the surface of the tooth, the resulting picture or micrograph can be altered.

The scanning electron microscope used was a Hitachi S-3200N Scanning Electron Microscope running on 20KV. Physically, it is an environmental microscope, meaning that "wet" samples can be put in the vacuum chamber for analysis without any casts or coatings (sputterings) of gold. The word "environmental" in conjunction with scanning electron

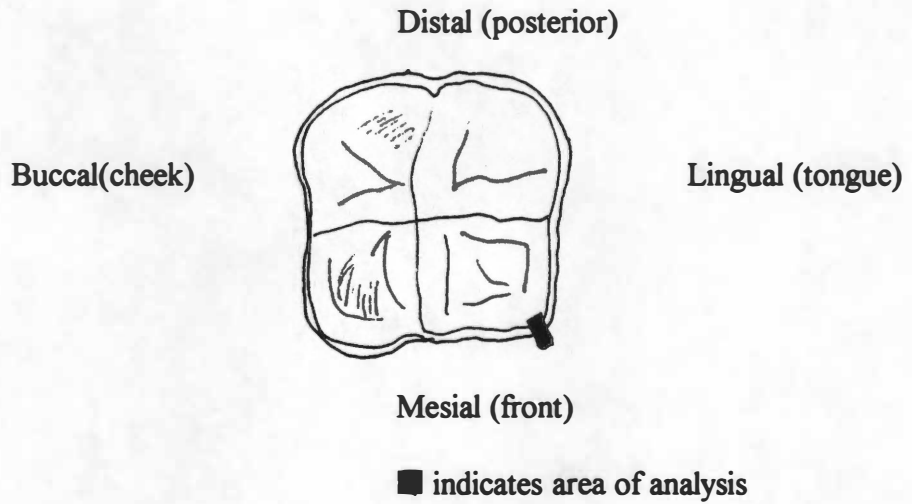
microscope is actually a trade name belonging to another company. The particular microscope I used is an N-SEM; N meaning "Nature." The Hitachi took pictures (micrographs) at a normal incidence (perpendicular) beam angle, which is 90 degrees. A total of 80 seconds was needed to do a computer exposure of the tooth, and the vacuum chamber needed to be pumped up to 30 PA between each "run." The SEM analysis was non-destructive. The teeth were put in the chamber and scanned at 60x to observe the surface of the tooth and determine the location on the mesiolingual cusp tip facet for closer observation and data gathering (see Figure 4). Selection of areas for photography was based on the following: First, the area to be scanned had to have some representative features present on the facet. And some of the features had to lie entirely within the scanning area. I had some features that truncated outside the boundaries of the field. Second, I had to have some adjacent areas with features present, since my research was depended wholly on collecting, counting and measuring pits and scratches. Micrographs of each tooth magnified at 500x were compiled to access surface topography. Micrographs of Tooth #1 were taken at 100x, 200x, 300x, and 400x to illustrate the selection process of the facet used for measurement at 500x. The computer generated photos (micrographs) were taken by Quartz PCI, which runs in conjunction with the scanning electron microscope. The micrographs were downloaded as BMP (Microsoft Windows 3.0 Bitmaps) images onto computer diskette. I used *Microware 3.0*, a software package designed specifically for the measurement of dental microwear features by Dr. Peter Ungar of the University of Arkansas (Ungar, 1996, 1997). These programs displayed the photomicrograph image of each tooth on my computer screen which allowed me to

measure each feature with the mouse. I made four measurements for each feature: major axis at either end and minor axis - a either end. Pits were determined by the computer with a default setting in which the major and minor axis lengths form a ratio of less than four to one. This 4:1 ratio is considered the “norm” of dental microwear research today for distinguishing pits from scratches (Ungar, personal communication. (Please refer to Raw Data Descriptions by Tooth (APPENDIX F) and Feature Summary Statistics (APPENDIX E). On the lower border of the micrographs is a scale in which each dot represents 10 microns. Overlay lines for each feature of every image were saved as coordinate files. For every pit and scratch I measured, the software calculated length and width as well as other descriptive statistics for every identifiable and measured feature.

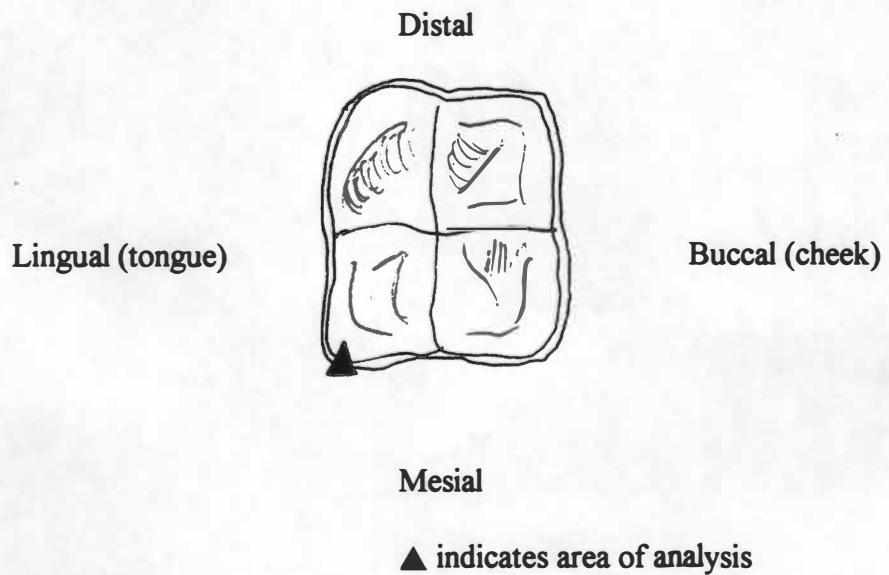
Overlay lines have been drawn in red on Image01.bmp, the first micrograph (APPENDIX D) to illustrate the microwear features.

The micrographs, the photo image of the occlusal surface of the tooth at 500x, were printed using software Adobe Photo Deluxe Version 1.0 and printed with a Canon Bubble Jet 4200. The resolution of each micrograph was 640 x 480 resolution or 142 pixels per inch.

### **Right Mandibular Second Molar**



### **Left Mandibular Second Molar**



***Figure 4: Location of the Mesiolingual Cusp Tip***

After reviewing the micrographs on the computer screen and in a printed format, I discovered that 13 teeth had to be dropped from my sample. Those 13 teeth upon closer examination showed artifactual marks and/or areas with unusually low feature densities. Low feature density is a common occurrence for some prehistoric and fossil specimens. Teeth with low feature density or artifactual marks should be dropped from the sample (Teaford, 1988b).

As a result, I recalculated my age and sex specimens and created new tables (Tables 1 - 5) summarizing the sample distribution which would be used for analysis.

***Table 1: Distribution of Teeth by Sex: Cemetery One (n=22)***

| <b>Cemetery One</b> |     |         |         |     |
|---------------------|-----|---------|---------|-----|
|                     | <20 | 20 - 29 | 30 - 39 | 40+ |
| Male                | 3   | 5       | 3       | 3   |
| Female              | 2   | 1       | 3       | 2   |
| Total               | 5   | 6       | 6       | 5   |

***Table 2: Distribution of Teeth by Sex: Cemetery Two (n=17)***

| <b>Cemetery Two</b> |     |         |         |     |
|---------------------|-----|---------|---------|-----|
|                     | <20 | 20 - 29 | 30 - 39 | 40+ |
| Male                | 1   | 3       | 2       | 2   |
| Female              | 2   | 3       | 2       | 3   |
| Total               | 3   | 5       | 4       | 5   |



**Table 3: Distribution of Teeth by Sex: Cemetery Three (n=16)**

| <b>Cemetery Three</b> |               |                |                |            |
|-----------------------|---------------|----------------|----------------|------------|
|                       | <b>&lt;20</b> | <b>20 - 29</b> | <b>30 - 39</b> | <b>40+</b> |
| <b>Male</b>           | 2             | 2              | 2              | 2          |
| <b>Female</b>         | 3             | 3              | 2              | 0          |
| <b>Total</b>          | 5             | 5              | 4              | 2          |

**Table 4: Distribution of Teeth by Sex: All Cemeteries (n=55)**

|               | <b>&lt;20</b> | <b>20 - 29</b> | <b>30 - 39</b> | <b>40+</b> |
|---------------|---------------|----------------|----------------|------------|
| <b>Male</b>   | 6             | 9              | 7              | 7          |
| <b>Female</b> | 7             | 7              | 7              | 5          |
| <b>Total</b>  | 13            | 16             | 14             | 12         |

**Table 5: Distribution of Sex within each Cemetery (n=55)**

| <b>Cemetery</b> | <b>Male</b> | <b>Female</b> | <b>Total</b> |
|-----------------|-------------|---------------|--------------|
| <b>One</b>      | 14          | 8             | 22           |
| <b>Two</b>      | 7           | 10            | 17           |
| <b>Three</b>    | 8           | 8             | 16           |
| <b>Total</b>    | 29          | 26            | 55           |

Regardless of the drop in my sample I still had an approximate 10% sample. There were 887 burials recovered; of those 537 were adults for whom age and sex could be determined. The remaining 350 burials, primarily children were under the age of 15.5 for whom sex could not be assigned. Of those 537 burials, only 292 had the proper dentition for analysis. In that regard the 55 sampled teeth represent 18.8% .

As an ancillary component of this research project, I have included some samples of teeth from other archaeologically derived skeletal populations for illustrative purposes. Two adult permanent second molars from the site of Mobridge and three adult permanent second molars from the site of Leavenworth in South Dakota are represented by micrographs taken at 500x magnification. Mobridge teeth, from burials uncovered at Mobridge, South Dakota are from the cultural-historical framework of a Plains Village 2, (protohistoric period) extending in time from about 1250 until 1750 A D. (Blakeslee, 1994). The Leavenworth teeth, from excavations at Leavenworth, South Dakota represent a site of the historic Arikara period 1700 A. D. onward (Blakeslee, 1994). Micrographs of each the tip of the mesiolingual cusp (metaconid) from each tooth magnified at 500x are included APPENDIX D with the corpus of the study material. These teeth are added to illuminate the considerable resources for interpopulation comparisons, discuss the effectiveness of quantifiable dental microwear analysis, and will be discussed in Chapter Six.

## **Statistical Procedures**

I used quantitative methods to analyze the micrographs of the teeth. Because of the recent development of software with a cursor-mouse measuring device (Ungar, 1996, 1997) the quantitative process was not as arduous as the measurement process has been in previous studies. Quantitative methods involve counting features from which ratios can be computed. As a result correlation coefficients can be calculated and logarithmic data can be used for linear and hard regression and analysis of variance (Ungar, 1996a). Thus, this method was the approach I used for the analysis of the Averbuch teeth.

The data set of feature measurements, means, and standard deviations were created using Micrograph 3.0. The sets of measured data were imported into two Quattro Pro spreadsheets, the raw data and feature summary statistics (see APPENDIX E: Feature Summary Statistics and APPENDIX F: Raw Data Summary) and then converted into SPSS. The feature dimensions are measured in microns ( $\mu$ ). Orientation is measured in degrees.

Since, quantitative microwear analysis depends on the measurements of pits and scratches and their relationship to each other, the percentage of pits to the total features and percentage of scratches to the total features are also calculated. The nine independent data variables used for analysis came from the Features Summary Statistics data. They are:

- 1) Pit Tally: total number of pits per tooth
- 2) Scratch Tally: total number of scratches per tooth

- 3) Pit Tally /Scratch Tally ratio: pit to scratch ratio (calculated from pit tally and scratch pit tally)
- 4) Pit Tally/Number of Features ratio: number of pits to total number of features per tooth
- 5) Scratch Tally/Number of Features ratio: number of scratches to total number of features per tooth
- 6) Mean Pit Length: average length of pit per tooth
- 7) Mean Pit Width: average width of pit per tooth
- 8) Mean Scratch Length: average length of scratch per tooth
- 9) Mean Scratch Breadth: average breadth of scratch per tooth

A test for normality was performed on the nine variables to see if the data were distributed evenly. The results of those tests confirmed that the five count and ratio variables: pit tally, scratch tally, pit /total features ratio, scratch/total features ratio, and pit/scratch ratio were non normal. The other metric variables: pit length, pit width, scratch length, and scratch breadth could not be shown to be non-normal. As a result the non normally distributed data had to be transformed before proper analysis of variation testing. If data are not distributed normally, then the outcome of the analysis of variation testing can be invalid. These following transformations were used to stabilize the variance. The pit tally and scratch tally were transformed into square roots; the pit/total features and the scratch/ total features were transformed using arcsine transformation; and the metric data, pit length, pit width, scratch length, and scratch breadth, were transformed into logarithmic 10 formats. The pit/scratch ratio was calculated from the tally counts of the pits and



scratches. Since the tallies for pits and scratches were not normal, then the pit/scratch ratio was not normal either. However, the pit/scratch ratio could not be transformed mathematically because the absolute value of the argument for the ARCSIN function was greater than 1. Since the pit/scratch ratio could be greater than 1 on some teeth, those teeth would have to be dropped from the sample. Table 6 below provides information on data variables, data names (for use in tables) and transformed names. This will assist in reading the descriptive summary statistics and the MANOVA tables.

**Table 6: Data Variables and Their Names**

| <b>Variable</b>               | <b>Data Name</b> | <b>Transformed Data Name</b> |
|-------------------------------|------------------|------------------------------|
| Pit Tally                     | PITS             | SQPITS                       |
| Scratch Tally                 | SCRTCHS          | SQSCRTCH                     |
| Pit Tally/Scratch Tally Ratio | P2SRATIO         | not transformed              |
| Pit Tally/Total Ratio         | PCPITS           | ARCPITS                      |
| Scratch Tally/Total Ratio     | PCSCRTCH         | ARCSCRTH                     |
| Mean Pit Length               | PITL_M           | LOGPITL                      |
| Mean Pit Width                | PITW_M           | LOGPITW                      |
| Mean Scratch Length           | SCRTL_M          | LOGSL                        |
| Mean Scratch Breadth          | SCRTB_M          | LOGSB                        |

Following the transformation of the variables and the SPSS Test of Normality for the eight transformed variables I used an alpha level of .05 to reject the null hypothesis and accepted that the data were normally distributed.

Descriptive summary statistics for each original (non-transformed) pit and scratch variable were calculated by age and sex, by age, and by sex. Data were analyzed independently for each transformed variable using a three-way factor multivariate analysis of variance (MANOVA) where cemetery, sex, and age were the three factors and eight aforementioned variables were the dependent variables: SQPITS (number of pits), SQSCRTCH (number of scratches), ARCPITS (percentage pits), ARCSCRTH (percentage scratches), LOGPITL (pit length), LOGPITW (pit width), LOGSL (scratch length), and LOGSB (scratch breadth). The MANOVA procedure was used to answer the four questions proposed in the introduction (see Chapter One).

After viewing the results of the aforementioned MANOVA, I decided to look at summary statistics on four more variables: R (R), Orientation Mean (ORIENT\_M), Feature Length (LENGTH), and Feature Breadth (BREADTH). Feature Length was calculated by taking the mean of pit length and scratch length and Feature Breadth was calculated by taking the mean of pit width and scratch breadth. After the summary descriptive statistics were calculated, four more two-way factors of analysis of variance (ANOVA) using the Proc GLM procedure in SPSS were run on the following variables: R, ORIENT\_M, LENGTH, and BREADTH. Again, sex and age were the factors.

The following list summarizes the statistical procedures and identifies and identifies the tables where the test results are presented. A discussion of those results follows in the next chapter.

1. MANOVA (Tables 7 & 8)
2. ANOVA for R (Tables 9, 10, & 11)



3. **Summary Statistics for R (Tables 12, 13, & 14)**
4. **ANOVA for Orientation (Tables 9, 15, & 16)**
5. **Summary Statistics for Orientation (Tables, 17,18, & 19)**
6. **ANOVA for Feature Length (Tables 9 & 20)**
7. **ANOVA for Feature Breadth (Tables 9 & 21)**
8. **Summary Statistics for Pits (Tables, 22, 23, & 24)**
9. **Summary Statistics for Scratches (Tables 25, 26, & 27)**
10. **Summary Statistics for Percentage Pits (Tables 28, 29, & 30)**
11. **Summary Statistics for Percentage Scratches (Tables 31, 32, & 33)**
12. **Summary Statistics for Pit Length (Tables 34, 35, & 36)**
13. **Summary Statistics for Pit Width by Age (Tables 37, 38, & 39)**
14. **Summary Statistics for Scratch Length (Tables 40, 41, & 42)**
15. **Summary Statistics for Scratch Breadth (Tables 43, 44, & 45)**

## CHAPTER FIVE - Results

### Statistical Analysis

Data from the microwear study reveal no significant differences. The relationship between metric pit and scratch data by cemetery, gender, and age showed some unforeseen results. The MANOVA looked for significant variation among the treatment means of the metric data for the 55 teeth. In the MANOVA procedure, the alpha level of .05 was chosen to reject the null hypothesis. The results of the MANOVA (Tables 7 & 8) revealed F values in the Wilks'  $\Lambda$  far in excess of .05 to reject the null hypothesis. The three-factor MANOVA did not indicate significant variation among the genders, cemeteries, or ages in the frequency of pit and/or scratch tallies, pit length, pit width, scratch, length, scratch breadth, and pit and/or scratch ratios. As a result, the only conclusion that could be made is that based on the microwear data, there are no significant comparisons among any tested variables. There are no correlations among any of the dependent variables through time as an individual aged. I had hoped to see a difference in the amount of scratches as one grew older, but the frequency of scratches and pits did not increase or decrease through out the age of the individual. I also hoped to see some difference among the cemeteries, as Cemetery 3 was thought to have predated the other two cemeteries. Again, there were no significant differences among the dependent variables. Cemetery One did not show any significant differences between Cemetery Two or Three and Cemetery Two was not significantly different from Cemetery Three. The results of the MANOVA are seen in Tables 7 and 8 on the following page.

**Table 7: MANOVA: Cemetery by Age by Sex**

| <b>Between - Subjects Factors</b> |          |          |          |        |      |     |         |         |     |
|-----------------------------------|----------|----------|----------|--------|------|-----|---------|---------|-----|
|                                   | Cemetery | Cemetery | Cemetery | Female | Male | <20 | 20 - 29 | 30 - 39 | 40+ |
|                                   | 1        | 2        | 3        |        |      |     |         |         |     |
| Number                            | 22       | 17       | 16       | 26     | 29   | 13  | 16      | 14      | 12  |

**Table 8: MANOVA: Results**

| <b>Wilks' Lambda Results of Multivariate Tests</b> |       |          |                  |          |      |                      |                   |
|----------------------------------------------------|-------|----------|------------------|----------|------|----------------------|-------------------|
| Effect                                             | Value | F        | Hypothesis<br>df | Error df | Sig. | Noncent<br>Parameter | Observed<br>Power |
| Intercept                                          | .001  | 5092.224 | 8.000            | 25.000   | .000 | 40737.795            | 1.000             |
| Cemetery                                           | .590  | .944     | 16.000           | 50.000   | .528 | 15.109               | .535              |
| Sex                                                | .753  | 1.025    | 8.000            | 25.000   | .444 | 8.197                | .368              |
| Age                                                | .466  | .916     | 24.000           | 73.109   | .581 | 21.162               | .639              |
| Cemetery by<br>Sex                                 | .697  | .618     | 16.000           | 50       | .854 | 9.892                | .343              |
| Cemetery by<br>Age                                 | .295  | .747     | 48.000           | 127.073  | .875 | 28.713               | .646              |
| Sex by Age                                         | .525  | .758     | 24.000           | 73.109   | .774 | 17.510               | .531              |
| Cemetery by<br>Sex by Age                          | .353  | .753     | 40.000           | 111.767  | .845 | 25.860               | .632              |

In an attempt to find some significance among the metric variables, I performed four ANOVAs on four previously untested variables as suggested by Ungar (Ungar, personal communication). They were 1) R, orientation vector length, a measure of concentration (Ungar, 1994a, 1996a), 2) ORIENT\_M, mean of the orientation of the major axis slope, 3) feature length, (LENGTH), and 4) feature breadth (BREADTH). R is the length of mean striation vector, a measure of concentration or angle homogeneity. Shorter vectors indicate a more random distribution of scratches about a circle such that at  $R = 0$ , points are evenly distributed (Ungar, 1994a). Prior to proceeding with the ANOVA tests for the four variables: R, ORIENT\_M, LENGTH, and BREADTH, I collapsed the cemetery data. Because, it was proven statistically, that cemetery affiliation did not affect the dental microwear patterning at all as shown by the results of the MANOVA, the four ANOVAs were performed without considering the cemetery factor. The results of the ANOVA for R, (Tables 9, 10 & 11) indicated a significant difference between age and R for the less than 20 age group (<20) and the 30 - 39 age group and the 40+ age group. This test showed that there was a significant difference between the concentration of features between the <20 and 30-39 age groups and the <20 and 40+ age groups (see Tables 9, 10, & 11 on the following pages). The implication of this significant difference is that it demonstrates that as people age, the concentration of striations becomes more evenly and randomly distributed. Table 12 shows that as the Averbuch population aged, the value of R comes closer to "0". Since the range of values for R are between "0" and "1", the closer to "0", the more random and evenly distributed are the striations. Younger

individuals have less randomly distributed and less concentrated striations (Tables 12, 13, & 14)

This result is not surprising because as an individual ages teeth become more worn. Teeth are designed for guides for chewing and the crests guide the chewing strokes (Mills, 1955; Kay and Hiiemae, 1974). As occluding teeth are more close to “head on”, the striations of dental microwear patterning are more homogenous. When teeth become worn through attrition and crests and cusps become more blunt and flat, there is less guidance in the chewing stroke and occlusion becomes less consistent and more random. The R value will be lower if occlusion is going in all directions without the crests for guidance (Ungar, personal communication, 1997). As demonstrated in the Averbuch sample, the more teeth are worn, (as in the older age groups) the more random are the striations.

**Table 9: ANOVA: Sex by Age; R, ORIENT\_M, LENGTH, and BREADTH**

| <b>Between - Subjects Factors</b> |        |      |     |         |         |     |
|-----------------------------------|--------|------|-----|---------|---------|-----|
|                                   | Female | Male | <20 | 20 - 29 | 30 - 39 | 40+ |
| Number                            | 26     | 29   | 13  | 16      | 14      | 12  |

**Table 10: ANOVA: R; Sex by Age**

| <b>Tests of Between - Subjects Factors</b> |                               |        |                |         |      |                       |                   |
|--------------------------------------------|-------------------------------|--------|----------------|---------|------|-----------------------|-------------------|
| Effect                                     | Type III<br>Sum of<br>Squares | df     | Mean<br>Square | F       | Sig. | Noncent.<br>Parameter | Observed<br>Power |
| Corrected<br>Model                         | .505                          | 7.000  | 7.219E-02      | 2.501   | .029 | 17.507                | .825              |
| Intercept                                  | 7.005                         | 1.000  | 7.005          | 242.700 | .000 | 242.700               | 1.000             |
| Sex                                        | 1.624E-03                     | 1.000  | 1.624E-03      | .056    | .814 | .056                  | .056              |
| Age                                        | .468                          | 3.000  | .156           | 5.408   | .003 | 16.223                | .915              |
| Sex by Age                                 | 3.827E-02                     | 3.000  | 1.276E-02      | .442    | .724 | 1.326                 | .132              |
| Error                                      | 1.357                         | 47.000 | 2.886E-02      |         |      |                       |                   |
| Total                                      | 9.025                         | 55.000 |                |         |      |                       |                   |
| Corrected<br>Total                         | 1.862                         | 54.000 |                |         |      |                       |                   |



**Table 11: Post Hoc Tests for Age; Dependent Variable: R**

| <b>Bonferroni Multiple Comparisons</b> |         |                             |                |              |                         |             |
|----------------------------------------|---------|-----------------------------|----------------|--------------|-------------------------|-------------|
| Age (I)                                | Age (J) | Mean<br>Difference<br>(I-J) | Standard Error | Significance | 95% Confidence Interval |             |
|                                        |         |                             |                |              | Lower Bound             | Upper Bound |
| <20                                    | 20 - 29 | .1191                       | .063           | .400         | -6.48E-02               | .3030       |
|                                        | 30 - 39 | .2142                       | .065           | .012         | 2.447E-02               | .4039       |
|                                        | 40+     | .2423                       | .068           | .005         | 4.506E-02               | .4395       |
| 20 - 29                                | <20     | -.1991                      | .063           | .400         | -.3030                  | 6.483E-02   |
|                                        | 30 - 39 | 9.510E-02                   | .062           | .797         | -8.52E-02               | .2754       |
|                                        | 40+     | .1231                       | .065           | .383         | -6.50E-02               | .3113       |
| 30 - 39                                | <20     | -.2142                      | .065           | .012         | -.4039                  | -.245E-02   |
|                                        | 20 - 29 | -9.51E-02                   | .062           | .797         | -.2754                  | 8.518E-02   |
|                                        | 40+     | 2.805E-02                   | .067           | 1.000        | -.1657                  | .1657       |
| 40+                                    | <20     | -.2423                      | .068           | .005         | -.4395                  | -4.51E-02   |
|                                        | 20 - 29 | -.1231                      | .065           | .383         | -.3113                  | 6.497E-02   |
|                                        | 30 - 39 | -2.80E-02                   | .067           | 1.000        | -.2218                  | .1657       |

**Table 12: Summary Statistics for R by Age**

| Descriptive Statistics |       |         |         |       |
|------------------------|-------|---------|---------|-------|
|                        | <20   | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 13    | 16      | 14      | 12    |
| Minimum                | .28   | .13     | .09     | .04   |
| Maximum                | .73   | .79     | .66     | .48   |
| Mean                   | .5029 | .3838   | .2887   | .2607 |
| Standard Deviation     | .1327 | .2068   | .1785   | .1090 |

**Table 13: Summary Statistics for R by Sex**

| Descriptive Statistics |       |        |
|------------------------|-------|--------|
|                        | Male  | Female |
| Number                 | 29    | 26     |
| Minimum                | .04   | .09    |
| Maximum                | .79   | .70    |
| Mean                   | .3489 | .3743  |
| Standard Deviation     | .1947 | .1779  |

**Table 14: Summary Statistics for R by Sex and Age**

| Descriptive Statistics |       |         |         |       |        |         |         |       |
|------------------------|-------|---------|---------|-------|--------|---------|---------|-------|
|                        | Male  |         |         |       | Female |         |         |       |
|                        | <20   | 20 - 29 | 30 - 39 | 40+   | <20    | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 6     | 9       | 7       | 7     | 7      | 7       | 7       | 5     |
| Minimum                | .36   | .13     | .13     | .04   | .28    | .13     | .09     | .18   |
| Maximum                | .73   | .79     | .66     | .48   | .68    | .70     | .57     | .33   |
| Mean                   | .5320 | .3449   | .2910   | .2550 | .4780  | .4339   | .2864   | .2686 |
| Standard Deviation     | .1349 | .2086   | .1908   | .1401 | .1361  | .2091   | .1805   | .5604 |

The results of the second ANOVA procedure for the dependent variable ORIENT\_M (Tables 15 and 16) indicated a significant interaction between the 30 - 39 age group and 40+ age group for orientation slope of the feature main axis. When viewing the data in Tables 17, 18, & 19, 180 represents a horizontal line and 90 refers to a straight up and down vertical line, perpendicular to 180. The implication of this age variance shows the directionality of the orientation of the features. The mean of the 30 - 39 age group is 56.1021 degrees as opposed to the 40+ age group with a orientation mean of 104.8150 degrees. The divergence in orientation mean also results from the increased wear of teeth experienced by people as they age. The reasons for the difference observed in the R value are also true for the difference in orientation mean.

The last two ANOVAS tested for feature length (LENGTH) and feature breadth (BREADTH) by sex and by age (see Tables 9, 20, & 21). The results did not show any significant differences.

**Table 15: ANOVA: Orientation (ORIENT\_M); Sex by Age**

| Tests of Between - Subjects Factors |                               |    |                |         |      |                       |                   |
|-------------------------------------|-------------------------------|----|----------------|---------|------|-----------------------|-------------------|
| Effect                              | Type III<br>Sum of<br>Squares | df | Mean<br>Square | F       | Sig. | Noncent.<br>Parameter | Observed<br>Power |
| Corrected<br>Model                  | .505                          | 7  | 7.219E-02      | 2.501   | .029 | 17.507                | .825              |
| Intercept                           | 7.005                         | 1  | 7.005          | 242.700 | .000 | 242.700               | 1.000             |
| Sex                                 | 1.6242E-03                    | 1  | 1.624E-03      | .056    | .814 | .056                  | .056              |
| Age                                 | .468                          | 3  | .156           | 5.408   | .003 | 16.223                | .915              |
| Sex by Age                          | 3.827E-02                     | 3  | 1.276E-02      | .442    | .724 | 1.326                 | .132              |
| Error                               | 1.357                         | 47 | 2.886E-02      |         |      |                       |                   |
| Total                               | 9.025                         | 55 |                |         |      |                       |                   |
| Corrected<br>Total                  | 1.862                         | 54 |                |         |      |                       |                   |

**Table 16: Post Hoc Tests for Age; Dependent Variable: ORIENT\_M**

| Bonferroni Multiple Comparisons |         |                             |                |              |                         |             |
|---------------------------------|---------|-----------------------------|----------------|--------------|-------------------------|-------------|
| Age (I)                         | Age (J) | Mean<br>Difference<br>(I-J) | Standard Error | Significance | 95% Confidence Interval |             |
|                                 |         |                             |                |              | Lower Bound             | Upper Bound |
| <20                             | 20 - 29 | -14.7101                    | 13.846         | 1.000        | -52.8486                | 23.4283     |
|                                 | 30 - 29 | 15.5771                     | 14.282         | 1.000        | -24.7636                | 53.9177     |
|                                 | 40+     | -.34.1358                   | 14.844         | .156         | -75.0244                | 6.7529      |
| 20 - 29                         | <20     | 14.7101                     | 13.846         | 1.000        | -23.4283                | 52.8486     |
|                                 | 30 - 39 | 29.2872                     | 13.570         | .216         | -8.0921                 | 66.6666     |
|                                 | 40+     | -19.4256                    | 14.160         | 1.000        | -58.4309                | 19.5797     |
| 30 - 39                         | <20     | -14.5771                    | 14.282         | 1.000        | -53.9177                | 24.7636     |
|                                 | 20 - 29 | -29.2872                    | 13.570         | .216         | -66.6666                | 8.0921      |
|                                 | 40+     | -48.7129*                   | 14.587         | .010         | -88.8945                | -8.5313     |
| 40+                             | <20     | 34.1358                     | 14.844         | .156         | -6.7529                 | 75.0244     |
|                                 | 20 - 29 | 19.4256                     | 14.160         | 1.000        | -19.5797                | 58.4309     |
|                                 | 30 - 39 | 48.7129*                    | 14.587         | .010         | 8.5313                  | 88.8945     |

\* The mean difference is significant at the .05 level.

**Table 17: Summary Statistics for Orientation (ORIENT\_M) by Age**

| Descriptive Statistics |         |         |         |          |
|------------------------|---------|---------|---------|----------|
|                        | <20     | 20 - 29 | 30 - 39 | 40+      |
| Number                 | 13      | 16      | 14      | 12       |
| Minimum                | 30.44   | 3.91    | 1.99    | 35.70    |
| Maximum                | 118.99  | 166.57  | 100.72  | 176.82   |
| Mean                   | 70.6792 | 85.3894 | 56.1021 | 104.8150 |
| Standard Deviation     | 24.9616 | 42.5402 | 32.0281 | 43.0575  |

**Table 18: Summary Statistics for Orientation (ORIENT\_M) by Sex**

| Descriptive Statistics |         |         |
|------------------------|---------|---------|
|                        | Male    | Female  |
| Number                 | 29      | 26      |
| Minimum                | 3.91    | 1.99    |
| Maximum                | 176.82  | 166.57  |
| Mean                   | 74.9614 | 82.8612 |
| Standard Deviation     | 42.0945 | 37.2913 |

**Table 19: Summary Statistics for Orientation (ORIENT\_M) by Sex and Age**

| Descriptive Statistics |         |         |         |         |         |         |            |         |
|------------------------|---------|---------|---------|---------|---------|---------|------------|---------|
|                        | Male    |         |         |         | Female  |         |            |         |
|                        | <20     | 20 - 29 | 30 - 39 | 40+     | <20     | 20 - 29 | 30 - 39    | 40+     |
| Number                 | 6       | 9       | 7       | 7       | 7       | 7       | 7          | 5       |
| Minimum                | 30.44   | 3.91    | 13.19   | 35.70   | 49.28   | 62.48   | 1.99       | 82.64   |
| Maximum                | 118.99  | 164.85  | 88.48   | 176.82  | 106.98  | 166.57  | 100.<br>72 | 149.81  |
| Mean                   | 69.3550 | 72.6289 | 57.38   | 100.347 | 71.8143 | 101.795 | 54.8243    | 111.070 |
| Standard Deviation     | 30.0683 | 47.0427 | 29.1887 | 50.6059 | 22.1243 | 31.8622 | 36.97      | 34.2503 |



**Table 20: ANOVA: LENGTH; Sex by Age**

| Tests of Between - Subjects Factors |                               |    |                |          |      |                       |                   |
|-------------------------------------|-------------------------------|----|----------------|----------|------|-----------------------|-------------------|
| Effect                              | Type III<br>Sum of<br>Squares | df | Mean<br>Square | F        | Sig. | Noncent.<br>Parameter | Observed<br>Power |
| Corrected<br>Model                  | 141.408                       | 7  | 20.201         | 2.189    | .052 | 15.325                | .761              |
| Intercept                           | 15409.418                     | 1  | 15409.418      | 1670.011 | .000 | 1670.011              | 1.000             |
| Sex                                 | 23.699                        | 1  | 23.699         | 2.568    | .116 | 2.568                 | .348              |
| Age                                 | 65.884                        | 3  | 21.961         | 2.380    | .082 | 7.140                 | .560              |
| Sex by Age                          | 58.166                        | 3  | 19.389         | 2.101    | .113 | 6.304                 | .503              |
| Error                               | 433.675                       | 47 | 9.227          |          |      |                       |                   |
| Total                               | 16404.022                     | 55 |                |          |      |                       |                   |
| Corrected<br>Total                  | 575.083                       | 54 |                |          |      |                       |                   |

**Table 21: ANOVA: BREADTH; Sex by Age**

| Tests of Between - Subjects Factors |                               |    |                |          |      |                       |                   |
|-------------------------------------|-------------------------------|----|----------------|----------|------|-----------------------|-------------------|
| Effect                              | Type III<br>Sum of<br>Squares | df | Mean<br>Square | F        | Sig. | Noncent.<br>Parameter | Observed<br>Power |
| Corrected<br>Model                  | .419                          | 7  | 5.986E-02      | .294     | .953 | 2.061                 | .127              |
| Intercept                           | 331.144                       | 1  | 331.114        | 1628.676 | .000 | 1628.676              | 1.000             |
| Sex                                 | .166                          | 1  | .166           | .814     | .372 | .814                  | .143              |
| Age                                 | .207                          | 3  | 6.916E-02      | .340     | .796 | 1.020                 | .111              |
| Sex by Age                          | 3.165E-02                     | 3  | 1.055E-02      | .052     | .984 | .156                  | .059              |
| Error                               | 9.556                         | 47 | .203           |          |      |                       |                   |
| Total                               | 350.060                       | 55 |                |          |      |                       |                   |
| Corrected<br>Total                  | 9.975                         | 54 |                |          |      |                       |                   |

I was hoping that the results of the ANOVA for feature breadth showed some significant differences as I wanted to test the relationship between feature breadth (BREADTH) and feature orientation (ORIENT\_M) as suggested by Maas (1991). She proposed that scratch width was affected by the orientation of the shearing stroke relative to enamel prisms and crystallites on mammal molars rather than size of the food fragment (Maas, 1991).

Tables of the descriptive summary statistics of the non-transformed variables follow on the next eight pages (Tables 22 - 45). Discussion of these summary statistics is moot as there are no significance differences among the treatments. However, it is interesting to contemplate how large the standard deviation is in most descriptions. The range of numbers for pits and scratch tallies are broad. In the <20 age category, the minimum number of pits on any one tooth is 2; the maximum is 55. In the 20 - 29 age group, the minimum number of pits is 7; the maximum 66. In the 30- 39 age group, the minimum number of pits for any given tooth is 8, the maximum is 50; and in the 40+ age group, the minimum number of pits is 2; the maximum is 110. When considering the gender issue, the average number of pits on female teeth is 20.6 with a standard deviation of 13.9. The average number of pits on male teeth is 26.6, with a standard deviation of 22.2.

**Table 22: Summary Statistics for Pits (PITS) by Age**

| Descriptive Statistics |         |         |         |         |
|------------------------|---------|---------|---------|---------|
|                        | <20     | 20 - 29 | 30 - 39 | 40+     |
| Number                 | 13      | 16      | 14      | 12      |
| Minimum                | 2.00    | 7.00    | 8.00    | 2.00    |
| Maximum                | 55.00   | 66.00   | 50.00   | 110.00  |
| Mean                   | 16.8462 | 20.0625 | 26.4286 | 33.0833 |
| Standard Deviation     | 14.0110 | 15.3426 | 12.8225 | 28.7764 |

**Table 23: Summary Statistics for Pits (PITS) by Sex**

| Descriptive Statistics |         |         |
|------------------------|---------|---------|
|                        | Male    | Female  |
| Number                 | 29      | 26      |
| Minimum                | 6.00    | 2.00    |
| Maximum                | 110.00  | 55.00   |
| Mean                   | 26.6207 | 20.5769 |
| Standard Deviation     | 22.1560 | 13.9576 |

**Table 24: Summary Statistics for Pits (PITS) by Sex and Age**

| Descriptive Statistics |        |         |         |         |        |         |         |        |
|------------------------|--------|---------|---------|---------|--------|---------|---------|--------|
|                        | Male   |         |         |         | Female |         |         |        |
|                        | <20    | 20 - 29 | 30 - 39 | 40+     | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 6      | 9       | 7       | 7       | 7      | 7       | 7       | 5      |
| Minimum                | 6.00   | 7.00    | 8.00    | 15.00   | 2.00   | 8.00    | 10.00   | 2.00   |
| Maximum                | 22.00  | 66.00   | 48.00   | 110.00  | 55.00  | 35.00   | 50.00   | 32.00  |
| Mean                   | 12.5   | 21.8889 | 26.5714 | 44.8571 | 20.571 | 17.714  | 26.286  | 16.600 |
| Standard Deviation     | 7.0922 | 18.8841 | 12.4212 | 31.5934 | 17.765 | 10.078  | 14.209  | 14.064 |

**Table 25: Summary Statistics for Scratches (SCRTCHS) by Age**

| Descriptive Statistics |         |         |         |         |
|------------------------|---------|---------|---------|---------|
|                        | <20     | 20 - 29 | 30 - 39 | 40+     |
| Number                 | 13      | 16      | 14      | 12      |
| Minimum                | 13.00   | 11.00   | 25.00   | 11.00   |
| Maximum                | 77.00   | 102.00  | 88.00   | 115.00  |
| Mean                   | 54.2308 | 56.4375 | 52.7857 | 48.8333 |
| Standard Deviation     | 20.0672 | 23.9471 | 22.3475 | 28.3287 |

**Table 26: Summary Statistics for Scratches (SCRTCHS) by Sex**

| Descriptive Statistics |         |         |
|------------------------|---------|---------|
|                        | Male    | Female  |
| Number                 | 29      | 26      |
| Minimum                | 17.00   | 11.00   |
| Maximum                | 115.00  | 102.00  |
| Mean                   | 54.5517 | 51.9615 |
| Standard Deviation     | 21.6755 | 25.2341 |

**Table 27: Summary Statistics for Scratches (SCRTCHS) by Sex and Age**

| Descriptive Statistics |         |         |         |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                        | Male    |         |         |         | Female  |         |         |         |
|                        | <20     | 20 - 29 | 30 - 39 | 40+     | <20     | 20 - 29 | 30 - 39 | 40+     |
| Number                 | 6       | 9       | 7       | 7       | 7       | 7       | 7       | 5       |
| Minimum                | 24.00   | 17.00   | 26.00   | 23.00   | 13.00   | 11.00   | 25.00   | 11.00   |
| Maximum                | 77.00   | 72.00   | 88.00   | 115.00  | 75.00   | 102.00  | 78.00   | 85.00   |
| Mean                   | 54.6667 | 51.6667 | 58.5714 | 54.1429 | 53.8571 | 62.5714 | 47.0000 | 41.4000 |
| Standard Deviation     | 17.6711 | 17.8955 | 24.2133 | 29.7905 | 23.3412 | 30.4733 | 20.4369 | 27.5191 |

**Table 28: Summary Statistics for Percentage Pits (PCPITS) by Age**

| Descriptive Statistics |       |         |         |       |
|------------------------|-------|---------|---------|-------|
|                        | <20   | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 13    | 16      | 14      | 12    |
| Minimum                | .03   | .08     | .08     | .15   |
| Maximum                | .81   | .80     | .56     | .64   |
| Mean                   | .2471 | .2534   | .3783   | .3614 |
| Standard Deviation     | .2094 | .1719   | .1487   | .1573 |

**Table 29: Summary Statistics for Percentage Pits (PCPITS) by Sex**

| Descriptive Statistics |       |        |
|------------------------|-------|--------|
|                        | Male  | Female |
| Number                 | 29    | 26     |
| Minimum                | .08   | .03    |
| Maximum                | .80   | .81    |
| Mean                   | .3154 | .2821  |
| Standard Deviation     | .1811 | .1725  |

**Table 30: Summary Statistics for Percentage Pits (PCPITS) by Sex and Age**

| Descriptive Statistics |       |         |         |       |        |         |         |       |
|------------------------|-------|---------|---------|-------|--------|---------|---------|-------|
|                        | Male  |         |         |       | Female |         |         |       |
|                        | <20   | 20 - 29 | 30 - 39 | 40+   | <20    | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 6     | 9       | 7       | 7     | 7      | 7       | 7       | 5     |
| Minimum                | .10   | .12     | .08     | .25   | .03    | .08     | .14     | .15   |
| Maximum                | .47   | .80     | .49     | .64   | .81    | .34     | .56     | .46   |
| Mean                   | .1995 | .2839   | .3322   | .4383 | .2880  | .2143   | .3643   | .2537 |
| Standard Deviation     | .1432 | .2117   | .1585   | .1353 | .2576  | .1045   | .1490   | .1255 |



**Table 31: Summary Statistics for Percentage Scratches (PCSCRTCH) by Age**

| Descriptive Statistics |       |         |         |       |
|------------------------|-------|---------|---------|-------|
|                        | <20   | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 13    | 16      | 14      | 12    |
| Minimum                | .19   | .19     | .44     | .36   |
| Maximum                | .97   | .92     | .92     | .85   |
| Mean                   | .7529 | .7121   | .6517   | .6386 |
| Standard Deviation     | .2094 | .2212   | .1487   | .1573 |

**Table 32: Summary Statistics for Percentage Scratches (PCSCRTCH) by Sex**

| Descriptive Statistics |       |        |
|------------------------|-------|--------|
|                        | Male  | Female |
| Number                 | 29    | 26     |
| Minimum                | .20   | .19    |
| Maximum                | .92   | .97    |
| Mean                   | .6846 | .6967  |
| Standard Deviation     | .1811 | .2011  |

**Table 33: Summary Statistics for Percentage Scratch (PCSCRTCH) by Sex and Age**

| Descriptive Statistics |       |         |         |       |        |         |         |       |
|------------------------|-------|---------|---------|-------|--------|---------|---------|-------|
|                        | Male  |         |         |       | Female |         |         |       |
|                        | <20   | 20 - 29 | 30 - 39 | 40+   | <20    | 20 - 29 | 30 - 39 | 40+   |
| Number                 | 6     | 9       | 7       | 7     | 7      | 7       | 7       | 5     |
| Minimum                | .53   | .20     | .51     | .36   | .19    | .19     | .44     | .54   |
| Maximum                | .90   | .88     | .92     | .75   | .97    | .92     | .86     | .85   |
| Mean                   | .8005 | .7161   | .6678   | .5617 | .7120  | .7069   | .6357   | .7463 |
| Standard Deviation     | .1432 | .2117   | .1585   | .1353 | .2576  | .2501   | .1490   | .1255 |

**Table 34: Summary Statistics for Pit Length (PITL\_M) by Age**

| Descriptive Statistics |        |         |         |        |
|------------------------|--------|---------|---------|--------|
|                        | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 13     | 16      | 14      | 12     |
| Minimum                | 4.06   | 3.32    | 3.51    | 4.03   |
| Maximum                | 10.40  | 11.42   | 9.68    | 7.48   |
| Mean                   | 6.2900 | 6.4031  | 5.6093  | 5.5083 |
| Standard Deviation     | 1.9945 | 2.1941  | 1.9307  | 1.0733 |

**Table 35: Summary Statistics for Pit Length (PITL\_M-M) by Sex**

| Descriptive Statistics |        |        |
|------------------------|--------|--------|
|                        | Male   | Female |
| Number                 | 29     | 26     |
| Minimum                | 3.32   | 3.51   |
| Maximum                | 11.42  | 9.68   |
| Mean                   | 6.0234 | 5.9296 |
| Standard Deviation     | 1.9829 | 1.7840 |

**Table 36: Summary Statistics for Pit Length (PITL\_M-M) by Sex and Age**

| Descriptive Statistics |        |         |         |        |        |         |         |        |
|------------------------|--------|---------|---------|--------|--------|---------|---------|--------|
|                        | Male   |         |         |        | Female |         |         |        |
|                        | <20    | 20 - 29 | 30 - 39 | 40+    | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 6      | 9       | 7       | 7      | 7      | 7       | 7       | 5      |
| Minimum                | 4.34   | 3.32    | 4.38    | 4.03   | 4.06   | 3.76    | 3.51    | 4.92   |
| Maximum                | 10.40  | 11.42   | 8.56    | 6.80   | 8.69   | 8.43    | 9.68    | 7.48   |
| Mean                   | 6.5483 | 6.5989  | 5.8029  | 5.0543 | 6.0686 | 6.1514  | 5.4157  | 6.140  |
| Standard Deviation     | 2.2663 | 2.6102  | 1.5155  | .8738  | 1.8848 | 1.6790  | 2.3857  | 1.0757 |

**Table 37: Summary Statistics for Pit Width (PITW\_M) by Age**

| Descriptive Statistics |        |         |         |        |
|------------------------|--------|---------|---------|--------|
|                        | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 13     | 16      | 14      | 12     |
| Minimum                | 1.94   | 1.91    | 1.93    | 2.15   |
| Maximum                | 5.02   | 4.97    | 4.16    | 3.75   |
| Mean                   | 3.0092 | 3.1006  | 2.8293  | 2.9792 |
| Standard Deviation     | .8159  | .7589   | .7233   | .4453  |

**Table 38: Summary Statistics for Pit Width (PITW\_M) by Sex**

| Descriptive Statistics |        |        |
|------------------------|--------|--------|
|                        | Male   | Female |
| Number                 | 29     | 26     |
| Minimum                | 1.91   | 1.93   |
| Maximum                | 5.02   | 4.16   |
| Mean                   | 3.0066 | 2.9577 |
| Standard Deviation     | .6917  | .7139  |

**Table 39: Summary Statistics for Pit Width (PITW\_M) by Sex and Age**

| Descriptive Statistics |        |         |         |        |        |         |         |        |
|------------------------|--------|---------|---------|--------|--------|---------|---------|--------|
|                        | Male   |         |         |        | Female |         |         |        |
|                        | <20    | 20 - 29 | 30 - 39 | 40+    | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 6      | 9       | 7       | 7      | 7      | 7       | 7       | 5      |
| Minimum                | 2.17   | 1.91    | 2.18    | 2.36   | 1.94   | 2.34    | 1.93    | 2.15   |
| Maximum                | 5.02   | 4.97    | 3.90    | 3.14   | 3.83   | 4.05    | 4.16    | 3.75   |
| Mean                   | 3.1500 | 3.0689  | 2.9314  | 2.8756 | 2.8886 | 3.1414  | 2.7271  | 3.1200 |
| Standard Deviation     | .9881  | .8650   | .5332   | .2911  | .6934  | .6624   | .9083   | .6129  |

**Table 40: Summary Statistics for Scratch Length (SCRTL\_M) by Age**

| Descriptive Statistics |         |         |         |         |
|------------------------|---------|---------|---------|---------|
|                        | <20     | 20 - 29 | 30 - 39 | 40+     |
| Number                 | 13      | 16      | 14      | 12      |
| Minimum                | 11.31   | 17.21   | 18.65   | 21.02   |
| Maximum                | 36.99   | 45.89   | 40.49   | 33.53   |
| Mean                   | 28.5869 | 30.1825 | 25.7786 | 26.8175 |
| Standard Deviation     | 6.2168  | 7.3246  | 6.2573  | 4.1230  |

**Table 41: Summary Statistics for Scratch Length (SCRTL\_M) by Sex**

| Descriptive Statistics |         |         |
|------------------------|---------|---------|
|                        | Male    | Female  |
| Number                 | 29      | 26      |
| Minimum                | 17.21   | 11.31   |
| Maximum                | 45.89   | 40.04   |
| Mean                   | 29.1121 | 26.6542 |
| Standard Deviation     | 6.2039  | 6.2304  |

**Table 42: Summary Statistics for Scratch Length (SCRTL\_M) by Sex and Age**

| Descriptive Statistics |         |         |         |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                        | Male    |         |         |         | Female  |         |         |         |
|                        | <20     | 20 - 29 | 30 - 39 | 40+     | <20     | 20 - 29 | 30 - 39 | 40+     |
| Number                 | 6       | 9       | 7       | 7       | 7       | 7       | 7       | 5       |
| Minimum                | 27.39   | 17.21   | 22.71   | 21.02   | 11.31   | 24.86   | 18.65   | 22.88   |
| Maximum                | 36.99   | 45.89   | 40.49   | 33.53   | 34.46   | 40.04   | 32.82   | 29.86   |
| Mean                   | 31.3317 | 28.84   | 29.2886 | 27.3829 | 26.2343 | 31.9086 | 22.2686 | 26.0260 |
| Standard Deviation     | 3.1611  | 8.9187  | 5.7032  | 4.9133  | 7.4147  | 4.6786  | 4.8540  | 3.0321  |



**Table 43: Summary Statistics for Scratch Breadth (SCRTB\_M) by Age**

| Descriptive Statistics |        |         |         |        |
|------------------------|--------|---------|---------|--------|
|                        | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 13     | 16      | 14      | 12     |
| Minimum                | 1.47   | 1.09    | 1.41    | 1.28   |
| Maximum                | 2.60   | 2.85    | 2.52    | 2.39   |
| Mean                   | 1.9477 | 2.0275  | 1.9564  | 2.0242 |
| Standard Deviation     | .3616  | .4092   | .3772   | .3207  |

**Table 44: Summary Statistics for Scratch Breadth (SCRTB\_M) by Sex**

| Descriptive Statistics |        |        |
|------------------------|--------|--------|
|                        | Male   | Female |
| Number                 | 29     | 26     |
| Minimum                | 1.09   | 1.28   |
| Maximum                | 2.85   | 2.48   |
| Mean                   | 2.0766 | 1.8931 |
| Standard Deviation     | .3884  | .3132  |

**Table 45: Summary Statistics for Scratch Breadth (SCRTB\_M) by Sex and Age**

| Descriptive Statistics |        |         |         |        |        |         |         |        |
|------------------------|--------|---------|---------|--------|--------|---------|---------|--------|
|                        | Male   |         |         |        | Female |         |         |        |
|                        | <20    | 20 - 29 | 30 - 39 | 40+    | <20    | 20 - 29 | 30 - 39 | 40+    |
| Number                 | 6      | 9       | 7       | 7      | 7      | 7       | 7       | 5      |
| Minimum                | 1.47   | 1.09    | 1.43    | 2.02   | 1.50   | 1.7     | 1.41    | 1.28   |
| Maximum                | 2.6    | 2.85    | 2.52    | 2.39   | 2.34   | 2.19    | 2.48    | 2.20   |
| Mean                   | 2.0133 | 2.2144  | 1.9643  | 2.1814 | 1.8914 | 1.9029  | 1.9486  | 1.8040 |
| Standard Deviation     | .4345  | .5144   | .3784   | .1248  | .3100  | .1833   | .4062   | .3944  |

Whenever an experiment is performed or study conducted there is the need to consider power, the ability to reject the null hypothesis when it is false. Generally, power depends on the magnitude of the true differences and sample sizes. If true differences exist and are very large, then a small sample should detect those differences. If, however, the true differences are small, it is important to have large samples to detect those differences. Then the amount to consider in your sample is depended on power analysis (Norusis, 1994). There are three cautions for the results experienced in the analysis: 1) Tests for Normality, 2) equal variance assumption has to be considered, and 3) the power argument. The tests for normality transformed the data into a normal distribution; however, the pit and scratch tallies (frequencies) were not normally distributed prior to or after transformation. The equal variance assumption implies that within each variable the variance is equal between the means. The power argument implied that the amount used for the sample was not great enough to show any differences. In my analysis, I showed statistically there were no significant differences among any of the variables across any of the factors. Did the acceptance of the null hypothesis result from the size of the sample? Was the sample not large enough or were there no differences because differences did not exist? This question will be discussed in the next chapter.

Since the statistics failed to reveal any significant comparisons among any of the tested data, I was forced to accept the null hypothesis: there are no sex differences in dental microwear patterning in the Averbuch population; there are no age differences in dental microwear patterning; there are no dietary differences among the ages indicated by microwear and there are no intra or inter cemetery differences in diet relating to sex and/or



age. There is no consistency of dental microwear patterning and feature dimension within the population at Averbuch.

Despite the lack of statistically significant differences in the tooth sample, there are some interesting visual features on the teeth that warrant some discussion here.

Since pits result from the compression of the enamel due to the grinding/compression force of the jaw on some hard object; e.g. nuts or stone fragments as a result of food preparation, the assumption must be those foods were not ingested by individuals whose teeth showed very little or no pitting. All the Averbuch teeth had some pits. The teeth with the least amount of pits were numbers 31 and 57, each of which had two pits (Please refer to the Micrographs in APPENDIX D). Other teeth which had very few pits are teeth number 11, 21, 31, 54, 58, and 64. Teeth with many pits are 3 (pit tally=3) and 41 (pit tally=110). Pits which have a value of "0" in the Minor Axis Column in the Raw Data by Teeth (APPENDIX F) are so small that the slope could not be calculated (Ungar, personal communication, 1997).

Stippling and honeycombed effects seen on some of the micrographs (29, 36, 37) are the ends of the enamel rods (Marks, personal communication, 1997; Ungar, personal communication, 1997). The ends of the enamel rods furnish the appearance of honeycombs. Usually found in older individuals, this stippling appearance may mark the beginning degradation of the enamel in older individuals. The illustrative micrographs (29, 36, 37) are derived from individuals in the 40+ age group.

Hinton (1982) says that crisscrossed patterning of scratches (see micrographs 23, 30, 42, 59) with newer scratches being laid down effacing the older scratches, is due to the

mastication biomechanics by teeth with reduced cusp height. This reduced and worn down cusp height resulted from a diet of nuts, seeds, and wild animals in archaic Tennessee Valley Indians (Hinton, 1982). The Averbuch sample also has evidence of crisscross scratching on some of the teeth. However these examples come from individuals less than 20 years of age (see micrographs 25 and 49). Floral and faunal analysis provides evidence that the inhabitants of Averbuch also ate nuts, seeds, and wild animals, but not exclusively.

Visually, the teeth of Averbuch showed a multitude and various collection of striations, polishing, pits, and striation margin morphology. Broad and deep scratches, fine and thin scratches, and big and small pits were all seen on at least some of the teeth. Margins of the features were blunt, others were sharp and well defined. Features on some teeth looked dull and faint, other looked like they had been formed immediately prior to death. However, none of these qualitative features were characteristic of any one age group, cemetery or gender, and any difference seen on one tooth to another is insignificant.

In the next chapter, I will discuss the results of these statistical analyses and how they relate to other data from other prehistoric human microwear studies. Finally I will discuss how the analytical results of Averbuch fit into the larger picture of the Mississippian culture.

## CHAPTER SIX - Discussion

The results presented by this study indicate that the adult Averbuch inhabitants did differ in the dental microwear patterning of pits and scratches on their second mandibular molars, but that the difference is not patterned by cemetery, sex, or age.

If the statistical analysis had given different results, I would have focused on the interpretation of those differences as well as any large qualifiable differences. Hence, I was unable to combine the microwear evidence with the floral and faunal analysis to prove conclusively differences in diet and food processing other than to make a generalization - the complexity of the Averbuch diet left a complex set of dental microwear patterning.

In spite of the disappointing results, I was not totally surprised by them. In reality, I would have been more surprised to see that differences existed among the teeth from all cemeteries. Since the site had been occupied for less than 100 years, the time span was too short to see a difference in microwear patterning. The subsistence regime and food preparation would not have changed that drastically over such a short span of time to make a difference in the dental microwear patterning.

The only significant variations found in the Averbuch sample, i. e., R and Orientation Mean, were not surprising and should have been expected. Visual examination of the sample teeth, exhibited that the teeth in the older age groups were more worn than the teeth in the younger groups. Crests and cusps had been worn so that they were no longer capable of guiding the teeth during mastication; hence the haphazard more random striations of the microwear features.

By contrast, Pastor (1993) found that the second mandibular molar tooth in his prehistoric human samples from India appeared to be a key tooth because most of the significant differences occurred on that tooth. A greater pit density was recorded on female molars than male molars. He discovered that pits are larger on female second molars than male second molars in his Harappa and Mehrgarh samples. He found both quantitative and qualitative differences for the second mandibular molar using scanning electron microscopy. His sample consisted of two males and two females for a total of four teeth. In my sample, I had 26 females and 29 males and found no gender differences. There are two possible scenarios to consider for the lack of difference: 1) the sample was too small or 2) there are not any intra-population differences between the sexes in regards to diet.

In the following discussion I will demonstrate that the lack of difference and the conformity of the patterning is due to intraspecific uniformity. The microwear patterning at Averbuch is many-sided but that variability extends across all age groups, throughout all three cemeteries and between the sexes. Not one specific patterning is seen on any group of individuals at Averbuch. Both sexes and all age groups from all three cemeteries exhibit all features and not any one feature distinction is dominant in any age group, cemetery or sex.

The lack of quantifiable differences in the measures provides evidence that horticulturally grown food as well as wild food was ingested by the inhabitants of Averbuch. Their diverse microwear patterning not only relates to adaptation in diet between agrarian and hunting methods for food but also to methods of food preparation.



Comparisons between this study and other prehistoric samples are not fully compatible. First, all previously published reports dealing with prehistoric teeth data used different microscope technology. The teeth in the other reports had been, cast, coated, or cast and coated and scanned with a non-SEM. I was fortunate to have access to an environmental SEM which did not require me to make casts or the teeth or to have them coated. What difference the microscope technology plays in revealing microwear features is not yet fully understood. In the opinion of experts, teeth scanned in an environmental SEM show a more clear and true picture of the tooth's occlusal surface (Dr. David Joy, personal communication). As the teeth used in this sample were uncast and uncoated, their appearance probably differs slightly from other published data of scanned teeth from prehistoric human samples. One way to test the effect technology plays in dental microwear analysis would be to compare measurements from two micrographs of the same tooth facet taken with two different instruments. Using an environmental scanning electron microscope, one micrograph would be taken of a particular tooth facet which had not been cast or coated. Features could be delineated and measured. Those measurements subsequently could be compared to another micrograph of the same tooth facet which had been cast and coated and taken by a non-environmental scanning electron microscope. By counting and comparing the features and measurements the possibility might exist to determine if there were any quantifiable differences in scanning electron microscopy for dental microwear analysis. Research of this kind would be very tedious and almost insurmountable to accomplish. While access to electron microscopy is costly and arduous,

researchers would need access to two different types of scanning electron microscopes and would have to locate and measure the exact positions and features on each tooth.

Second, I was not able to make the definitive pronouncement of what is the Averbuch dental microwear pattern. Without having that uniform pattern, comparisons to other sites are ineffectual.

Since the mesiolingual cusps tips were used for measurement and analysis, I was not too surprised to see that there were no consistent patterns. Cusp tips and crushing facets on the molar teeth should be expected to show much more feature variation in size, shape, and orientation simply because of the manner of movement of the teeth: e.g., puncturing, crushing, and chewing (Teaford, 1988a).

Another fact which should be taken into consideration when evaluating the lack of consistent patterning differences is the differences between facets of one species are far less deviate than those between homologous facets of different species (Teaford and Walker, 1984).

Gordon (1984b) stated that microwear patterning may change dramatically from tooth to tooth, and even facet to facet on the same tooth. If molar position, facet type, and dental age, are controlled for quantitative analysis then the diversity seen by normal variation within the group is irrelevant in questions relating to diet. As this research project was a controlled experiment, internally consistent, and without interobserver error, the conclusion must be that the variation of microwear patterning within the Averbuch population was wide, but widely spread among all age groups, cemeteries, and between



sexes. Simply expressed, the diversity of the patterning was congruous throughout the population.

Some dental microwear researchers consider the ratio of pits to scratches on occlusal surfaces of the molars to determine the degree of ingestion of vegetal matter (or folivory, leaf eating) and the hardness of food in primates (Grine 1981, Teafor and Walker, 1984, Teafor, 1985, 1988a). There was no significance between percentage of pitting on the molars and the consumption of hard foods for the teeth examined in the Averbuch study. Although macroscopic wear increases with age, the frequency of dental microwear features did not increase or decrease with age in the Averbuch sample. Dental microwear features occur regardless of age, and they occur on a daily basis by whatever is eaten. According to the statistical results, there are not data to support age related frequencies of features or percentage of pits or scratches to total features in the Averbuch sample.

To test the intra cemetery relationships in the Averbuch skeletal collection, Berryman, (1984a) used nonmetric traits and cranial measurements to determine the extent that cranial morphology differed between the sexes, the three cemeteries, and the interaction of sex and cemetery. The results of the multivariate analysis of variation indicated no significant biological difference among the three cemeteries. He concluded that the Averbuch skeletal population appeared to be relatively homogeneous (Berryman, 1984a). Although tooth morphometric homogeneity is not synonymous with microwear homogeneity, homogenous tooth morphology partially can be responsible for the homogeneity of occlusion.

Even if significant differences had been found among the tested data those results may have been irrelevant since the sample was intraspecific and within the same temporal span. If some individuals had significantly different patterning their teeth may not have had anything to do with the amount of vegetal matter they consumed.

Teaford's suggested that the biological age of the individual must exert some influence over the amount of dental microwear features, as both infants and older adults exhibit less microwear than young adults (Bullington, 1991; Gordon, 1984; Teaford, 1991). Unfortunately, that premise was not supported by the evidence of microwear features on Averbuch teeth. Infants were not a part of the sample group and deciduous molars were not tested. There were no significant differences among the age groups, and older adults (40+) did not exhibit any more wear on their teeth than younger adults (Groups 1 and 2 respectively, <20 and 20 - 29). What was manifested was that there were as many features on older teeth as younger teeth, but they were harder to see. But those features could still be measured regardless of their faint appearance. Again the only age related differences R and orientation were directly related to tooth attrition.

Because the patterning of dental microwear of the Averbuch population is so encompassing, I concluded that the larger the number of edibles in the diet, the larger the complexity of the scratches and pits. If the inhabitants of Averbuch were consuming a strict frugivore diet, then I would have expected to see microwear features associated entirely with fruits and nuts, i.e. heavily pitted surfaces. For instance, in the Red River and Lower Mississippi River Valley, pits were not seen on any of the examined teeth from populations when dependency on maize agriculture was established. ( Rose and Marks,

1985). This result is different from the result found at the Averbuch site. Pits were found on all teeth at Averbuch. If the inhabitants were consuming a diet of strictly leaves (folivore) then I would have expected to see much enamel polishing. It is part of the foundation of dental microwear analysis that microwear differences suggest dietary differences. Hence because of the huge diversity of the feature morphology and metrics, I am lead to conclude that not one strict diet was consumed at Averbuch, and that the Mississippian diet, at least at Averbuch, was much more complex and varied than previously thought. This variation cannot be measured on the teeth, because no one age or gender has exclusivity of a particular dental microwear patterning. This lead me to question whether Averbuch was truly a Mississippian site in the strictest interpretation, e.g. maize dependent, or that “marginal” meant something more than just being away from the main river and population center.

Gordon’s Eskimo teeth (1986) displayed little scratches, thin striations, and smooth surfaces. Her analysis of the Zuni teeth showed big, broad, and tough, rough scratches. Some Averbuch teeth had the same characteristics on their occlusal surfaces. Gordon showed two completely different diets for two completely different populations. Eskimos ate marine food, the Zuni ate maize. Logical reasoning would conclude then, that people who ate a combination of those foods would have a combination of those features. The inhabitants at Averbuch ate both marine food (albeit freshwater) and maize. If what Smith (1978) and Rostlund (1952) say is true about the consumption of fish being equal to the consumption of game and plant food in Mississippian cultures, then their decision would be

well founded, and we could agree that the dental microwear features do mirror the paleodietary habits of the Averbuch.

Consequent to the verdict of insignificant dental microwear patterning differences among the Averbuch, I am compelled to consider that a small splinter or “marginal” band of a homogeneous group of people, would probably not have any differences in their eating habits. The variation in the patterning is homogeneous and extends throughout the sample and is not confined to any one sex, cemetery affiliation or age group. I proved that the lack of clear differential patterning is a result of interspecific homogeneity and not sample size. Clearly it can be said that the diet of the Averbuch inhabitants was more varied and complex than expected, and the patterning of the dental microwear features reflects that complexity.

The variation in microwear patterning at Averbuch which is not distinguished by sex, age or cemetery affiliation has to be attributed to differences in individual diets. As people age, diet habits change due to illnesses, loss of dentition, or a host of other impending geriatric ailments which can change eating habits and call for new dietary regimens. As people age, diets change, and changes can be viewed as variation in microwear patterning. Also, there is no reason not to think that dietary preferences were not conventional in prehistoric populations as preferences are prevalent in today’s society. There should be no unusual wonderment, that prehistoric peoples could choose to eat what they liked or what agreed with their stomachs. Granted that their selection of food was not as encompassing as modern populations have today, especially in the United States, but the population at Averbuch alive 700 years ago still had individual tastes, likes, and dislikes.



How does this conclusion fit into the understanding of the Mississippian culture and specifically the inferred paleodietary habits of the Mississippian tradition? One possibility is that the accepted perception of Mississippian cultures does not extend into the Averbuch site. A component of the Mississippian culture is an evidence of ranked social hierarchy and political structure. Based on the mortuary practices at Averbuch, there was no regard to burial status for social ranking (Berryman, 1984a). Nor, were there any difference in diet, as different social status might dictate. The diet of the inhabitants of Averbuch appears to have been the same for all adult individuals regardless of social status, class, sex, or age. The inhabitants ate everything that was available as a food resource. The variation seen among individuals has to be attributed to dietary likes and dislikes and/or the ability of some people to eat different foods than other individuals due to age, physiological changes, or caries, all of which play a role in food consumption. Averbuch appears to have been a small nucleated village without the established hierarchical settlement system. The degree of social differentiation within Mississippian societies appears to be quite variable. Middle Mississippian groups that occupied large temple mound centers, such as Cahokia, Etowah, and Moundville, are characterized by ranked societies or complex chiefdoms, while Upper Mississippian “tribal level” complexes, such as Fort Ancient seem to have had only minimal levels of social differentiation. The settlement patterns that developed in the two areas are also quite distinct (Nass and Yerkes, 1995). The term “marginal” as applied to Averbuch may have more than one connotation--the first being a locational situation, being farther away from the main source of water - and the second; indicating a more social and cultural “fringe” population. This population lived on the banks of a small stream, having been

forced out in competition for arable land by a population pressure. They survived on whatever they grew and found to eat in the natural environment.

Although dental microwear analysis was not studied at Moundville, a comparison between the Averbuch teeth and the Moundville teeth can be made vis a vis wear.

Powell's results of the dental analysis at Moundville (Powell, 1988) showed no evidence of any significant dietary differences between the sexes or status. Although, she looked at macroscopic wear, she found that any observed variations were not significant or clearly patterned (Powell, 1988). The archaeological data from Moundville also presented a subsistence rich in abundant resources (Powell, 1988).

Powell suggests that the use of teeth as tools in chores determined by sex or social rank may contribute to greater dental wear for one sex or ranked status segment. She suggests that dental samples should be carefully matched by age and sex before comparisons along social dimensions can be attempted within and between populations (Powell, 1988).

The archaeological evidence for diet at Averbuch suggests that subsistence was broadly based. The archaeological evidence for diet coincides nicely with the dental microwear analysis. No microwear data suggest that one suite of patterning is more prevalent among the inhabitants at Averbuch.

Infections, and nutritional deficiency diseases anemias, enamel hypoplasias, porotic hyperostosis, and cribra orbitalia have been observed as the most prevalent stress indicators of the skeletal population at Averbuch (Berryman, 1981, 1984a; Eisenberg, 1986; Jablonski, 1981, 1984a, b). Iron deficiency anemia is seen among skeletal populations



which have a high dependency on maize agricultural and dependency (Cohen and Armelagos, 1984). According to the ethnobotanical findings at Averbuch, there is a broad representation of maize recovered from the site. However, other floral and faunal analyses from Averbuch support the idea that the prehistoric inhabitants at Averbuch were taking advantage of all the other available resources in that area; namely small and large mammals, fish; mussels, waterfowl, and many nuts and berries in addition to their agricultural efforts. But, the paleopathological data retrieved from the skeletal collection infers that the paleodietary habits of the inhabitants of Averbuch were not nutritionally balanced with proper components of protein and carbohydrates (Eisenberg, 1986). However, as demonstrated by the dental microwear analysis, the teeth at Averbuch cannot be compared with teeth from other Mississippian sites or any other published data from other sites.

Results of this dental microwear study are corroborated by the conclusions regarding diet found by Eisenberg (1986). Her results of the skeletal indicators of nutritional deficiencies suggest more than a deficient diet. She concluded, as well, that the subsistence at Averbuch was broad, based on the archaeological evidence. Her data also contradict the conventional idea that Mississippian diets were maize - dependent (Eisenberg, 1986).

One of the problems with comparisons to other Mississippian sites, is that most of the characteristic information about the Mississippian culture is derived from excavations of major or monumental sites encompassing mounds, earthworks, and complex social organizational hierarchy. The attempt to assimilate the preconceived subsistence patterns at Averbuch into the bigger Mississippian tableau may provide a distorted view of marginal

sites. The subsistence patterns at Averbuch were more varied and complex as evidenced by the dental microwear patterning on their teeth. Research on more teeth from marginal sites may prove to be more complex in their patterning than teeth from strict Mississippian regimes. It would very enlightening to see the comparisons or differences from the teeth of Moundville or Cahokia to the Averbuch teeth.

To test the effectiveness of the Averbuch quantitative dental microwear analysis, I performed a preliminary and scant experiment with teeth from a different population. As mentioned in Chapter Four (see page 57), I took micrographs of the cusp tip of the metaconid of second mandibular molars from five Plains Indian teeth from the sites of Mobridge and Leavenworth. I measured their features and combined both sexes, all ages, and both sites of Mobridge and Leavenworth to attain descriptive statistics of Plains Indian teeth. I obtained descriptive statistics for the Averbuch teeth by collapsing the cemetery, age, and sex factors for each variable. I looked at the means of those descriptive statistics to see comparisons and/or differences (see Tables 46 and 47).

Based on this introductory analysis, Averbuch teeth have more pits than Plains teeth, but Plains teeth have more scratches than Averbuch teeth. Also suggested by the data are: pit length of the Plains teeth is almost double the pit length of Averbuch teeth; pit width in Plains teeth is almost twice that of Averbuch teeth; and scratch length is longer in Plains teeth but scratch width is wider in Averbuch teeth. Although the Plains teeth are based on a sample size of five, the preliminary data suggest these differences but no tests were run to establish or confirm them, so conclusions cannot be drawn based on these descriptive statistics. However, what is important about this experiment is that dental

microwear analysis is a valuable tool in comparing microwear patterning which can lead to paleodietary comparisons among prehistoric populations. The micrographs of the Plains Indian teeth looked different than the micrographs of the Averbuch teeth and subsequent measurements quantified those observed differences.

**Table 46: Summary Statistics for Averbuch Teeth**

| Descriptive Statistics |        |         |         |         |                    |
|------------------------|--------|---------|---------|---------|--------------------|
|                        | Number | Minimum | Maximum | Mean    | Standard Deviation |
| PITS                   | 55     | 2.00    | 110.00  | 23.7636 | 18.8149            |
| SCRTCHS                | 55     | 11.00   | 115.00  | 53.9091 | 22.5514            |
| PCPITS                 | 55     | .03     | .81     | .2996   | .1763              |
| PCSCRTCH               | 55     | .19     | .97     | .7004   | .1763              |
| PITL_M                 | 55     | 3.32    | 11.42   | 5.9791  | 1.8747             |
| PITW_M                 | 55     | 1.91    | 5.02    | 2.9835  | .6962              |
| SCRTL_M                | 55     | 11.31   | 45.89   | 28.2195 | .66706             |
| SCRTB_M                | 55     | 1.09    | 2.85    | 1.9876  | .3627              |
| R                      | 55     | .04     | .79     | .3609   | .1857              |
| ORIENT_M               | 55     | 1.99    | 176.82  | 78.6858 | 39.7297            |

**Table 47: Summary Statistics for Plains Teeth**

| Descriptive Statistics |        |         |         |         |                    |
|------------------------|--------|---------|---------|---------|--------------------|
|                        | Number | Minimum | Maximum | Mean    | Standard Deviation |
| PITS                   | 5      | 1.00    | 24.00   | 14.8000 | 8.6718             |
| SCRTCHS                | 5      | 13.00   | 130.00  | 71.000  | 44.7158            |
| PCPITS                 | 5      | .02     | .59     | .2172   | .2202              |
| PCSCRTCH               | 5      | .41     | .98     | .7828   | .2202              |
| PITL_M                 | 5      | 4.36    | 32.01   | 10.9180 | 11.8571            |
| PITW_M                 | 5      | 2.63    | 11.18   | 5.0580  | 3.5696             |
| SCRTL_M                | 5      | 16.74   | 41.17   | 33.2040 | 9.5845             |
| SCRTB_M                | 5      | 1.42    | 1.76    | 1.5520  | .1375              |
| R                      | 5      | .08     | .46     | .2922   | .1612              |
| ORIENT_M               | 5      | 31.19   | 104.09  | 76.4300 | 27.1914            |

DMA can be an effective tool when used in conjunction with associated archaeological remains, knowledge about food gathering and preparation techniques, some control for postmortem wear, and other analysis such as bone isotope work. By itself, it is a new approach and can raise more questions than answers (Teaford, 1994). DMA cannot by itself answer all the questions about a population's dietary habits or tooth use, but it is just another tool used in paleobiological commentaries.

In the final analysis what can be said about the prehistoric people of Averbuch? Envision a panorama where a population of 800 - 1,400 people live on the banks of a small moving stream, four miles away from the main waters of the Cumberland River. This fringe population is disassociated with the ranked social hierarchy and elaborate earthworks of its other Mississippian cousin cities in other parts of the American Southeast. This marginal group of people, living on the peripheries of the great Mississippian population centers, has been pushed out into the hinterlands by the pressures of expanding population and/or warfare. Unable to compete for arable land, they live far away from the powerful chiefdoms of the Mississippian manifestation and subsist on the food they grow and the animals they trap and hunt. Everyone is equal in this settlement. Their burials denote no special social hierarchy, and their diets do not reflect any difference due to social structure. These ordinary people eat corn, squash, nuts, berries, fish, elk, and turkey, and every inhabitant has his or her own likes, dislikes, and preferences for particular foods. As they age, their diets adapt due to illnesses, impending old age, or changes in preferences, likes, and dislikes, much the same way modern humans change their diets today. Their infants die and most are buried in the floors of their houses. The population is stressed so much



that the mortality rate exceeds that of the fertility rate. They survive on what is available to eat, a varied and complex diet until that diet is no longer able to sustain the population, and the site is abandoned.



## CHAPTER SEVEN- Conclusions

This research has focused on the dental microwear patterns in a late Mississippian site to learn more about the prehistoric dietary habits of the inhabitants of Averbuch. Visual results exhibited teeth that had many scratches, pits, enamel polishing and a varied striation morphology. Quantifiable results did not show any significant or distinct dental patterning differences among the four age groups, between the sexes, or among the three cemeteries. Combined with the results of the archaeological record and the paleobotanical, floral, and faunal analyzes, the teeth showed that a marginal Mississippian diet was very varied and complex, and that no one suite of microwear features was predominant or indicative of a specific diet or food process. The variation of the microwear patterning was consistent and could not be attributed to one specific diet.

The importance of this study is that dental microwear analysis using SEM should be used in association with other methods of analysis of skeletal remains from archaeological sites. DMA should be used in conjunction with paleopathological analysis of archaeological skeletal remains, including, but not limited to, isotope and trace element analysis. Perhaps with the continuing research between paleodietary and dental microwear analysis, we might get a clearer view of how dental microwear analysis fits in with the biocultural approach in archaeological skeletal collections and improve our knowledge of prehistoric subsistence patterns.

In the past fifteen to twenty years, a great deal of dental microwear work has taken place on a large variety of teeth to document diet in extant and fossil mammals, early

hominids, and prehistoric human populations. Dental microwear analysis should not be viewed as an ultimate resource to answer questions about biocultural representations. It should be used as an ancillary resource to provide insight into prehistoric diets. As reported by this study, no clear and standard procedures for this type of analysis has been formulated, although there are consensus about magnification, facet identification, and pit definition from the dental anthropologists. The standardization of the instrumentation has not been established. As seen by this study, the use of an environmental versus non-environmental scanning electron microscope may yield different results.

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## **APPENDICES**

**APPENDIX A**

**SAMPLE OF TEETH BY NUMBER**

### *Sample of Teeth by Tooth Number*

| <i>Tooth Number</i> | <i>Site</i> | <i>Burial Number</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> | <i>Side</i> |
|---------------------|-------------|----------------------|-----------------|------------|------------|-------------|
| 01                  | Averbuch    | 11B                  | 1               | F          | 40+        | Right       |
| 03                  | Averbuch    | 29A                  | 1               | M          | 20-29      | Right       |
| 05                  | Averbuch    | 130                  | 1               | F          | 30-39      | Left        |
| 07                  | Averbuch    | 146A                 | 1               | M          | 30-39      | both        |
| 08                  | Averbuch    | 148                  | 1               | M          | 20-29      | Left        |
| 09                  | Averbuch    | 168                  | 1               | F          | 40+        | Left        |
| 10                  | Averbuch    | 208                  | 1               | M          | <20        | Left        |
| 11                  | Averbuch    | 214C                 | 1               | M          | <20        | Right       |
| 12                  | Averbuch    | 225C                 | 1               | M          | 40+        | Left        |
| 13                  | Averbuch    | 229B                 | 1               | M          | 20-29      | Right       |
| 15                  | Averbuch    | 251                  | 1               | F          | 30-39      | Right       |
| 17                  | Averbuch    | 277A                 | 1               | M          | 20-29      | Right       |
| 19                  | Averbuch    | 310                  | 1               | F          | <20        | Right       |
| 20                  | Averbuch    | 311B                 | 1               | M          | 20-29      | Left        |
| 21                  | Averbuch    | 327                  | 1               | M          | <20        | Right       |
| 22                  | Averbuch    | 359A                 | 1               | F          | 20-29      | Left        |
| 23                  | Averbuch    | 363                  | 1               | M          | 30-39      | Right       |
| 24                  | Averbuch    | 381                  | 1               | M          | 30-39      | Left        |
| 25                  | Averbuch    | 394A                 | 2               | F          | <20        | Right       |
| 27                  | Averbuch    | 404A                 | 2               | F          | <20        | Right       |
| 28                  | Averbuch    | 405                  | 2               | F          | 20-29      | Left        |
| 29                  | Averbuch    | 423                  | 2               | M          | <20        | Left        |
| 30                  | Averbuch    | 426                  | 1               | F          | 30-39      | Left        |
| 31                  | Averbuch    | 432A                 | 2               | F          | 40+        | Right       |
| 32                  | Averbuch    | 435A                 | 2               | M          | 30-39      | Right       |
| 34                  | Averbuch    | 436A                 | 2               | M          | 20-29      | Right       |
| 35                  | Averbuch    | 437B                 | 2               | F          | 40+        | Left        |
| 36                  | Averbuch    | 442A                 | 1               | M          | 40+        | Left        |
| 37                  | Averbuch    | 446                  | 2               | F          | 40+        | Right       |
| 38                  | Averbuch    | 447                  | 2               | F          | 20-29      | Left        |
| 39                  | Averbuch    | 457                  | 2               | M          | 40+        | Left        |
| 40                  | Averbuch    | 459                  | 2               | M          | 20-29      | Left        |
| 41                  | Averbuch    | 462                  | 2               | M          | 40+        | Right       |
| 42                  | Averbuch    | 469A                 | 1               | M          | 40+        | Left        |
| 43                  | Averbuch    | 471                  | 2               | M          | 30-39      | Right       |
| 44                  | Averbuch    | 477B                 | 2               | F          | 30-39      | Right       |
| 45                  | Averbuch    | 482                  | 1               | F          | <20        | Left        |
| 46                  | Averbuch    | 491                  | 2               | F          | 30-39      | Right       |
| 47                  | Averbuch    | 502                  | 2               | F          | 20-29      | Right       |
| 48                  | Averbuch    | 507B                 | 3               | F          | <20        | Left        |
| 51                  | Averbuch    | 524                  | 3               | F          | <20        | Right       |
| 52                  | Averbuch    | 525                  | 3               | M          | 40+        | Left        |
| 53                  | Averbuch    | 546                  | 3               | M          | 30-39      | Right       |
| 54                  | Averbuch    | 562                  | 3               | M          | <20        | Left        |
| 55                  | Averbuch    | 567                  | 3               | F          | <20        | Right       |
| 56                  | Averbuch    | 568B                 | 3               | F          | 30-39      | Left        |

### ***Sample of Teeth by Tooth Number***

| <i><b>Tooth Number</b></i> | <i><b>Site</b></i> | <i><b>Burial Number</b></i> | <i><b>Cemetery</b></i> | <i><b>Sex</b></i> | <i><b>Age</b></i> | <i><b>Side</b></i> |
|----------------------------|--------------------|-----------------------------|------------------------|-------------------|-------------------|--------------------|
| 58                         | Averbuch           | 604                         | 3                      | F                 | 20-29             | Right              |
| 59                         | Averbuch           | 626                         | 3                      | M                 | 40+               | Left               |
| 61                         | Averbuch           | 640                         | 3                      | M                 | <20               | Right              |
| 62                         | Averbuch           | 656                         | 3                      | F                 | 20-29             | Left               |
| 63                         | Averbuch           | 665                         | 3                      | F                 | 20-29             | Left               |
| 64                         | Averbuch           | 679                         | 3                      | M                 | 20-29             | Right              |
| 66                         | Averbuch           | 695                         | 3                      | M                 | 20-29             | Left               |
| 67                         | Averbuch           | 700A                        | 3                      | M                 | 30-39             | Right              |
| 68                         | Averbuch           | 701A                        | 3                      | F                 | 30-39             | Left               |
| 69                         | Mobridge           | F 303                       | N. A.                  | F                 | Adult             | Left               |
| 70                         | Mobridge           | F 303                       | N. A.                  | ?                 | Adolescent        | Left               |
| 71                         | Mobridge           | F 301                       | N. A.                  | ?                 | Adult             | Right              |
| 72                         | Leavenworth        | F 120                       | N. A.                  | F                 | Adult             | Left               |
| 73                         | Leavenworth        | F 120                       | N. A.                  | M                 | Adult             | Right              |

## **APPENDIX B**

### **AVERBUCH TEETH BY CEMETERY, SEX, AND AGE**



### *Averbuch Teeth by Cemetery, Sex, and Age*

| <i>Tooth Number</i> | <i>Burial Number</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> | <i>Side</i> |
|---------------------|----------------------|-----------------|------------|------------|-------------|
| 19                  | 310                  | 1               | F          | <20        | Right       |
| 45                  | 482                  | 1               | F          | <20        | Left        |
| 22                  | 359A                 | 1               | F          | 20-29      | Left        |
| 05                  | 130                  | 1               | F          | 30-39      | Left        |
| 15                  | 251                  | 1               | F          | 30-39      | Right       |
| 30                  | 426                  | 1               | F          | 30-39      | Left        |
| 01                  | 11B                  | 1               | F          | 40+        | Right       |
| 09                  | 168                  | 1               | F          | 40+        | Left        |
| 10                  | 208                  | 1               | M          | <20        | Left        |
| 11                  | 214C                 | 1               | M          | <20        | Right       |
| 21                  | 327                  | 1               | M          | <20        | Right       |
| 03                  | 29A                  | 1               | M          | 20-29      | Right       |
| 08                  | 148                  | 1               | M          | 20-29      | Left        |
| 13                  | 229B                 | 1               | M          | 20-29      | Right       |
| 17                  | 277A                 | 1               | M          | 20-29      | Right       |
| 20                  | 311B                 | 1               | M          | 20-29      | Left        |
| 07                  | 146A                 | 1               | M          | 30-39      | both        |
| 23                  | 363                  | 1               | M          | 30-39      | Right       |
| 24                  | 381                  | 1               | M          | 30-39      | Left        |
| 12                  | 225C                 | 1               | M          | 40+        | Left        |
| 36                  | 442A                 | 1               | M          | 40+        | Left        |
| 42                  | 469A                 | 1               | M          | 40+        | Left        |
| 25                  | 394A                 | 2               | F          | <20        | Right       |
| 27                  | 404A                 | 2               | F          | <20        | Right       |
| 28                  | 405                  | 2               | F          | 20-29      | Left        |
| 38                  | 447                  | 2               | F          | 20-29      | Left        |
| 47                  | 502                  | 2               | F          | 20-29      | Right       |
| 44                  | 477B                 | 2               | F          | 30-39      | Right       |
| 46                  | 491                  | 2               | F          | 30-39      | Right       |
| 31                  | 432A                 | 2               | F          | 40+        | Right       |
| 35                  | 437B                 | 2               | F          | 40+        | Left        |
| 37                  | 446                  | 2               | F          | 40+        | Right       |
| 29                  | 423                  | 2               | M          | <20        | Left        |
| 34                  | 436A                 | 2               | M          | 20-29      | Right       |
| 40                  | 459                  | 2               | M          | 20-29      | Left        |
| 32                  | 435A                 | 2               | M          | 30-39      | Right       |
| 43                  | 471                  | 2               | M          | 30-39      | Right       |
| 39                  | 457                  | 2               | M          | 40+        | Left        |
| 41                  | 462                  | 2               | M          | 40+        | Right       |
| 48                  | 507B                 | 3               | F          | <20        | Left        |
| 51                  | 524                  | 3               | F          | <20        | Right       |
| 55                  | 567                  | 3               | F          | <20        | Right       |
| 58                  | 604                  | 3               | F          | 20-29      | Right       |
| 62                  | 656                  | 3               | F          | 20-29      | Left        |
| 63                  | 665                  | 3               | F          | 20-29      | Left        |
| 56                  | 568B                 | 3               | F          | 30-39      | Left        |

***Averbuch Teeth by Cemetery, Sex, and Age***

| <i>Tooth Number</i> | <i>Burial Number</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> | <i>Side</i> |
|---------------------|----------------------|-----------------|------------|------------|-------------|
| 68                  | 701A                 | 3               | F          | 30-39      | Left        |
| 54                  | 562                  | 3               | M          | <20        | Left        |
| 61                  | 640                  | 3               | M          | <20        | Right       |
| 64                  | 679                  | 3               | M          | 20-29      | Right       |
| 66                  | 695                  | 3               | M          | 20-29      | Left        |
| 53                  | 546                  | 3               | M          | 30-39      | Right       |
| 67                  | 700A                 | 3               | M          | 30-39      | Right       |
| 52                  | 525                  | 3               | M          | 40+        | Left        |
| 59                  | 626                  | 3               | M          | 40+        | Left        |

**APPENDIX C**  
**MICROGRAPH INVENTORY**

### ***Micrograph Inventory***

| <i>Tooth<br/>Identification</i> | <i>Image<br/>Number<br/>.BMP</i> | <i>Overlay<br/>Number<br/>.CRD</i> | <i>Side</i> | <i>Magnification</i> |
|---------------------------------|----------------------------------|------------------------------------|-------------|----------------------|
| 01                              | 01                               | image01                            | right       | 500x                 |
| 01                              | 1@100x                           |                                    | right       | 100x                 |
| 01                              | 1@200x                           |                                    | right       | 200x                 |
| 01                              | 1@300x                           |                                    | right       | 300x                 |
| 01                              | 1@400x                           |                                    | right       | 400x                 |
| 01                              | 1@500x                           |                                    | right       | 500x                 |
| 02                              | 02                               | image 02                           | left        | 500x                 |
| 03                              | 03                               | image 03                           | right       | 500x                 |
| 04                              | 04                               | image04                            | left        | 500x                 |
| 05                              | 05                               | image05                            | left        | 500x                 |
| 06                              | 06                               | image06                            | right       | 500x                 |
| 07                              | 07                               | image07                            | left        | 500x                 |
| 08                              | 08                               | image08                            | left        | 500x                 |
| 09                              | 09                               | image09                            | left        | 500x                 |
| 10                              | 10                               | image10                            | left        | 500x                 |
| 11                              | 11                               | image11                            | right       | 500x                 |
| 12                              | 12                               | image12                            | left        | 500x                 |
| 13                              | 13                               | image13                            | right       | 500x                 |
| 14                              | 14                               | image14                            | right       | 500x                 |
| 15                              | 15                               | image15                            | right       | 500x                 |
| 16                              | 16                               | image16                            | left        | 500x                 |
| 17                              | 17                               | image17                            | right       | 500x                 |
| 18                              | 18                               | image18                            | left        | 500x                 |
| 19                              | 19                               | image19                            | right       | 500x                 |
| 20                              | 20                               | image20                            | left        | 500x                 |
| 21                              | 21                               | image21                            | right       | 500x                 |
| 22                              | 22                               | image22                            | left        | 500x                 |
| 23                              | 23                               | image23                            | right       | 500x                 |
| 24                              | 24                               | image24                            | left        | 500x                 |
| 25                              | 25                               | image25                            | right       | 500x                 |
| 26                              | 26                               | image26                            | left        | 500x                 |
| 27                              | 27                               | image27                            | right       | 500x                 |
| 28                              | 28                               | image28                            | left        | 500x                 |
| 29                              | 29                               | image29                            | left        | 500x                 |
| 30                              | 30                               | image30                            | left        | 500x                 |
| 31                              | 31                               | image31                            | right       | 500x                 |

### ***Micrograph Inventory***

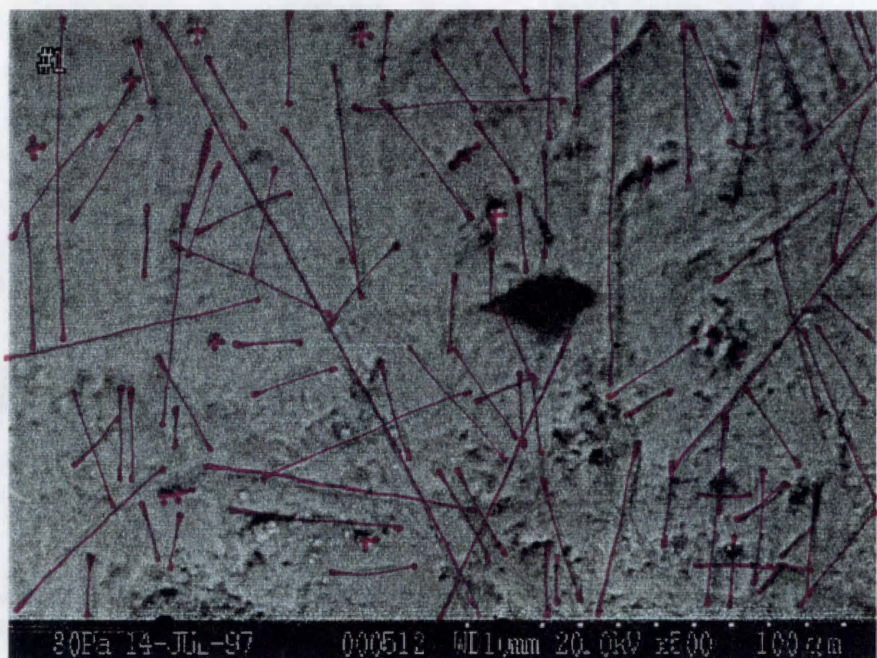
| <i>Tooth<br/>Identification</i> | <i>Image<br/>Number<br/>.BMP</i> | <i>Overlay<br/>Number<br/>.CRD</i> | <i>Side</i> | <i>Magnification</i> |
|---------------------------------|----------------------------------|------------------------------------|-------------|----------------------|
| 32                              | 32                               | image32                            | right       | 500x                 |
| 33                              | 33                               | image33                            | left        | 500x                 |
| 34                              | 34                               | image34                            | right       | 500x                 |
| 35                              | 35                               | image35                            | left        | 500x                 |
| 36                              | 36                               | image36                            | left        | 500x                 |
| 37                              | 37                               | image37                            | right       | 500x                 |
| 38                              | 38                               | image38                            | left        | 500x                 |
| 39                              | 39                               | image39                            | left        | 500x                 |
| 40                              | 40                               | image40                            | left        | 500x                 |
| 41                              | 41                               | image41                            | right       | 500x                 |
| 42                              | 42                               | image42                            | left        | 500x                 |
| 43                              | 43                               | image43                            | right       | 500x                 |
| 44                              | 44                               | image44                            | right       | 500x                 |
| 45                              | 45                               | image45                            | left        | 500x                 |
| 46                              | 46                               | image46                            | right       | 500x                 |
| 47                              | 47                               | image47                            | right       | 500x                 |
| 48                              | 48                               | image48                            | left        | 500x                 |
| 49                              | 49                               | image49                            | right       | 500x                 |
| 50                              | 50                               | image50                            | right       | 500x                 |
| 51                              | 51                               | image51                            | right       | 500x                 |
| 52                              | 52                               | image52                            | left        | 500x                 |
| 53                              | 53                               | image53                            | right       | 500x                 |
| 54                              | 54                               | image54                            | left        | 500x                 |
| 55                              | 55                               | image55                            | right       | 500x                 |
| 56                              | 56                               | image56                            | left        | 500x                 |
| 57                              | 57                               | image57                            | left        | 500x                 |
| 58                              | 58                               | image58                            | right       | 500x                 |
| 59                              | 59                               | image59                            | left        | 500x                 |
| 60                              | 60                               | image60                            | left        | 500x                 |
| 61                              | 61                               | image61                            | right       | 500x                 |
| 62                              | 62                               | image62                            | right       | 500x                 |
| 63                              | 63                               | image63                            | left        | 500x                 |
| 64                              | 64                               | image64                            | right       | 500x                 |
| 65                              | 65                               | image65                            | left        | 500x                 |
| 66                              | 66                               | image66                            | left        | 500x                 |
| 67                              | 67                               | image67                            | right       | 500x                 |

### ***Micrograph Inventory***

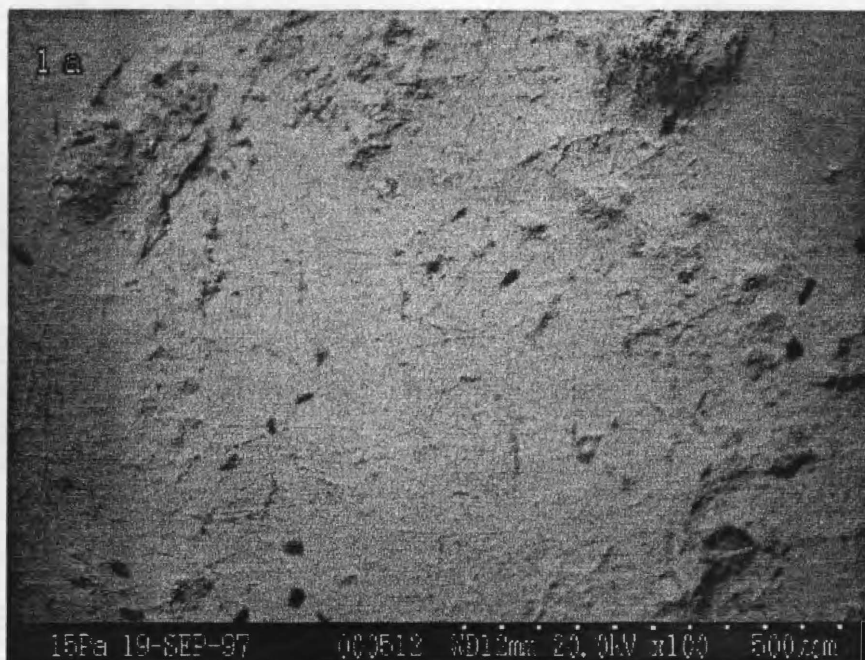
| <b><i>Tooth<br/>Identification</i></b> | <b><i>Image<br/>Number<br/>.BMP</i></b> | <b><i>Overlay<br/>Number<br/>.CRD</i></b> | <b><i>Side</i></b> | <b><i>Magnification</i></b> |
|----------------------------------------|-----------------------------------------|-------------------------------------------|--------------------|-----------------------------|
| 68                                     | 68                                      | image68                                   | left               | 500x                        |
| 69                                     | 69                                      | image69                                   | left               | 500x                        |
| 70                                     | 70                                      | image70                                   | left               | 500x                        |
| 71                                     | 71                                      | image71                                   | right              | 500x                        |
| 72                                     | 72                                      | image72                                   | left               | 500x                        |
| 73                                     | 73                                      | image73                                   | right              | 500x                        |



**APPENDIX D**  
**MICROGRAPHS**



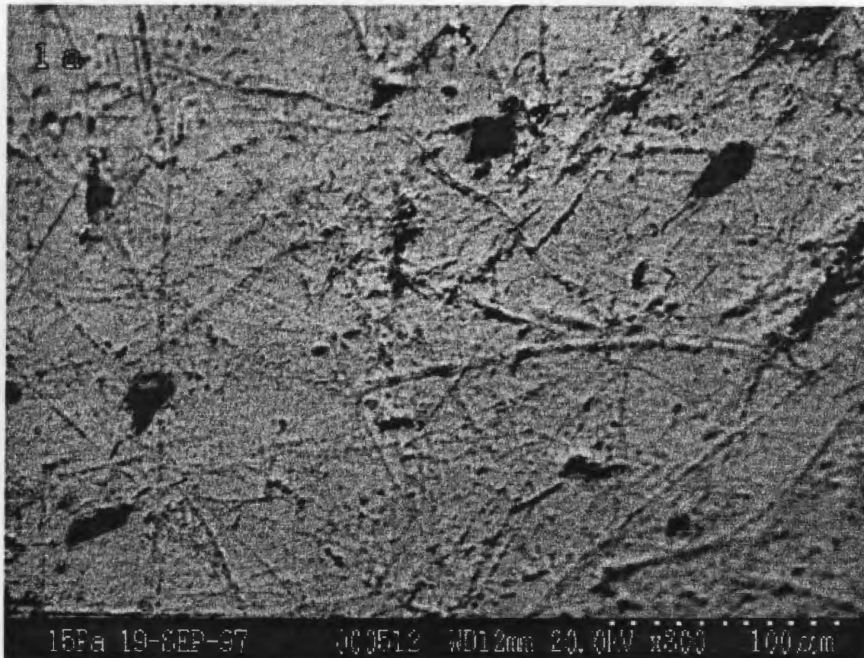
Tooth 01  
Burial 11B  
Cemetery 1  
Female  
Age 40+



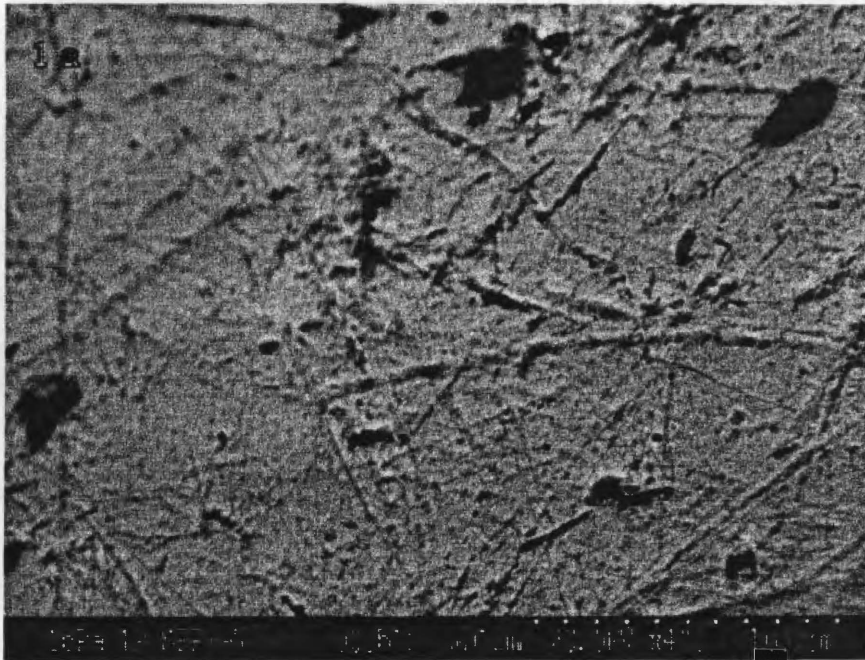
Tooth 01  
Averbuch  
100x



Tooth 01  
Averbuch  
200x

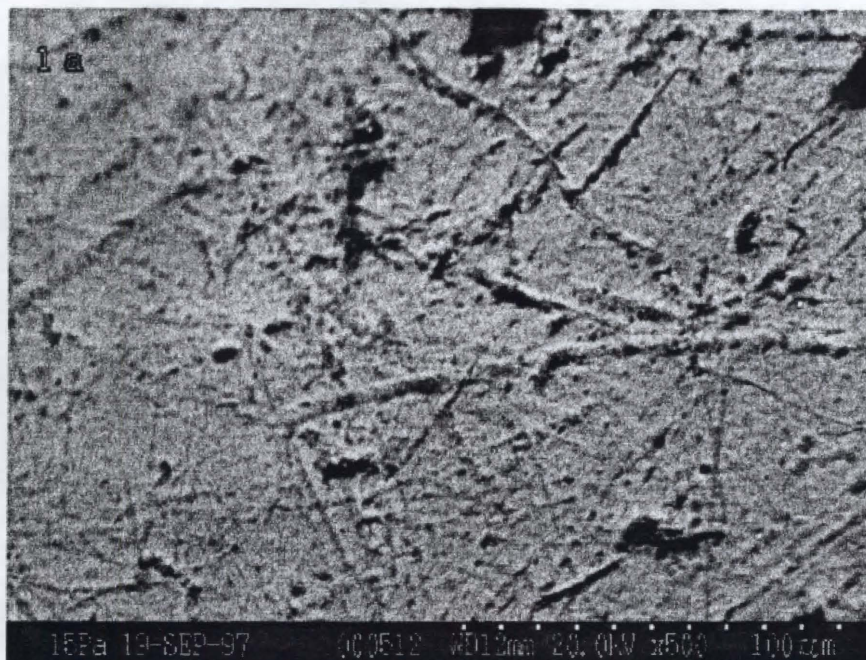


Tooth 01  
Averbuch  
300x

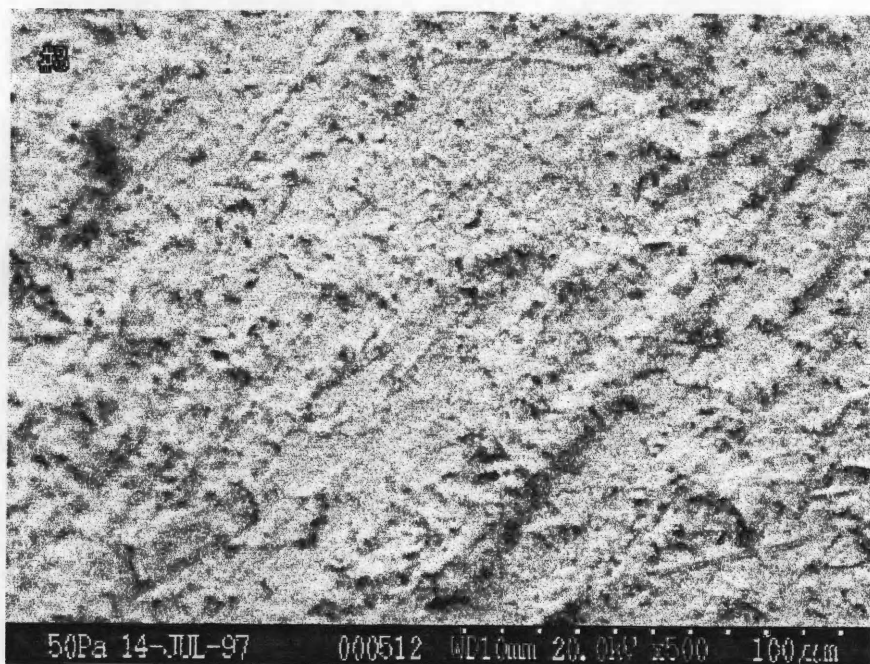


Tooth 01  
Averbuch  
400x





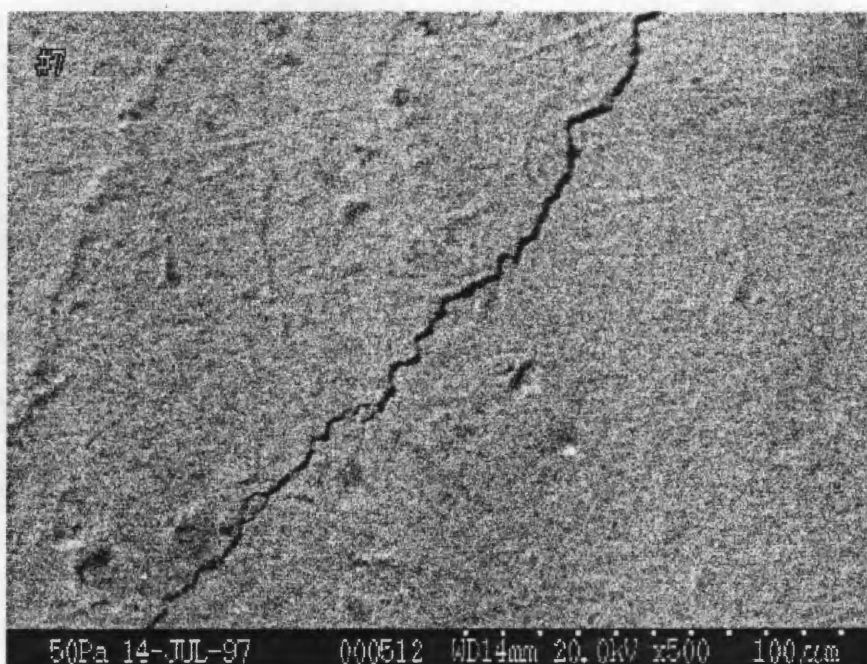
Tooth 01  
Averbuch  
500x



Tooth 03  
Burial 29A  
Cemetery 1  
Male  
Age 20-29

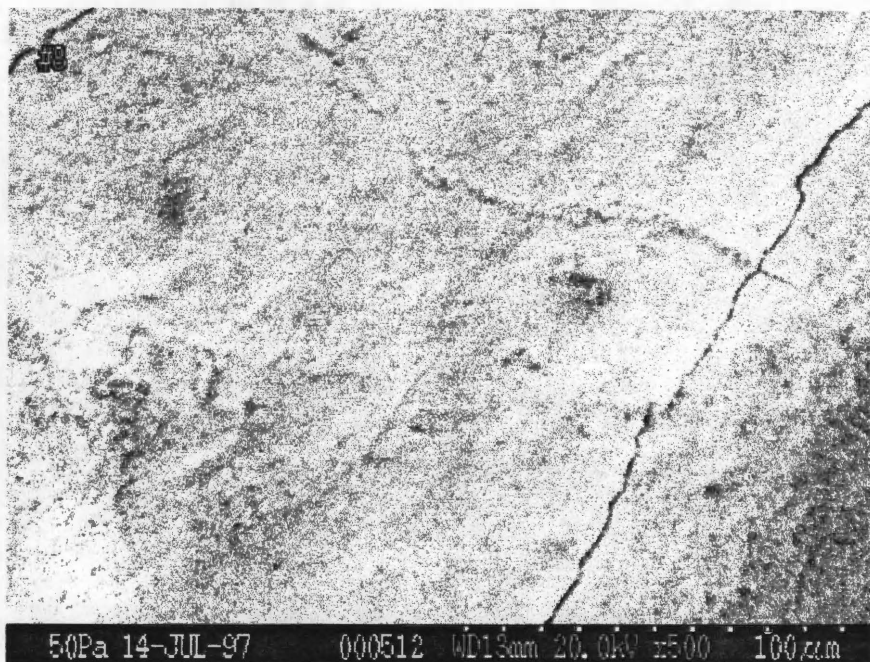


Tooth 05  
Burial 130  
Cemetery 1  
Female  
Age 30-39



Tooth 07  
Burial 146A  
Cemetery 1  
Male  
Age 30-39



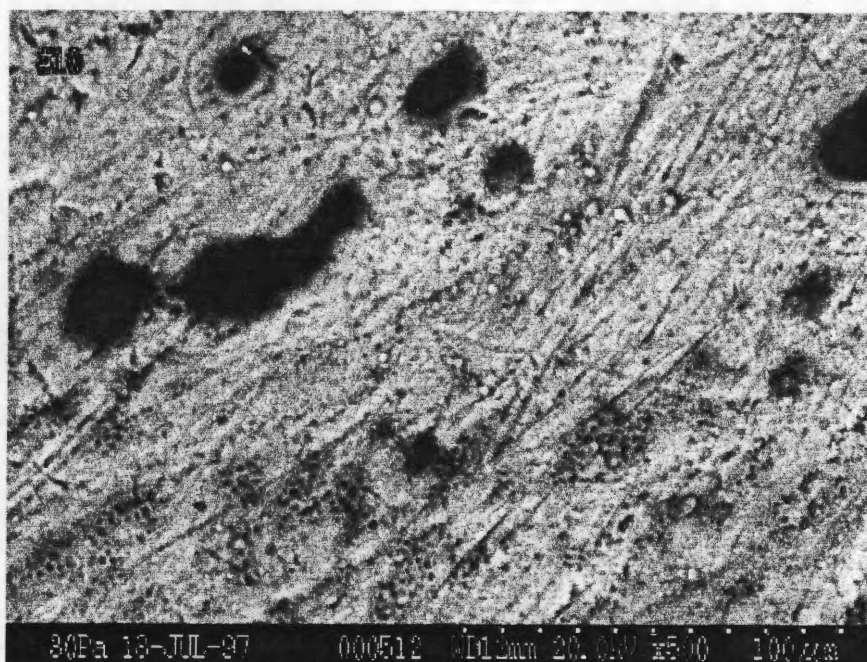


Tooth 08  
Burial 148  
Cemetery 1  
Male  
Age 20-29

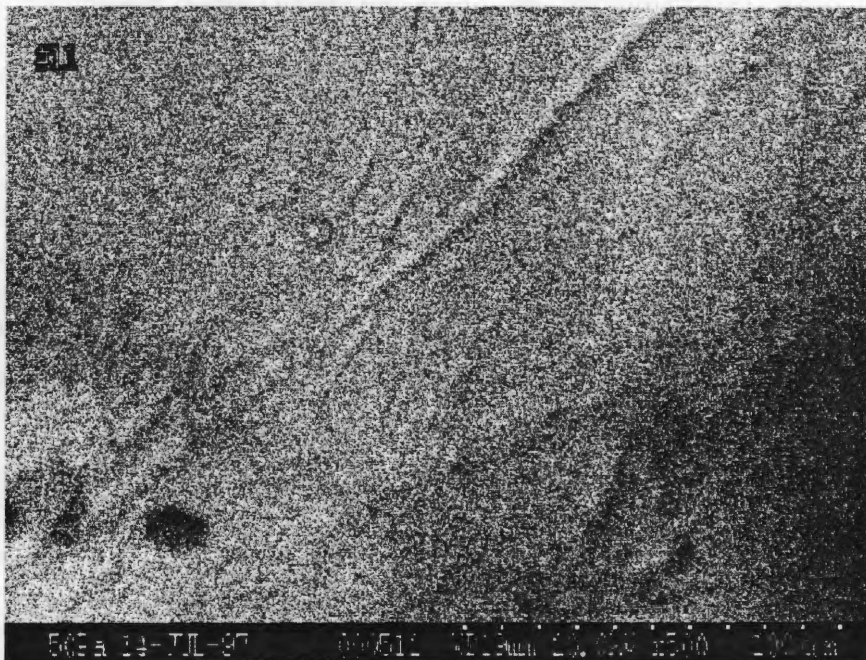


Tooth 09  
Burial 168  
Cemetery 1  
Female  
Age 40+

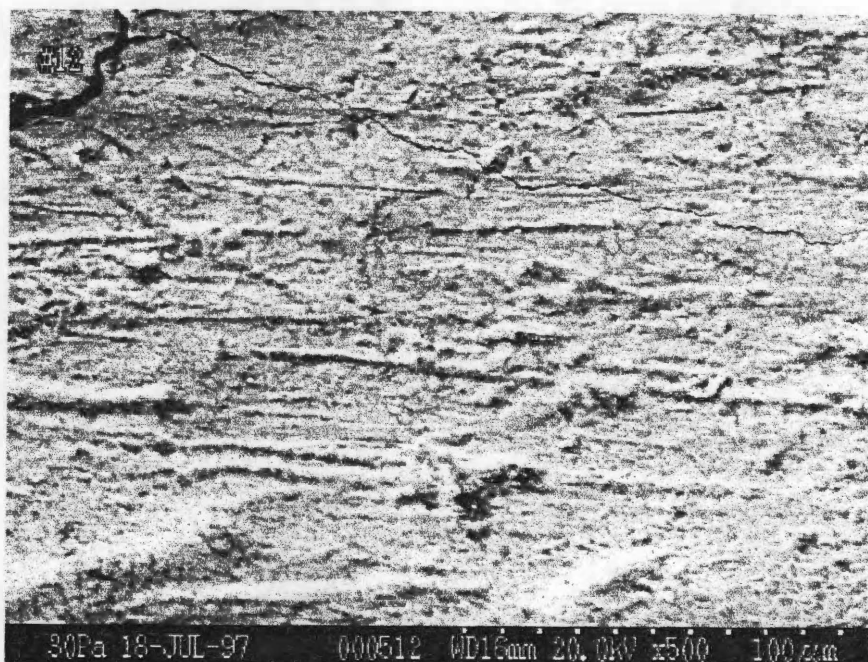




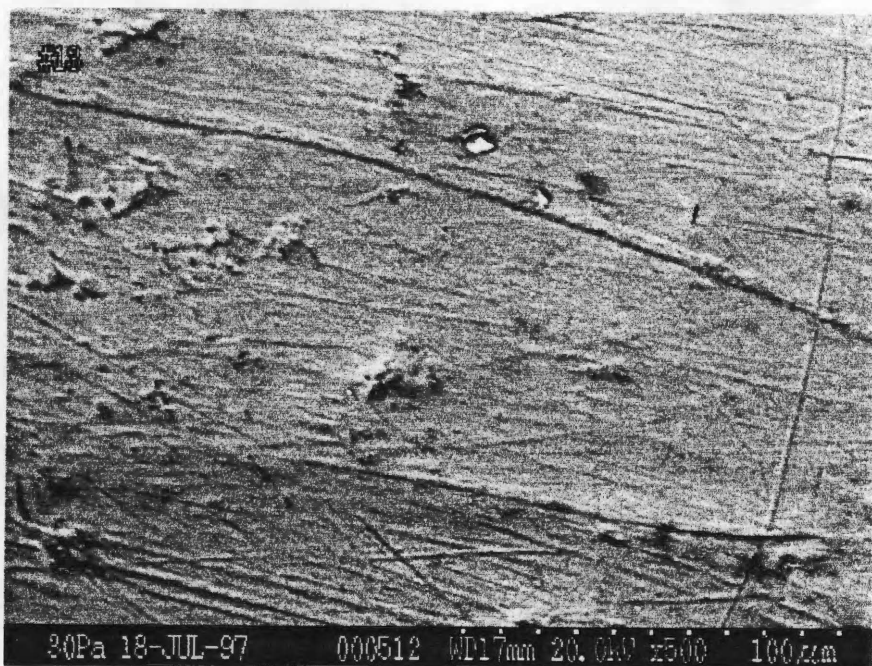
Tooth 10  
Burial 208  
Cemetery 1  
Male  
Age <20



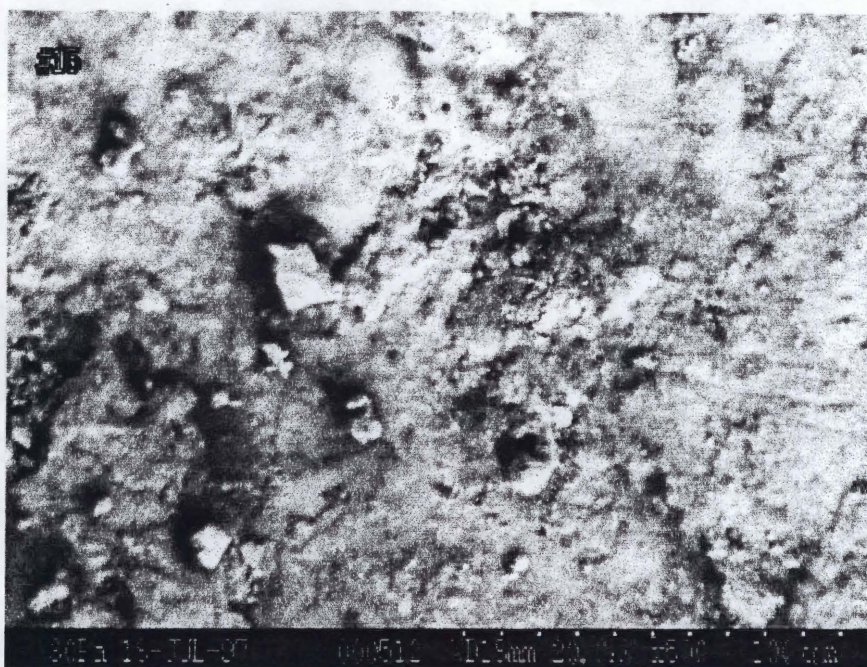
Tooth 11  
Burial 214C  
Cemetery 1  
Male  
Age <20



Tooth 12  
Burial 225C  
Cemetery 1  
Male  
Age 40+

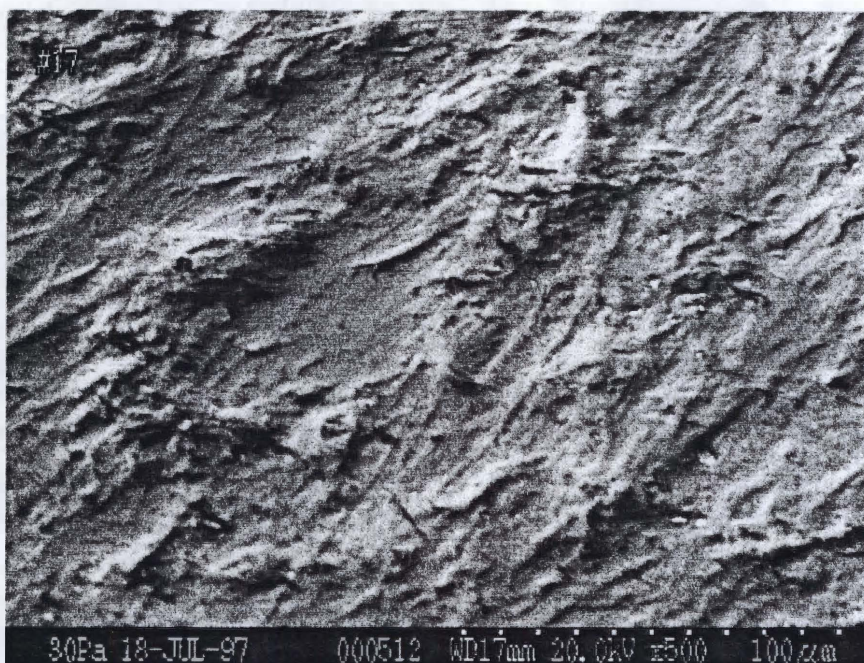


Tooth 13  
Burial 229B  
Cemetery 1  
Male  
Age 20-29



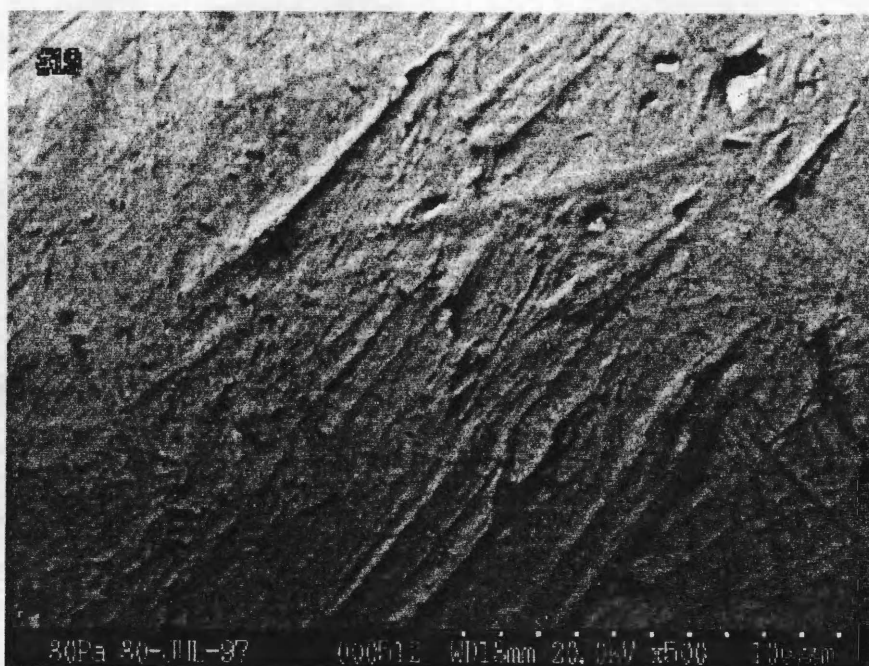
Tooth 15  
Burial 251  
Cemetery 1  
Female  
Age 30-39





Tooth 17  
Burial 277A  
Cemetery 1  
Male  
Age 20-29

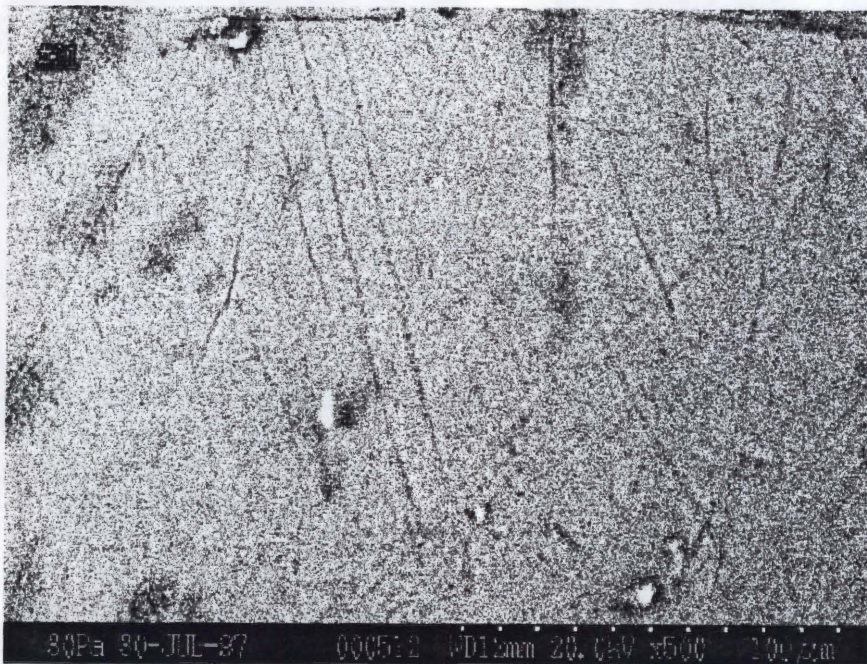




Tooth 19  
Burial 310  
Cemetery 1  
Female  
Age <20



Tooth 20  
Burial 311B  
Cemetery 1  
Male  
Age 20-29

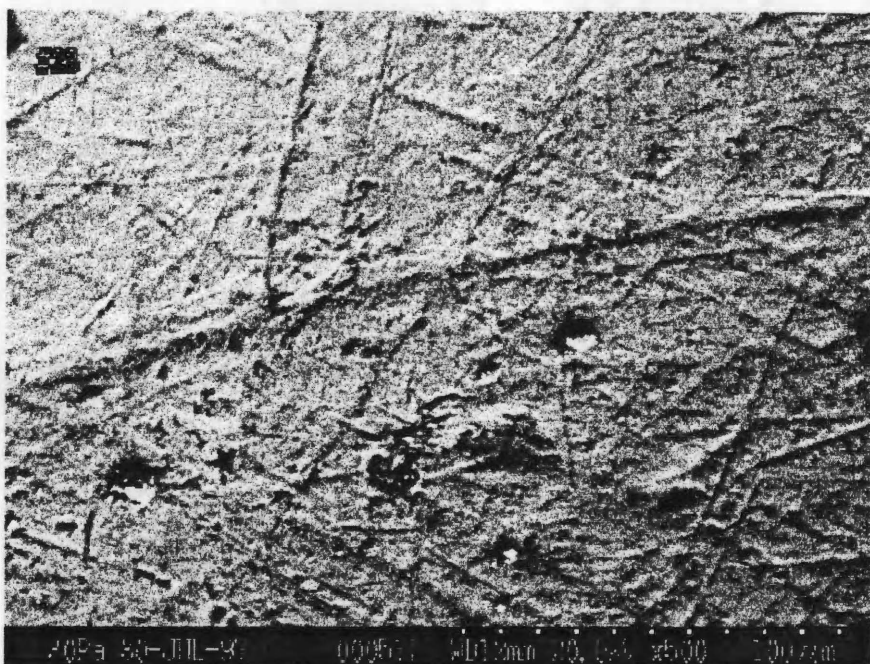


Tooth 21  
Burial 327  
Cemetery 1  
Male  
Age <20





Tooth 22  
Burial 359A  
Cemetery 1  
Female  
Age 20-29



Tooth 23  
Burial 363  
Cemetery 1  
Male  
Age 30-39



Tooth 24  
Burial 381  
Cemetery 1  
Male  
Age 30-39

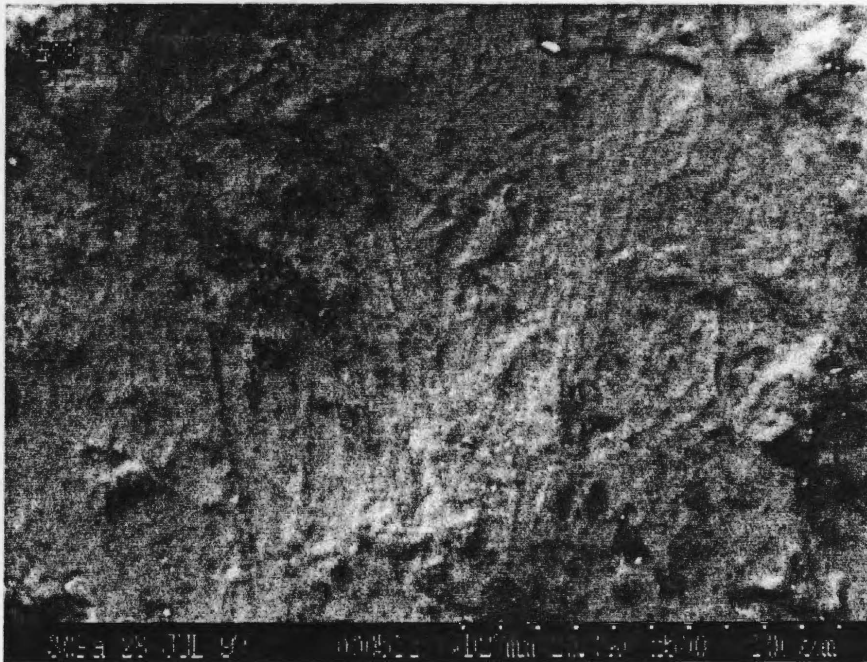




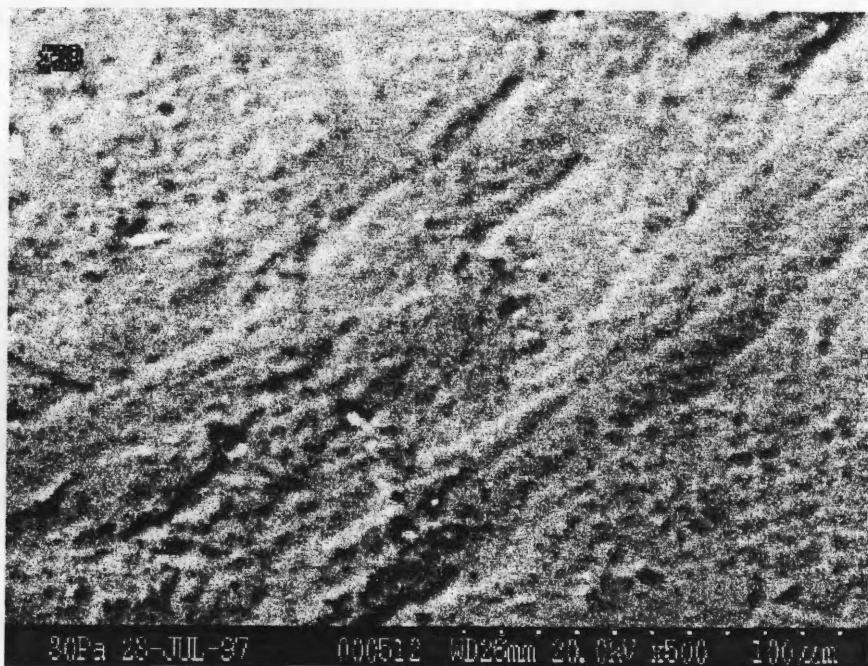
Tooth 25  
Burial 394A  
Cemetery 2  
Female  
Age <20



Tooth 27  
Burial 404A  
Cemetery 2  
Female  
Age <20

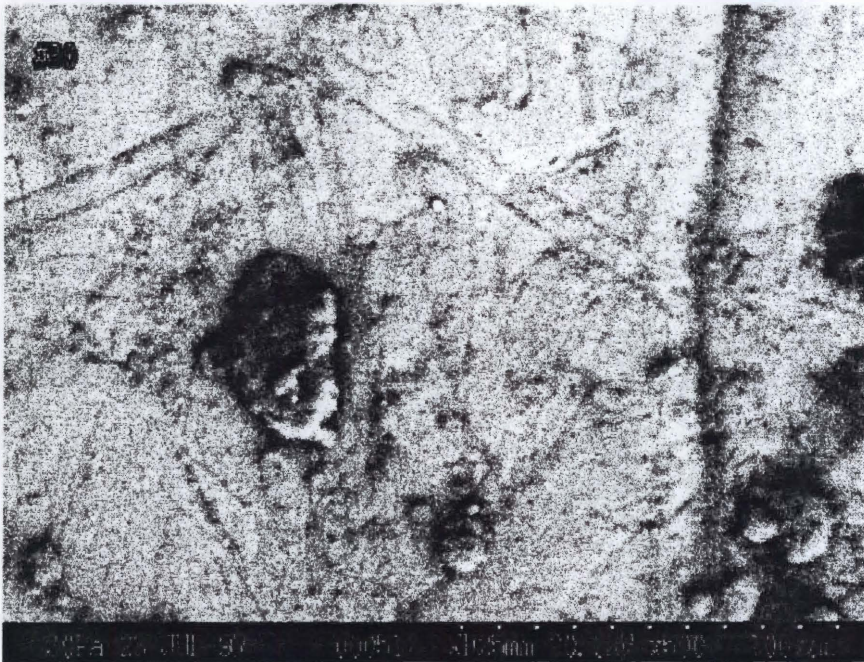


**Tooth 28**  
**Burial 405**  
**Cemetery 2**  
**Female**  
**Age 20-29**

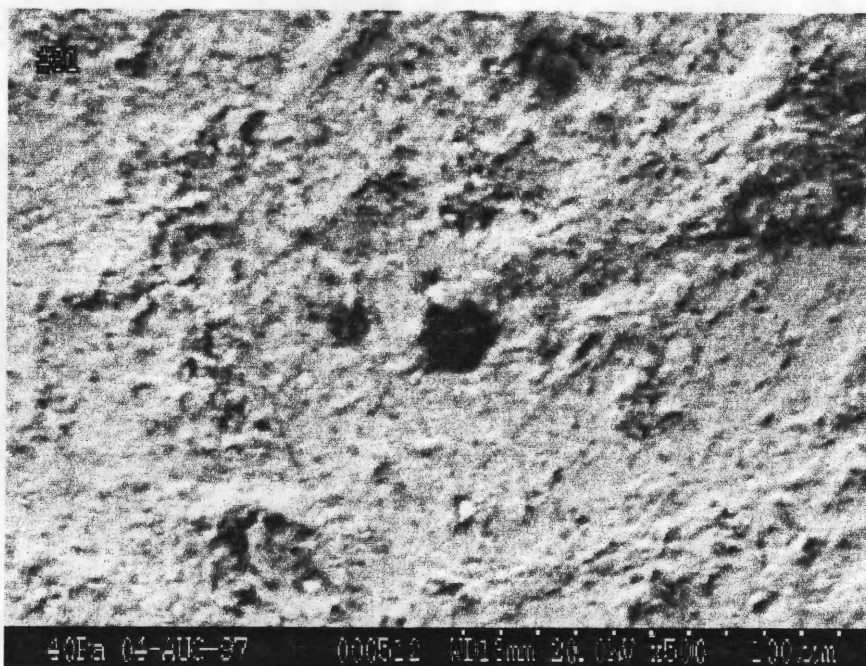


Tooth 29  
Burial 423  
Cemetery 2  
Male  
Age <20



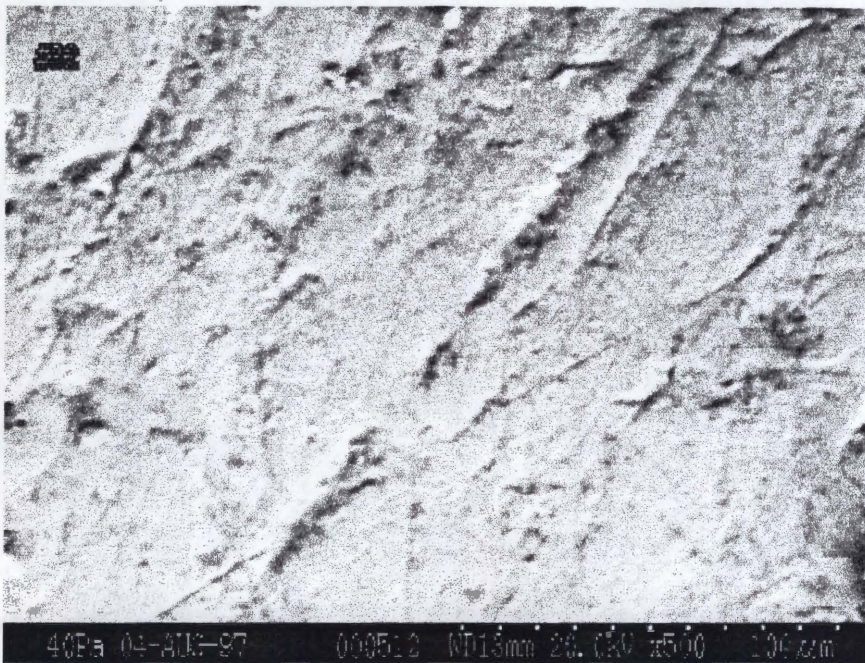


Tooth 30  
Burial 426  
Cemetery 1  
Female  
Age 30-39

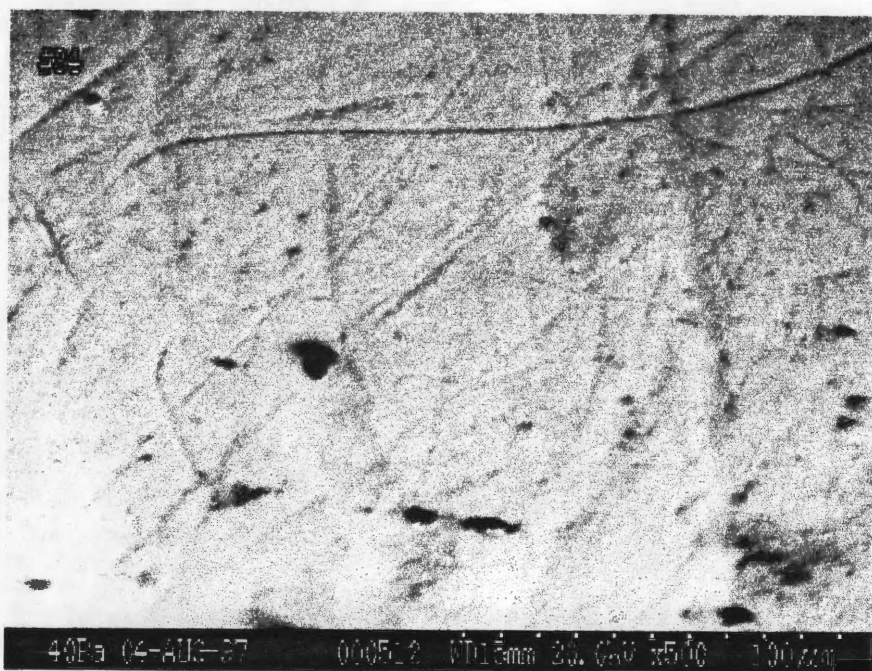


Tooth 31  
Burial 432A  
Cemetery 2  
Female  
Age 40+





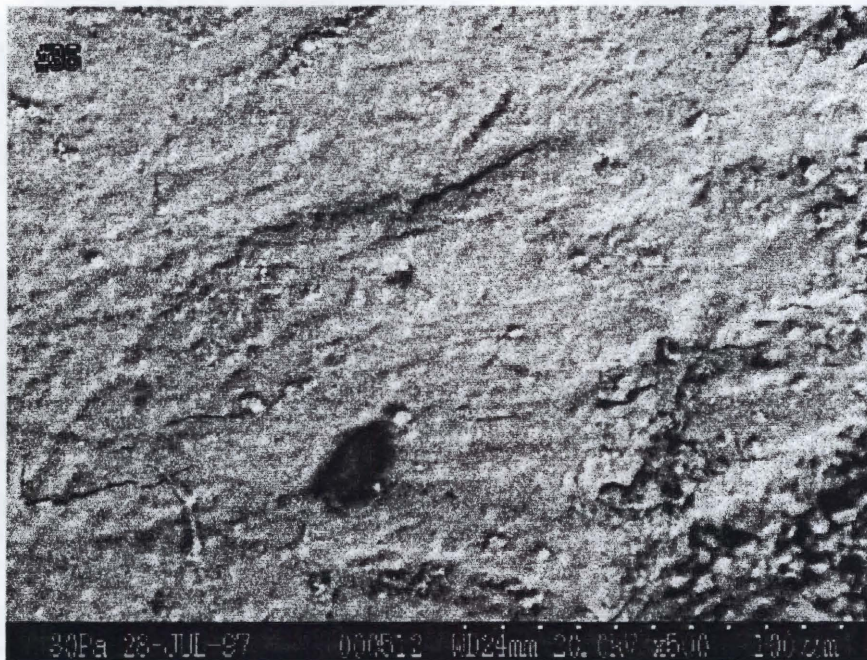
Tooth 32  
Burial 435A  
Cemetery 2  
Male  
Age 30-39



Tooth 34  
Burial 436A  
Cemetery 2  
Male  
Age 20-29

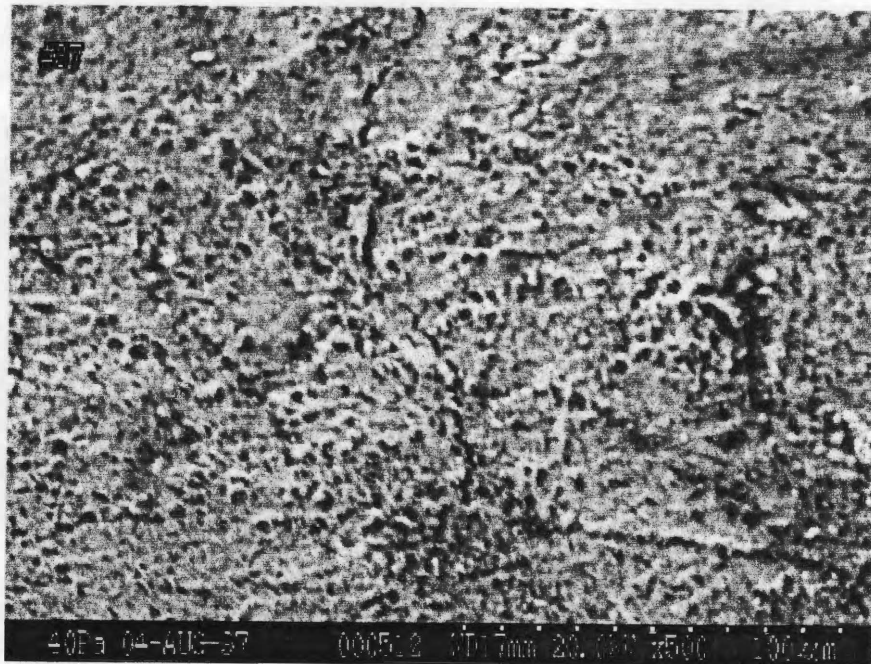


Tooth 35  
Burial 437B  
Cemetery 2  
Female  
Age 40+



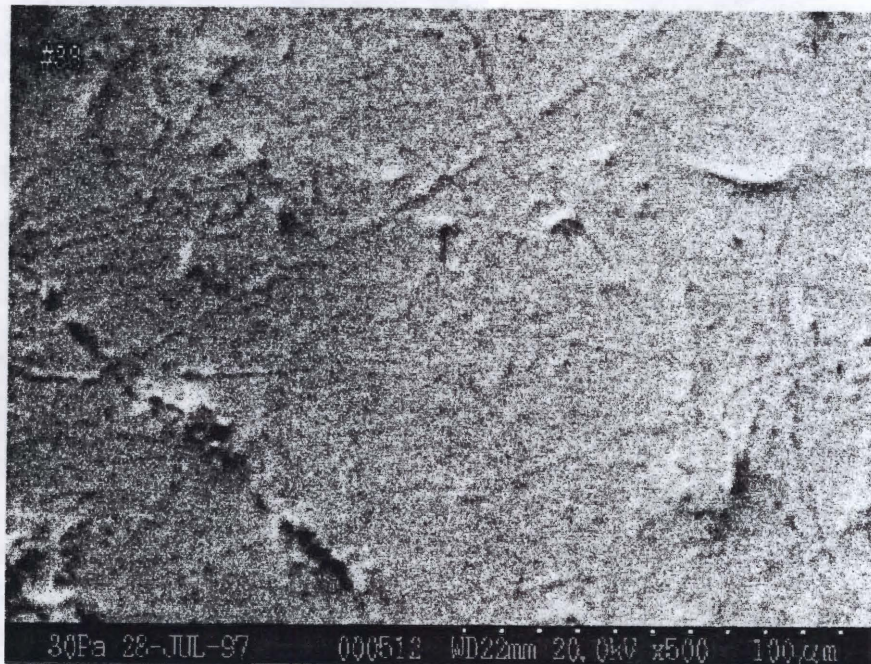
Tooth 36  
Burial 442A  
Cemetery 1  
Male  
Age 40+



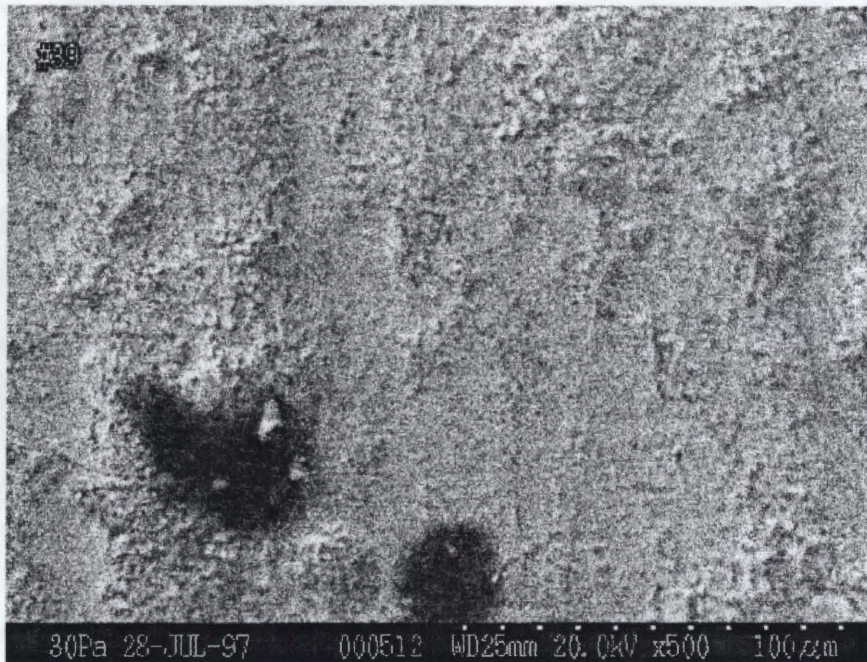


Tooth 37  
Burial 446  
Cemetery 2  
Female  
Age 40+

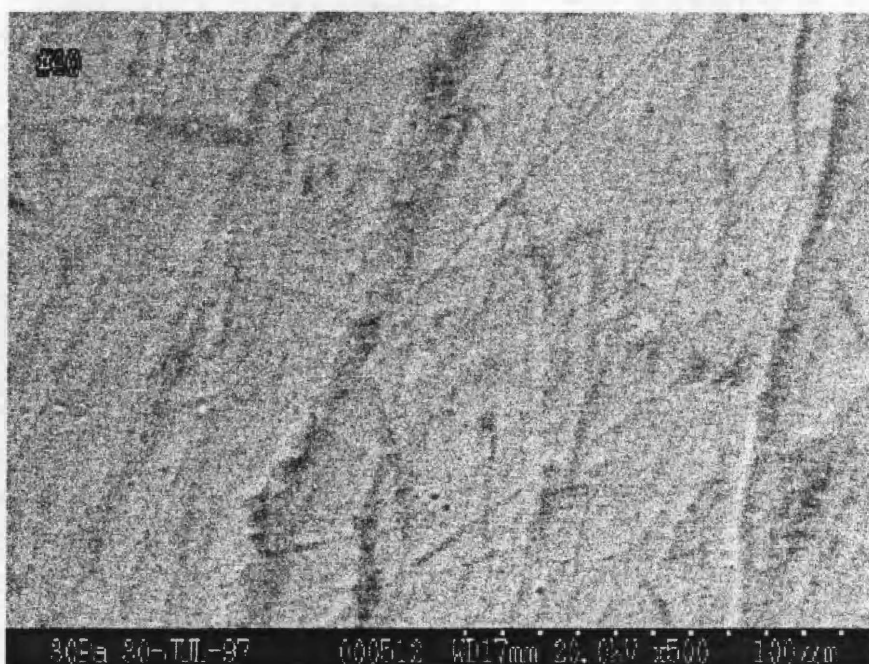




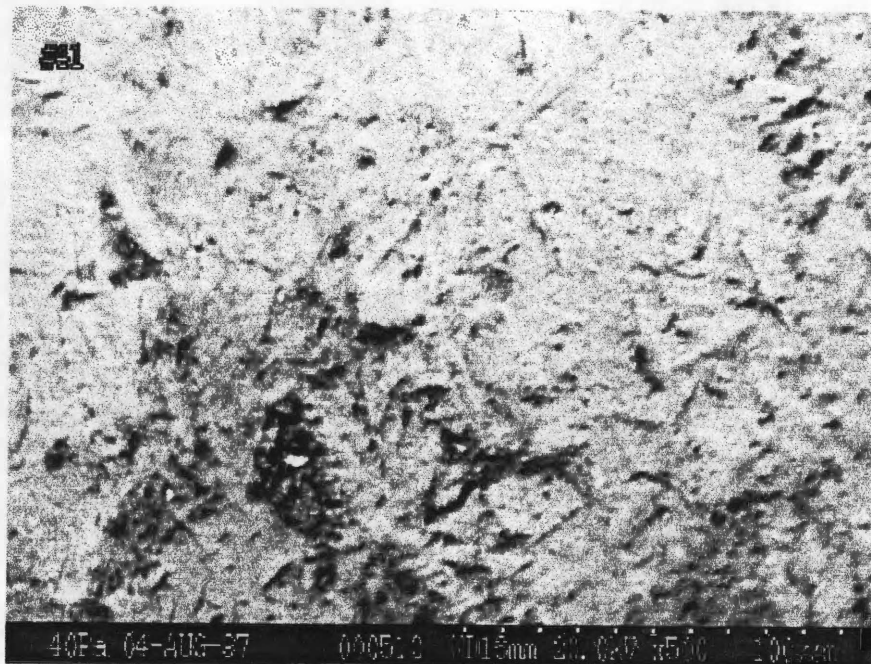
Tooth 38  
Burial 447  
Cemetery 2  
Female  
Age 20-29



Tooth 39  
Burial 457  
Cemetery 2  
Male  
Age 40+



Tooth 40  
Burial 459  
Cemetery 2  
Male  
Age 20-29



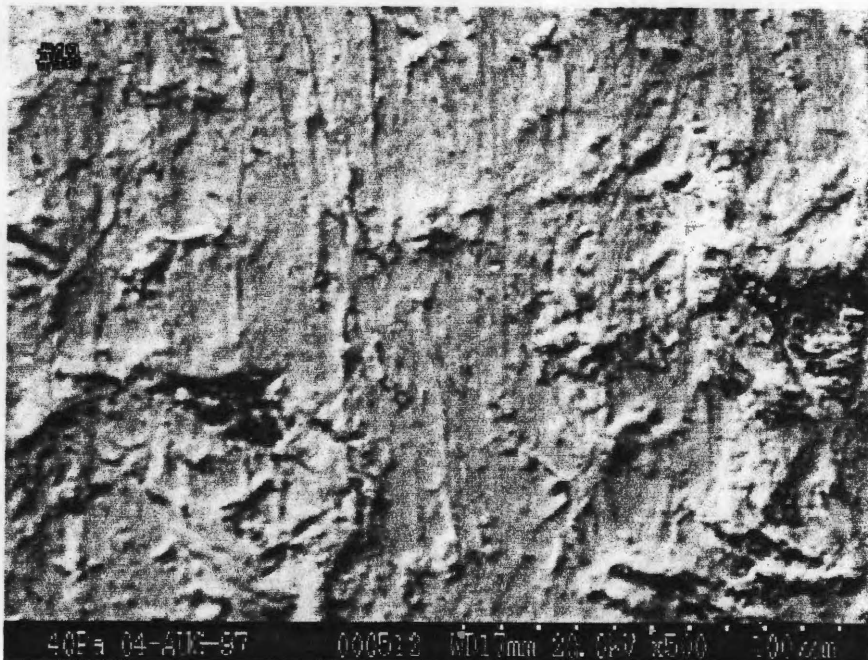
Tooth 41  
Burial 462  
Cemetery 2  
Male  
Age 40+



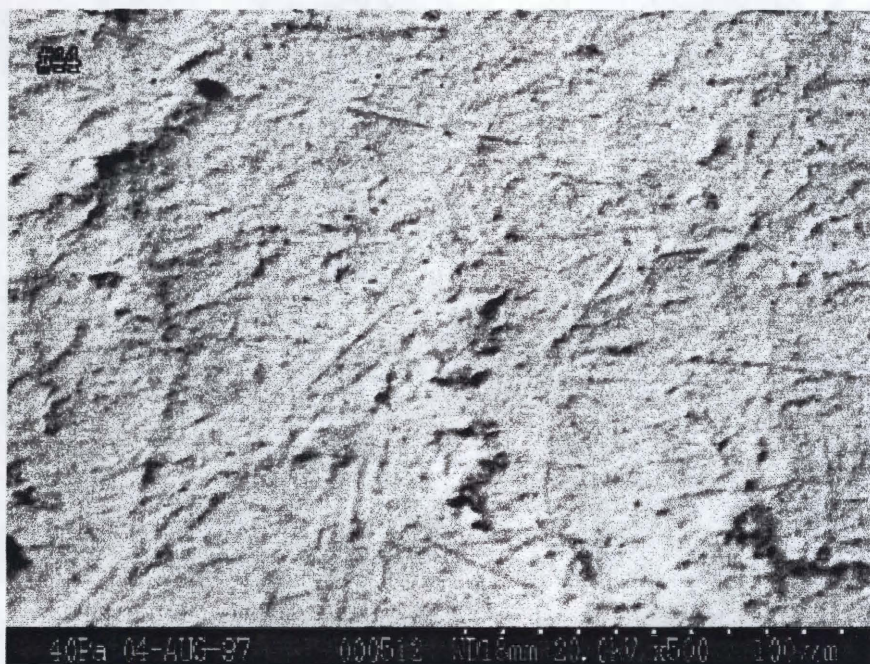


Tooth 42  
Burial 469A  
Cemetery 1  
Male  
Age 40+

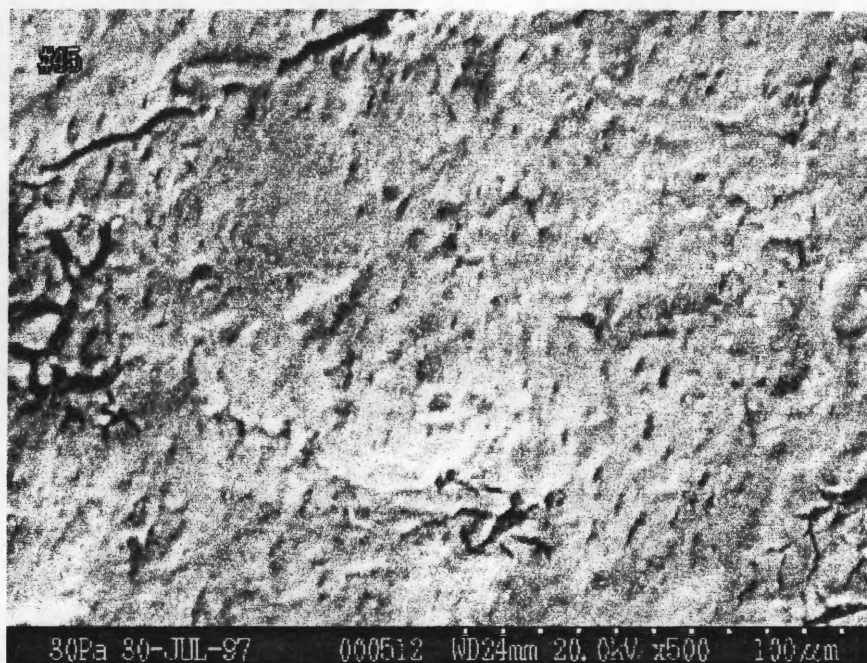




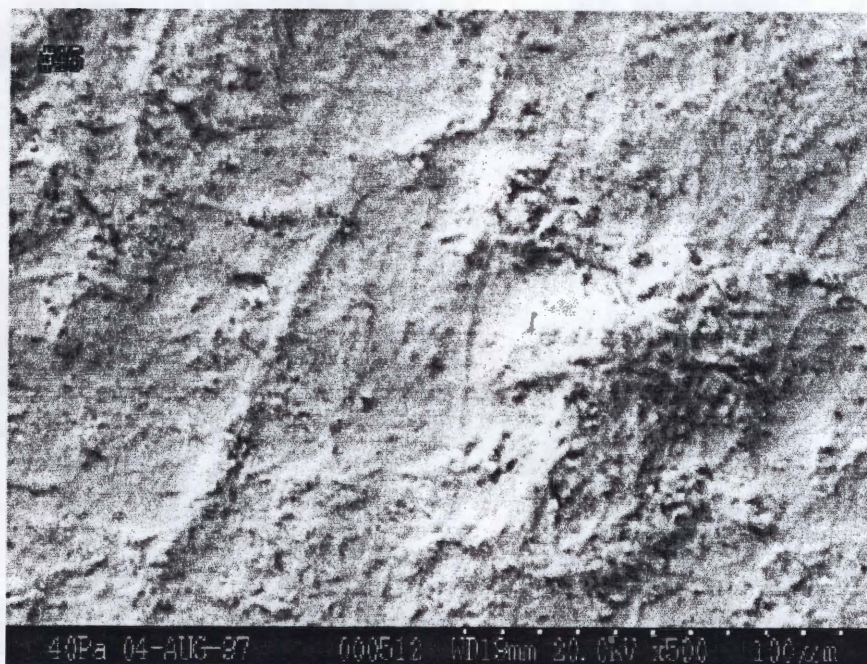
Tooth 43  
Burial 471  
Cemetery 2  
Male  
Age 30-39



Tooth 44  
Burial 477B  
Cemetery 2  
Female  
Age 30-39

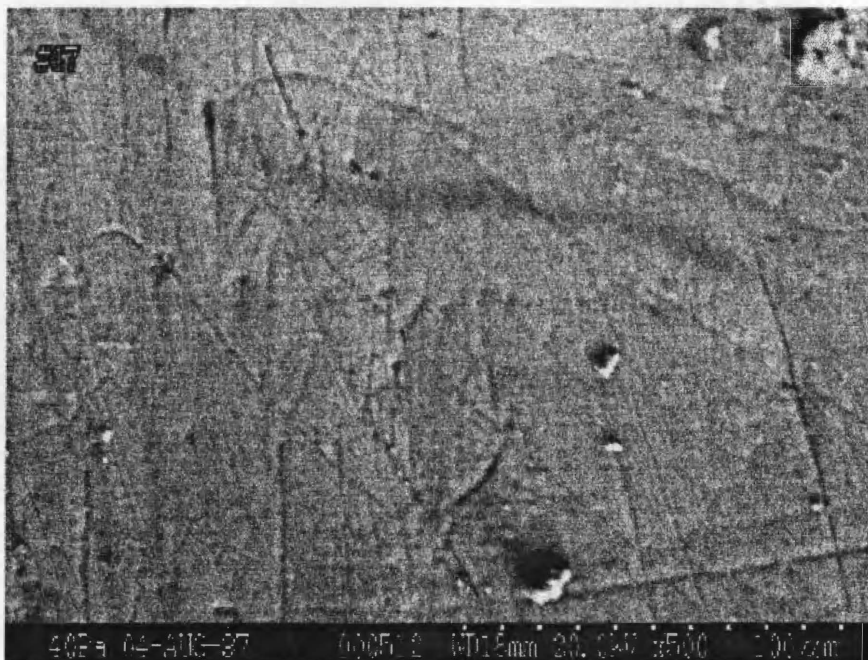


Tooth 45  
Burial 482  
Cemetery 1  
Female  
Age <20



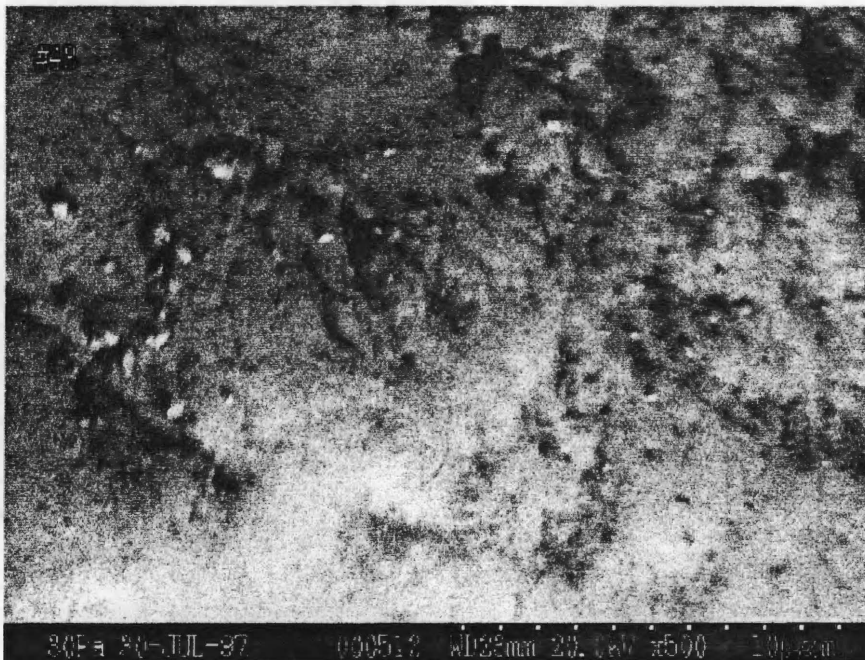
Tooth 46  
Burial 491  
Cemetery 2  
Female  
Age 30-39



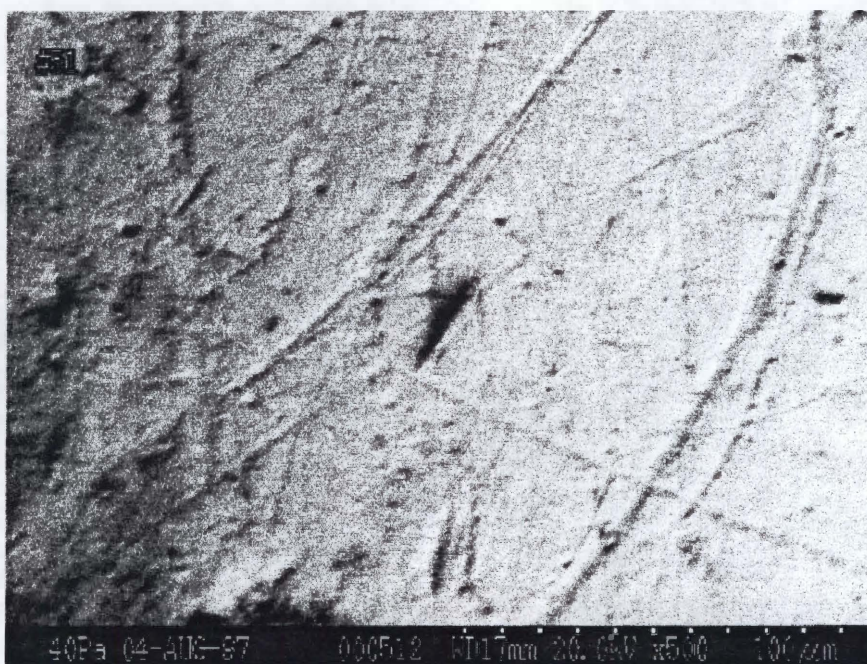


Tooth 47  
Burial 502  
Cemetery 2  
Female  
Age 20-29

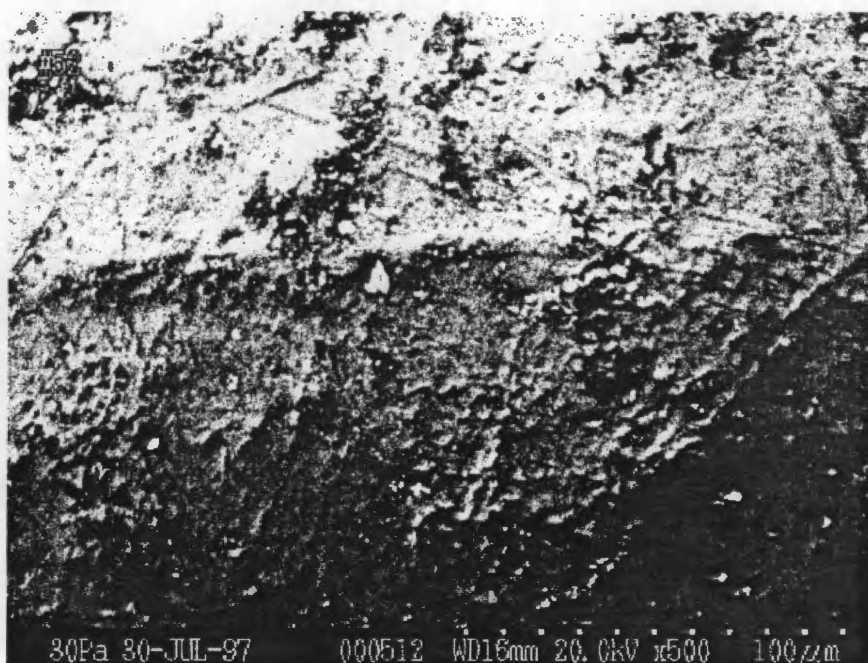




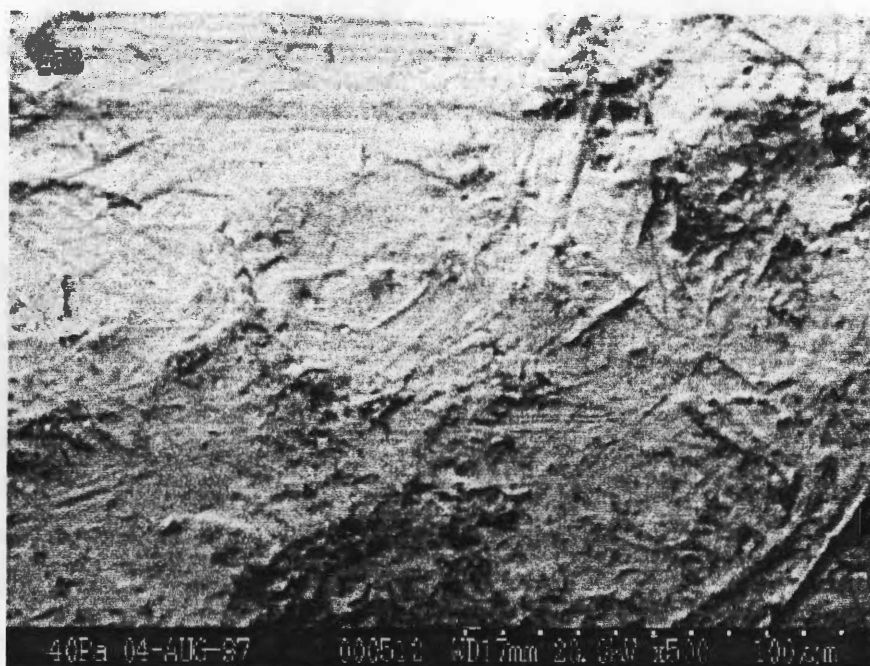
Tooth 48  
Burial 507B  
Cemetery 3  
Female  
Age <20



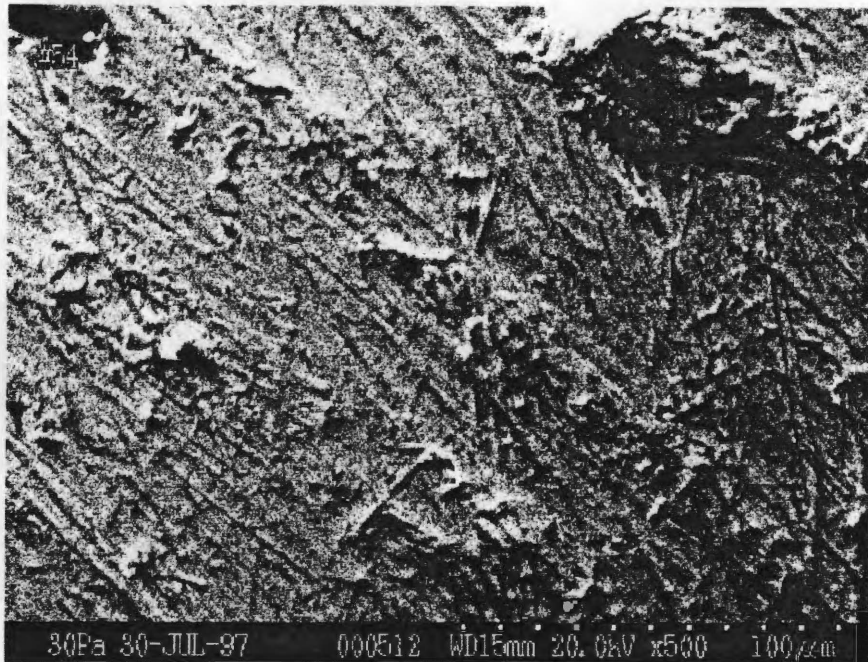
Tooth 51  
Burial 524  
Cemetery 3  
Female  
Age <20



Tooth 52  
Burial 525  
Cemetery 3  
Male  
Age 40+

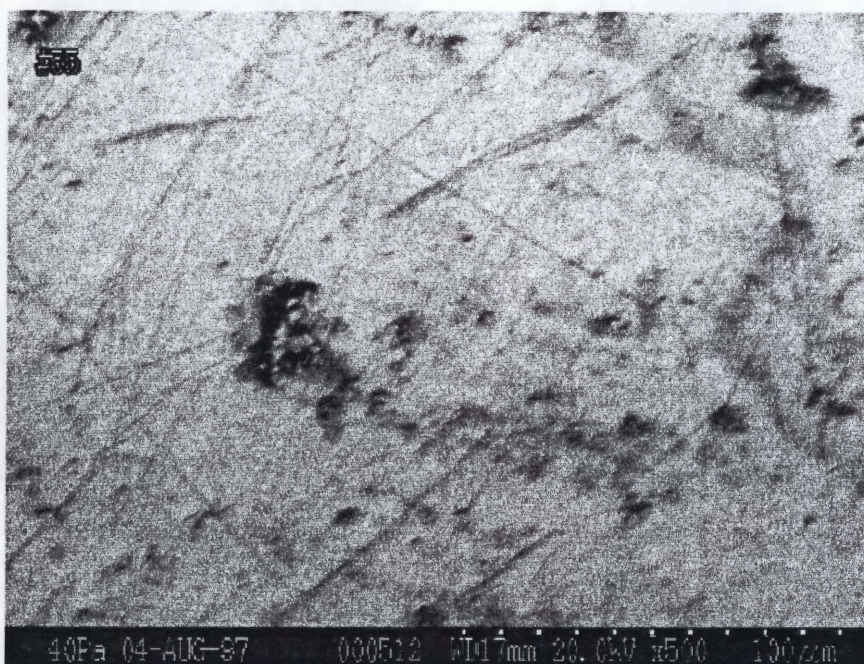


Tooth 53  
Burial 546  
Cemetery 3  
Male  
Age 30-39



Tooth 54  
Burial 562  
Cemetery 3  
Male  
Age <20

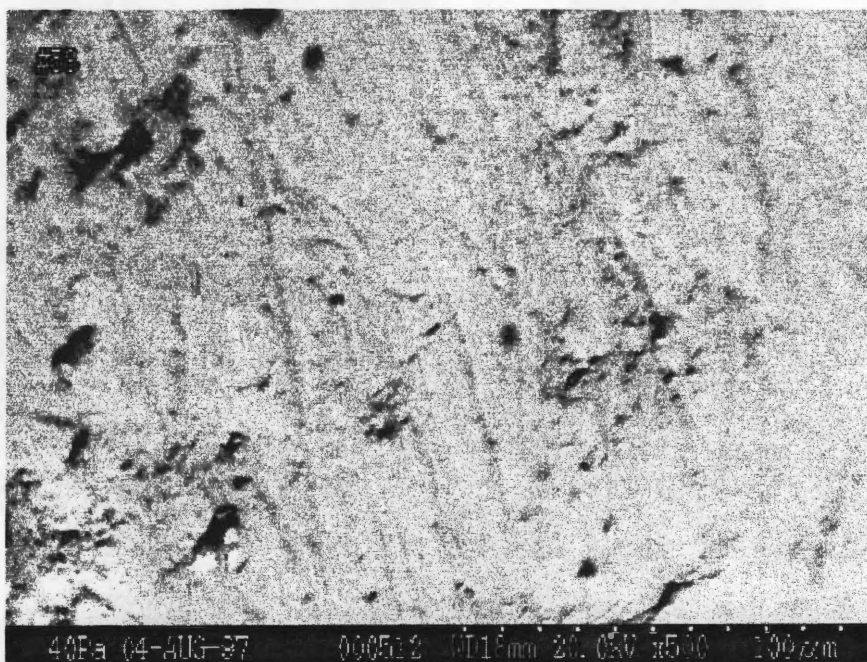




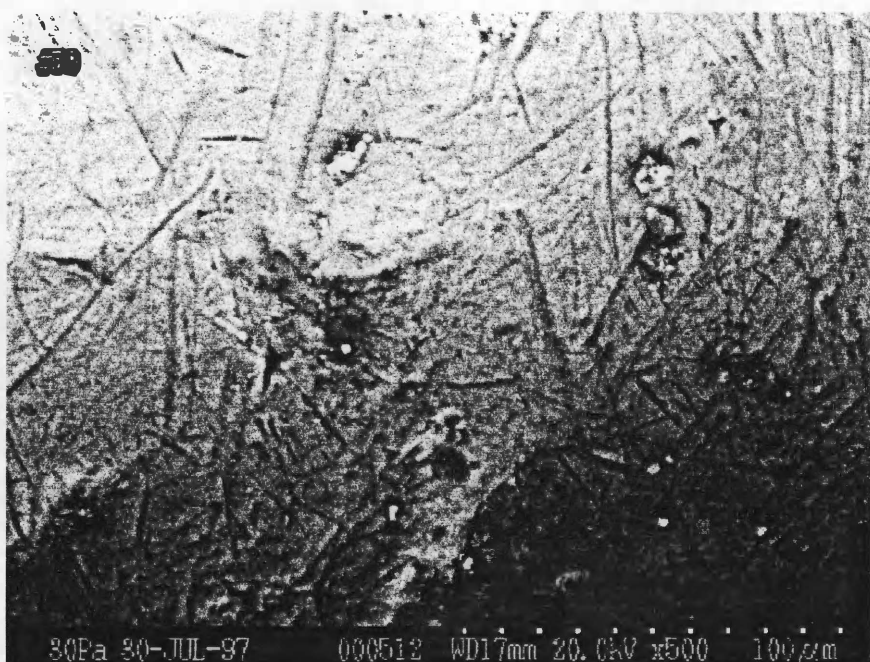
Tooth 55  
Burial 567  
Cemetery 3  
Female  
Age <20



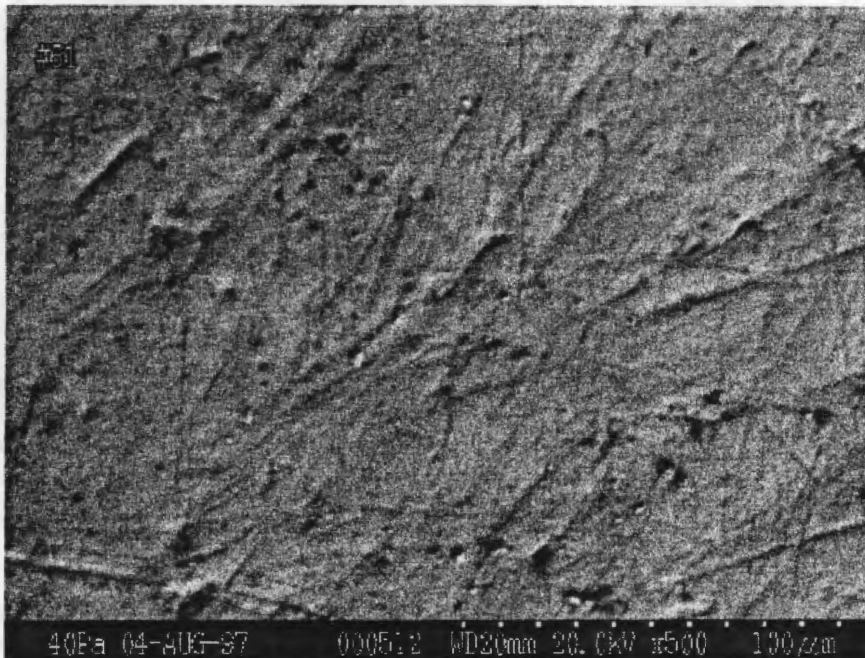
Tooth 56  
Burial 568B  
Cemetery 3  
Female  
Age 30-39



Tooth 58  
Burial 604  
Cemetery 3  
Female  
Age 20-29

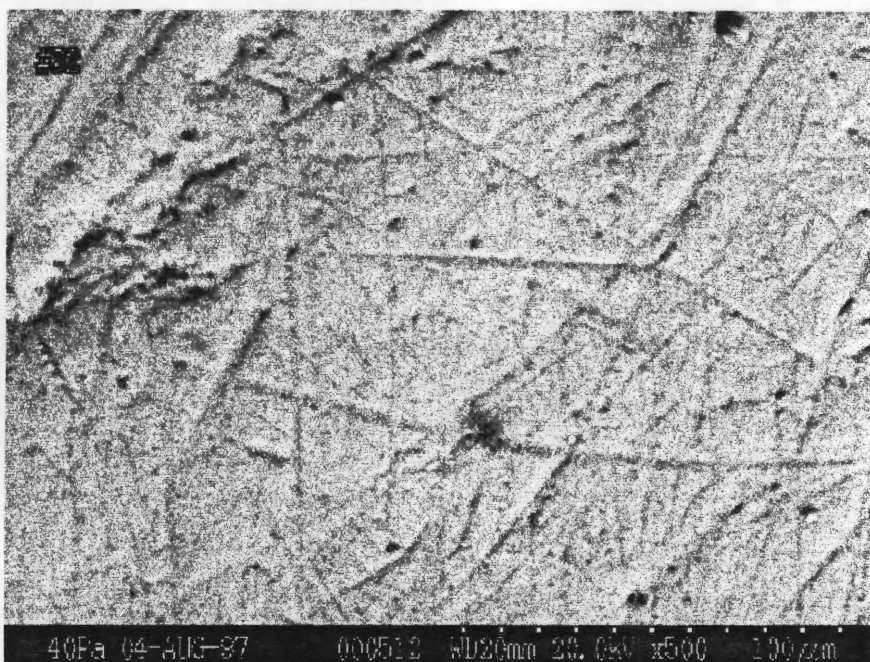


Tooth 59  
Burial 626  
Cemetery 3  
Male  
Age 40+

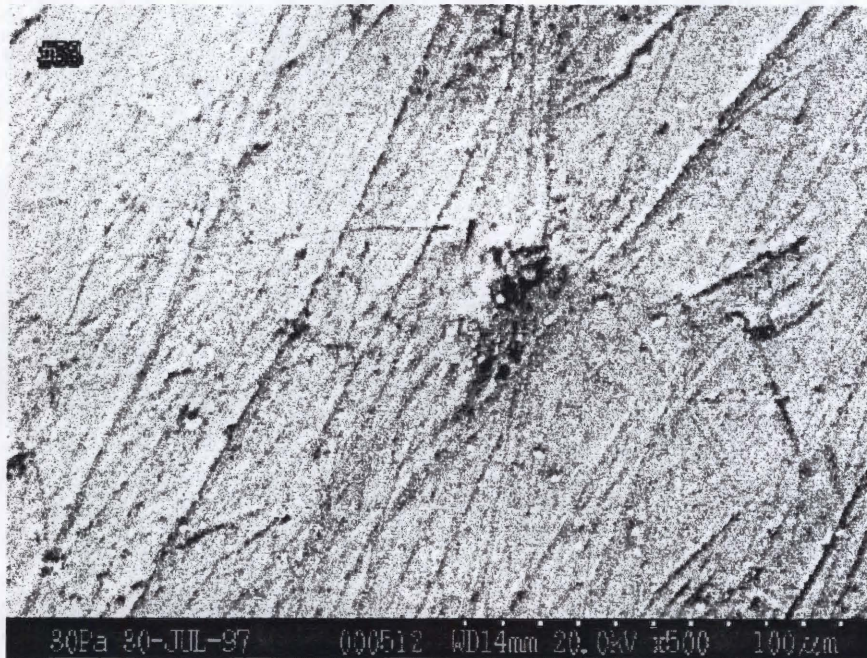


Tooth 61  
Burial 640  
Cemetery 3  
Male  
Age <20





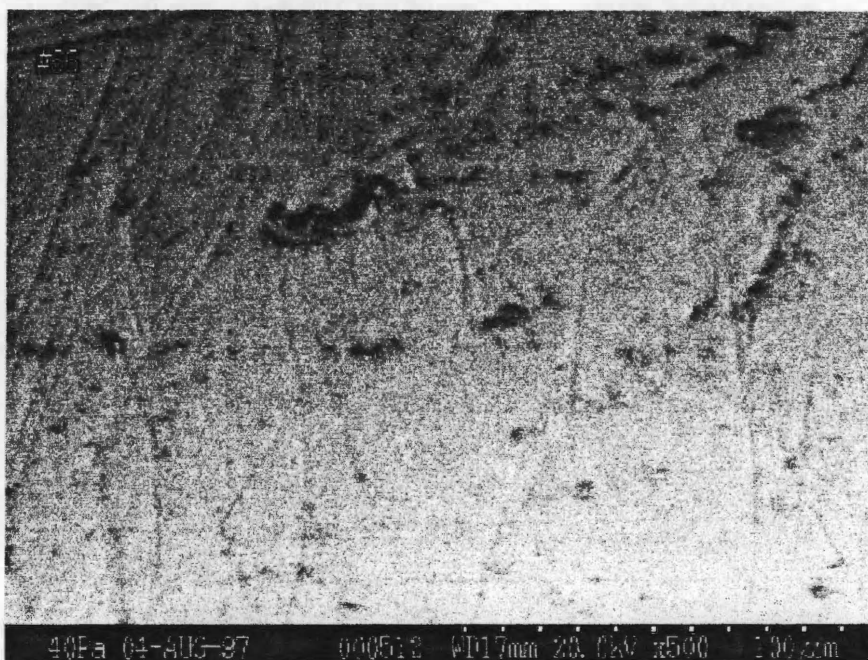
Tooth 62  
Burial 656  
Cemetery 3  
Female  
Age 20-29



Tooth 63  
Burial 665  
Cemetery 3  
Female  
Age 20-29



Photo 64  
Burial 679  
Cemetery 3  
Male  
Age 20-29

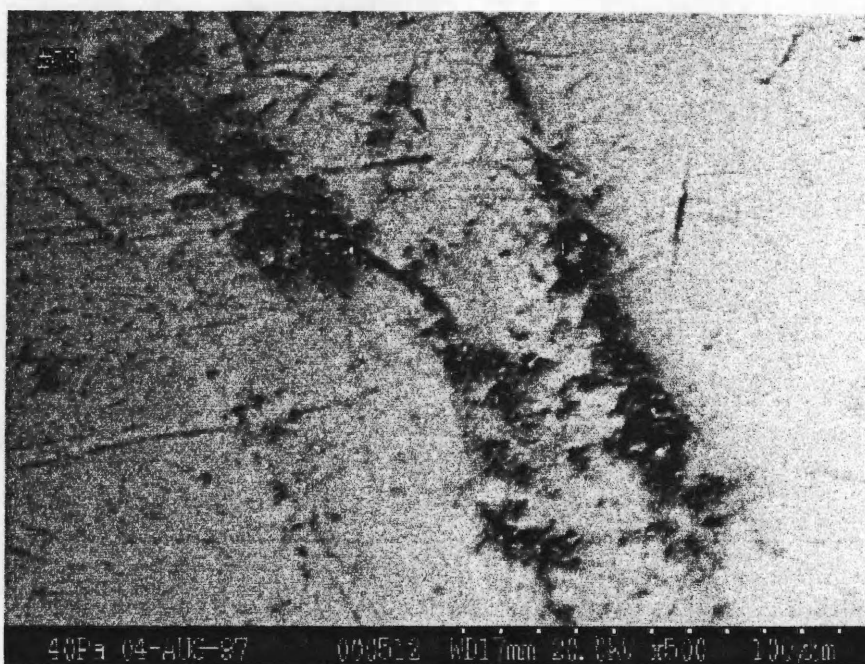


Tooth 66  
Burial 695  
Cemetery 3  
Male  
Age 20-29

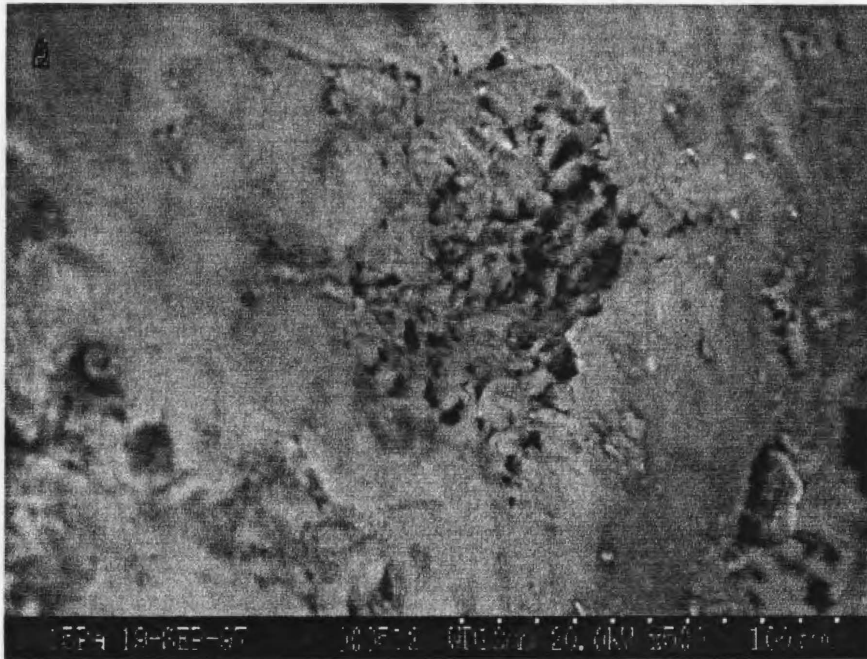


Tooth 67  
Burial 700A  
Cemetery 3  
Male  
Age 30-39

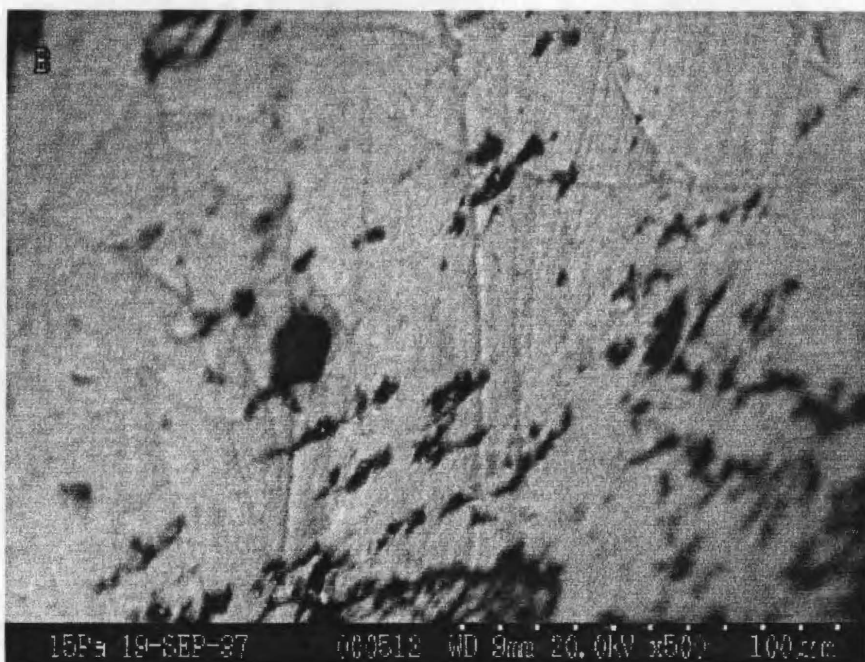




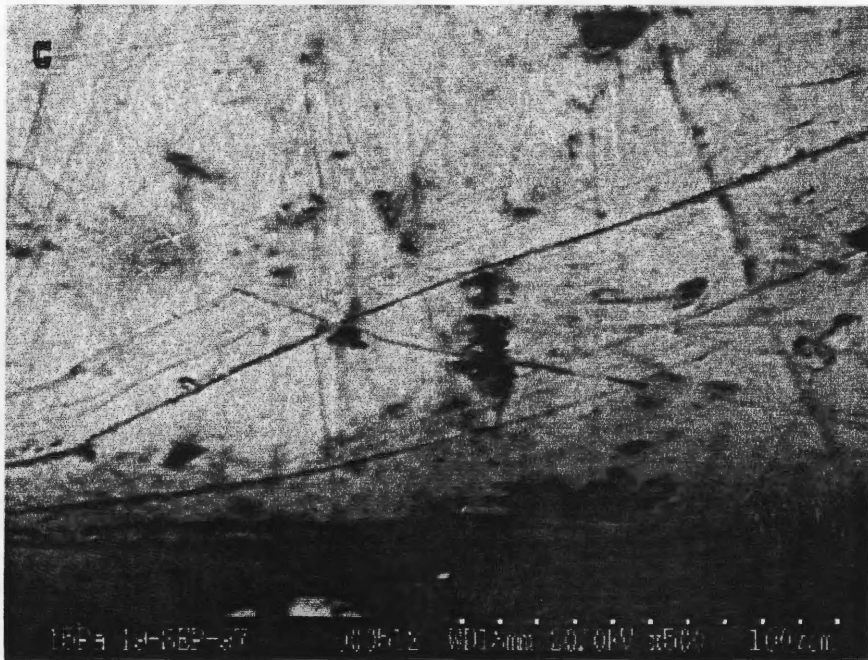
Tooth 68  
Burial 701A  
Cemetery 3  
Female  
Age 30-39



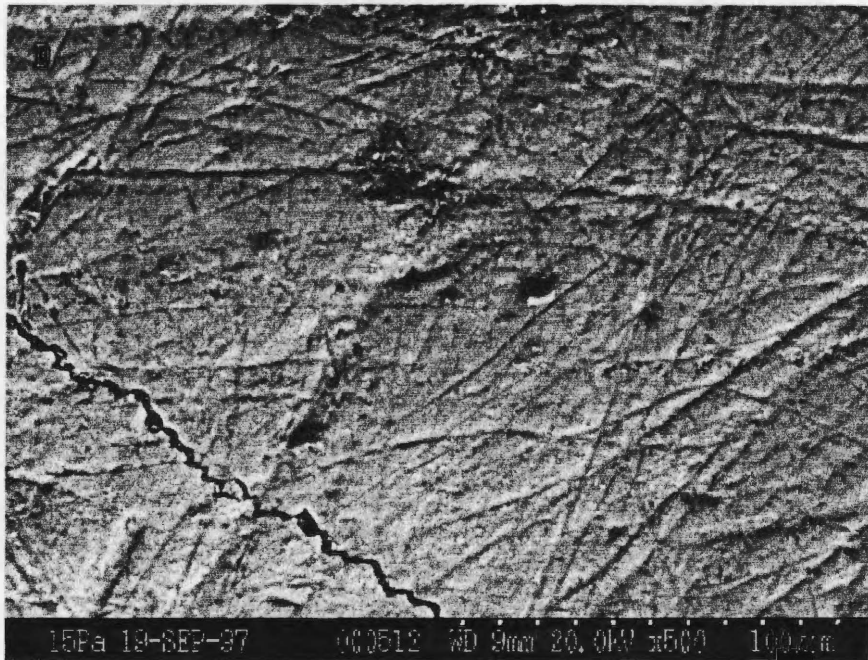
**Tooth 69**  
**Mobridge**  
**Adult Female**



Tooth 70  
Mobridge  
Adolescent

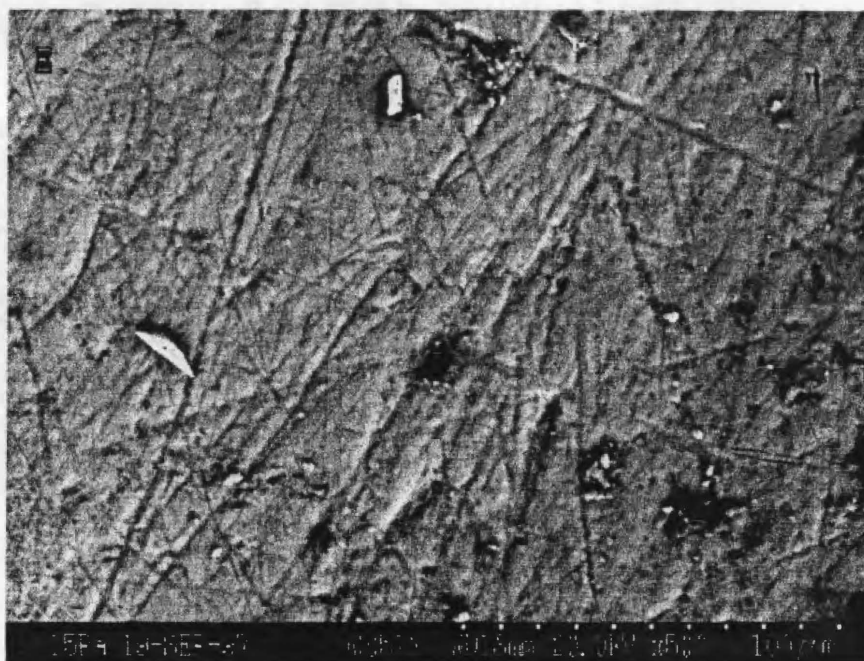


Tooth 71  
Mobridge  
Adult



Tooth 72  
Leavenworth  
Adult Female





**Tooth 73**  
**Leavenworth**  
**Adult Male**

**APPENDIX E**

**FEATURE SUMMARY STATISTICS**

# *Feature Summary Statistics*

| <i>Image File</i> | <i>Major Axis<br/>Length<br/>Mean</i> | <i>Major Axis<br/>Length<br/>S. D.</i> | <i>Minor Axis<br/>Length<br/>Mean</i> | <i>Minor Axis<br/>Length<br/>S. D.</i> | <i>Preferred<br/>Orientation<br/>Mean</i> | <i>Preferred<br/>Orientation<br/>S. D.</i> | <i>Major/Minor<br/>Axis Ratio<br/>Mean</i> | <i>Major/Minor<br/>Axis Ratio<br/>S. D.</i> | <i>R</i> |
|-------------------|---------------------------------------|----------------------------------------|---------------------------------------|----------------------------------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------|----------|
| 01                | 17.97                                 | 17.936                                 | 1.78                                  | 2.198                                  | 90.29                                     | 43.98                                      | 14.99                                      | 15.56                                       | 0.307    |
| 03                | 7.68                                  | 15.044                                 | 2.1                                   | 1.505                                  | 3.91                                      | 54.398                                     | 3.64                                       | 5.572                                       | 0.164    |
| 05                | 10.89                                 | 11.628                                 | 1.77                                  | 0.767                                  | 29.6                                      | 54.575                                     | 7.21                                       | 8.076                                       | 0.162    |
| 07                | 19.3                                  | 26.633                                 | 3.2                                   | 1.696                                  | 48.96                                     | 47.759                                     | 6.78                                       | 7.449                                       | 0.249    |
| 08                | 13.45                                 | 8.599                                  | 2.43                                  | 1.123                                  | 58.72                                     | 44.309                                     | 6.14                                       | 4.493                                       | 0.302    |
| 09                | 23.8                                  | 18.872                                 | 2.01                                  | 1.078                                  | 147.1                                     | 52.914                                     | 16.05                                      | 15.724                                      | 0.181    |
| 10                | 21.42                                 | 16.473                                 | 1.8                                   | 1.162                                  | 53.72                                     | 26.355                                     | 17.38                                      | 18.099                                      | 0.654    |
| 11                | 28.92                                 | 22.081                                 | 2.94                                  | 1.984                                  | 67.59                                     | 33.519                                     | 12.25                                      | 9.341                                       | 0.504    |
| 12                | 16.7                                  | 15.971                                 | 2.44                                  | 0.835                                  | 176.82                                    | 34.67                                      | 7.32                                       | 6.381                                       | 0.48     |
| 13                | 39.56                                 | 34.028                                 | 1.33                                  | 0.885                                  | 164.85                                    | 19.76                                      | 41.18                                      | 38.673                                      | 0.788    |
| 15                | 16.83                                 | 12.209                                 | 2.9                                   | 1.901                                  | 73.44                                     | 62.705                                     | 7.41                                       | 6.679                                       | 0.091    |
| 17                | 17.18                                 | 12.017                                 | 2.38                                  | 1.188                                  | 31.74                                     | 35.299                                     | 8.38                                       | 6.041                                       | 0.468    |
| 19                | 20.5                                  | 20.974                                 | 2.02                                  | 0.992                                  | 56.05                                     | 38.42                                      | 11                                         | 9.916                                       | 0.406    |
| 20                | 21.34                                 | 13.641                                 | 1.96                                  | 1.139                                  | 111.5                                     | 50.075                                     | 13.57                                      | 10.185                                      | 0.217    |
| 21                | 33.2                                  | 27.046                                 | 1.78                                  | 0.641                                  | 84.37                                     | 34.231                                     | 21.33                                      | 19.163                                      | 0.489    |
| 22                | 23.73                                 | 25.453                                 | 1.92                                  | 0.762                                  | 94.5                                      | 24.302                                     | 14.92                                      | 18.86                                       | 0.697    |
| 23                | 24.98                                 | 29.529                                 | 2.49                                  | 1.265                                  | 13.19                                     | 56.43                                      | 11.56                                      | 13.676                                      | 0.143    |
| 24                | 19.79                                 | 15.183                                 | 1.7                                   | 0.981                                  | 88.48                                     | 26.033                                     | 15.95                                      | 15.743                                      | 0.661    |
| 25                | 26.83                                 | 17.276                                 | 1.97                                  | 0.761                                  | 98.1                                      | 45.709                                     | 15.06                                      | 10.429                                      | 0.28     |
| 27                | 20.43                                 | 18.991                                 | 2.64                                  | 1.286                                  | 49.28                                     | 29.636                                     | 8.84                                       | 8.155                                       | 0.585    |
| 28                | 19.37                                 | 14.498                                 | 2.65                                  | 1.968                                  | 87.47                                     | 37.71                                      | 10.43                                      | 11.147                                      | 0.42     |
| 29                | 19.45                                 | 22.401                                 | 2.7                                   | 1.101                                  | 30.44                                     | 35.889                                     | 7.58                                       | 6.818                                       | 0.456    |
| 30                | 29                                    | 21.758                                 | 2.43                                  | 1.081                                  | 73.26                                     | 50.436                                     | 13.4                                       | 10.246                                      | 0.212    |

# *Feature Summary Statistics*

| <i>Image File</i> | <i>Number of Features</i> | <i>Pit Tally</i> | <i>Pit Length Mean</i> | <i>Pit Length S. D.</i> | <i>Pit Width Mean</i> | <i>Pit Width S. D.</i> | <i>Scratch Tally</i> | <i>Scratch Length Mean</i> | <i>Scratch Length S. D.</i> | <i>Scratch Breadth Mean</i> |
|-------------------|---------------------------|------------------|------------------------|-------------------------|-----------------------|------------------------|----------------------|----------------------------|-----------------------------|-----------------------------|
| 01                | 117                       | 32               | 4.92                   | 4.8                     | 3.13                  | 3.811                  | 85                   | 22.88                      | 18.615                      | 1.28                        |
| 03                | 83                        | 66               | 3.32                   | 1.984                   | 1.91                  | 0.937                  | 17                   | 24.58                      | 27.605                      | 2.85                        |
| 05                | 90                        | 50               | 3.58                   | 1.809                   | 1.93                  | 0.762                  | 40                   | 20.03                      | 12.261                      | 1.57                        |
| 07                | 51                        | 25               | 6.63                   | 2.648                   | 3.9                   | 1.886                  | 26                   | 31.48                      | 33.12                       | 2.52                        |
| 08                | 51                        | 17               | 5.93                   | 2.995                   | 2.7                   | 1.422                  | 34                   | 17.21                      | 8.001                       | 2.3                         |
| 09                | 58                        | 12               | 5.58                   | 1.883                   | 3.52                  | 1.281                  | 46                   | 28.55                      | 18.402                      | 1.61                        |
| 10                | 85                        | 22               | 4.34                   | 2.656                   | 2.74                  | 1.669                  | 63                   | 27.39                      | 15.018                      | 1.47                        |
| 11                | 57                        | 8                | 10.4                   | 3.357                   | 5.02                  | 3.479                  | 49                   | 31.95                      | 22.377                      | 2.6                         |
| 12                | 99                        | 42               | 4.79                   | 2.023                   | 2.66                  | 0.867                  | 57                   | 25.48                      | 16.078                      | 2.28                        |
| 13                | 66                        | 10               | 4.09                   | 1.739                   | 2.69                  | 1.235                  | 56                   | 45.89                      | 33.142                      | 1.09                        |
| 15                | 41                        | 16               | 9.68                   | 7.25                    | 4.16                  | 2.462                  | 25                   | 21.4                       | 12.641                      | 2.09                        |
| 17                | 91                        | 21               | 7.03                   | 3.067                   | 3.26                  | 1.466                  | 70                   | 20.23                      | 12.035                      | 2.12                        |
| 19                | 93                        | 30               | 4.59                   | 2.331                   | 2.31                  | 1.316                  | 63                   | 28.07                      | 21.669                      | 1.88                        |
| 20                | 64                        | 10               | 8.64                   | 3.639                   | 3.53                  | 1.724                  | 54                   | 23.69                      | 13.523                      | 1.67                        |
| 21                | 67                        | 8                | 5.23                   | 1.922                   | 2.17                  | 0.841                  | 59                   | 36.99                      | 26.634                      | 1.73                        |
| 22                | 102                       | 35               | 4.55                   | 2.104                   | 2.35                  | 0.902                  | 67                   | 33.75                      | 26.307                      | 1.7                         |
| 23                | 111                       | 48               | 4.62                   | 2.759                   | 2.88                  | 1.597                  | 63                   | 40.49                      | 31.243                      | 2.19                        |
| 24                | 107                       | 19               | 6.26                   | 3.05                    | 2.99                  | 1.344                  | 88                   | 22.71                      | 15.178                      | 1.43                        |
| 25                | 81                        | 11               | 6.88                   | 4.623                   | 2.38                  | 1.036                  | 70                   | 29.96                      | 16.418                      | 1.9                         |
| 27                | 70                        | 23               | 6.24                   | 2.868                   | 3.26                  | 1.879                  | 47                   | 27.37                      | 19.676                      | 2.34                        |
| 28                | 59                        | 19               | 7.81                   | 6.134                   | 4.05                  | 2.899                  | 40                   | 24.86                      | 14.111                      | 1.99                        |
| 29                | 45                        | 21               | 6.55                   | 2.595                   | 2.99                  | 1.102                  | 24                   | 30.73                      | 25.875                      | 2.45                        |
| 30                | 69                        | 10               | 6.44                   | 3.563                   | 3.29                  | 1.428                  | 59                   | 32.82                      | 21.225                      | 2.28                        |

### *Feature Summary Statistics*

| <i>Image File</i> | <i>Scratch<br/>Breadth<br/>S. D.</i> | <i>Scratch<br/>Orientation<br/>Mean</i> | <i>Scratch<br/>Orientation<br/>S. D.</i> | <i>Scratch R</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> |
|-------------------|--------------------------------------|-----------------------------------------|------------------------------------------|------------------|-----------------|------------|------------|
| 01                | 0.6                                  | 93.44                                   | 38.994                                   | 0.395            | 1               | F          | 40+        |
| 03                | 2.703                                | 32.7                                    | 25.997                                   | 0.662            | 1               | M          | 20-29      |
| 05                | 0.733                                | 24.6                                    | 28.668                                   | 0.606            | 1               | F          | 30-39      |
| 07                | 1.167                                | 70.99                                   | 38.628                                   | 0.402            | 1               | M          | 30-39      |
| 08                | 0.935                                | 53.79                                   | 38.436                                   | 0.406            | 1               | M          | 20-29      |
| 09                | 0.547                                | 143.4                                   | 43.273                                   | 0.319            | 1               | F          | 40+        |
| 10                | 0.683                                | 52.73                                   | 23.163                                   | 0.721            | 1               | M          | <20        |
| 11                | 1.412                                | 68.17                                   | 33.04                                    | 0.514            | 1               | M          | <20        |
| 12                | 0.778                                | 174.82                                  | 34.301                                   | 0.488            | 1               | M          | 40+        |
| 13                | 0.532                                | 164.33                                  | 17.758                                   | 0.825            | 1               | M          | 20-29      |
| 15                | 0.703                                | 70.27                                   | 60.955                                   | 0.103            | 1               | F          | 30-39      |
| 17                | 0.956                                | 38.45                                   | 33.56                                    | 0.503            | 1               | M          | 20-29      |
| 19                | 0.769                                | 57.57                                   | 36.61                                    | 0.441            | 1               | F          | <20        |
| 20                | 0.695                                | 104.54                                  | 49.602                                   | 0.223            | 1               | M          | 20-29      |
| 21                | 0.6                                  | 86.45                                   | 34.945                                   | 0.475            | 1               | M          | <20        |
| 22                | 0.571                                | 93.58                                   | 15.771                                   | 0.859            | 1               | F          | 20-29      |
| 23                | 0.833                                | 173.13                                  | 51.805                                   | 0.194            | 1               | M          | 30-39      |
| 24                | 0.602                                | 88.37                                   | 24.993                                   | 0.683            | 1               | M          | 30-39      |
| 25                | 0.697                                | 94.63                                   | 46.282                                   | 0.271            | 2               | F          | <20        |
| 27                | 0.713                                | 59.28                                   | 26.466                                   | 0.652            | 2               | F          | <20        |
| 28                | 0.696                                | 87.93                                   | 34.888                                   | 0.476            | 2               | F          | 20-29      |
| 29                | 1.059                                | 33.44                                   | 23.951                                   | 0.705            | 2               | M          | <20        |
| 30                | 0.95                                 | 71.18                                   | 51.874                                   | 0.194            | 1               | F          | 30-39      |



# *Feature Summary Statistics*

| <i>Image File</i> | <i>Major Axis<br/>Length<br/>Mean</i> | <i>Major Axis<br/>Length<br/>S. D.</i> | <i>Minor Axis<br/>Length<br/>Mean</i> | <i>Minor Axis<br/>Length<br/>S. D.</i> | <i>Preferred<br/>Orientation<br/>Mean</i> | <i>Preferred<br/>Orientation<br/>S. D.</i> | <i>Major/Minor<br/>Axis Ratio<br/>Mean</i> | <i>Major/Minor<br/>Axis Ratio<br/>S. D.</i> | <i>R</i> |
|-------------------|---------------------------------------|----------------------------------------|---------------------------------------|----------------------------------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------|----------|
| 31                | 20.97                                 | 12.522                                 | 1.97                                  | 0.933                                  | 82.64                                     | 46.253                                     | 13.37                                      | 10.626                                      | 0.271    |
| 32                | 18.79                                 | 21.19                                  | 2.28                                  | 0.988                                  | 62.61                                     | 41.08                                      | 8.76                                       | 7.704                                       | 0.357    |
| 34                | 24.85                                 | 29.826                                 | 2.33                                  | 1.057                                  | 48.1                                      | 52.124                                     | 11.84                                      | 14.187                                      | 0.191    |
| 35                | 16.06                                 | 15.138                                 | 2.92                                  | 4.065                                  | 85.51                                     | 47.137                                     | 8.56                                       | 9.325                                       | 0.258    |
| 36                | 16.71                                 | 17.072                                 | 2.64                                  | 0.895                                  | 35.7                                      | 41.195                                     | 7.72                                       | 8.961                                       | 0.355    |
| 37                | 26.42                                 | 18.724                                 | 2.19                                  | 0.892                                  | 149.81                                    | 42.888                                     | 12.99                                      | 9.595                                       | 0.326    |
| 38                | 34.74                                 | 32.776                                 | 2.43                                  | 1.042                                  | 166.57                                    | 52.587                                     | 17.44                                      | 18.696                                      | 0.185    |
| 39                | 16.98                                 | 16.956                                 | 2.58                                  | 2.582                                  | 93.01                                     | 51.011                                     | 8.31                                       | 9.213                                       | 0.204    |
| 40                | 24.56                                 | 22.707                                 | 2.49                                  | 0.995                                  | 63.61                                     | 35.025                                     | 10.29                                      | 8.568                                       | 0.473    |
| 41                | 10.09                                 | 16.478                                 | 2.24                                  | 1.719                                  | 66                                        | 52.414                                     | 4.84                                       | 6.535                                       | 0.187    |
| 42                | 26.46                                 | 21.837                                 | 2.34                                  | 0.901                                  | 76.91                                     | 50.892                                     | 13.02                                      | 10.641                                      | 0.206    |
| 43                | 17.35                                 | 15.432                                 | 2.49                                  | 1.731                                  | 88.44                                     | 41.04                                      | 8.76                                       | 9.24                                        | 0.358    |
| 44                | 14.89                                 | 13.264                                 | 2.11                                  | 0.686                                  | 21.01                                     | 43.646                                     | 7.02                                       | 5.725                                       | 0.313    |
| 45                | 5.45                                  | 4.566                                  | 1.86                                  | 0.738                                  | 69.68                                     | 25.177                                     | 3.31                                       | 3.603                                       | 0.679    |
| 46                | 12.47                                 | 10.19                                  | 1.87                                  | 0.883                                  | 83.75                                     | 33.979                                     | 8.23                                       | 8.527                                       | 0.494    |
| 47                | 27.58                                 | 20.966                                 | 1.85                                  | 0.833                                  | 101.85                                    | 34.862                                     | 17.01                                      | 14.075                                      | 0.476    |
| 48                | 18.91                                 | 11.908                                 | 2.65                                  | 1.556                                  | 106.98                                    | 33.451                                     | 9.05                                       | 6.822                                       | 0.505    |
| 51                | 28.91                                 | 19.563                                 | 1.97                                  | 0.853                                  | 65.02                                     | 40.455                                     | 16.17                                      | 10.569                                      | 0.368    |
| 52                | 19.85                                 | 21.773                                 | 2.63                                  | 1.371                                  | 159.67                                    | 71.499                                     | 9.18                                       | 10.58                                       | 0.044    |
| 53                | 23.69                                 | 14.717                                 | 1.86                                  | 0.879                                  | 27.41                                     | 58.109                                     | 15.47                                      | 12.217                                      | 0.127    |
| 54                | 28.02                                 | 15.906                                 | 2.06                                  | 0.688                                  | 118.99                                    | 22.789                                     | 15.22                                      | 10.66                                       | 0.728    |
| 55                | 31.16                                 | 22.678                                 | 1.68                                  | 0.817                                  | 57.59                                     | 32.574                                     | 22.84                                      | 17.737                                      | 0.523    |
| 56                | 15.09                                 | 12.382                                 | 2.97                                  | 1.714                                  | 100.72                                    | 30.545                                     | 5.74                                       | 4.641                                       | 0.566    |

# *Feature Summary Statistics*

| <i>Image File</i> | <i>Number of<br/>Features</i> | <i>Pit Tally</i> | <i>Pit Length<br/>Mean</i> | <i>Pit<br/>Length<br/>S. D.</i> | <i>Pit<br/>Width<br/>Mean</i> | <i>Pit<br/>Width<br/>S. D.</i> | <i>Scratch<br/>Tally</i> | <i>Scratch<br/>Length<br/>Mean</i> | <i>Scratch<br/>Length<br/>S. D.</i> | <i>Scratch<br/>Breadth<br/>Mean</i> |
|-------------------|-------------------------------|------------------|----------------------------|---------------------------------|-------------------------------|--------------------------------|--------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| 31                | 35                            | 6                | 7.05                       | 2.412                           | 3.05                          | 1.345                          | 29                       | 23.85                              | 11.8                                | 1.74                                |
| 32                | 74                            | 31               | 4.38                       | 2.125                           | 2.55                          | 1                              | 43                       | 29.17                              | 22.664                              | 2.08                                |
| 34                | 96                            | 37               | 4.7                        | 3.138                           | 2.56                          | 1.179                          | 59                       | 37.48                              | 32.088                              | 2.19                                |
| 35                | 67                            | 31               | 5.69                       | 5.815                           | 3.75                          | 5.418                          | 36                       | 24.99                              | 15.034                              | 2.2                                 |
| 36                | 76                            | 42               | 4.65                       | 1.408                           | 2.84                          | 0.867                          | 34                       | 31.62                              | 15.679                              | 2.39                                |
| 37                | 13                            | 2                | 7.48                       | 1.261                           | 2.15                          | 0.169                          | 11                       | 29.86                              | 18.324                              | 2.19                                |
| 38                | 58                            | 15               | 6.27                       | 1.914                           | 3.45                          | 1.321                          | 43                       | 44.67                              | 32.656                              | 2.07                                |
| 39                | 79                            | 36               | 4.89                       | 4.382                           | 3.12                          | 3.694                          | 43                       | 27.09                              | 16.971                              | 2.13                                |
| 40                | 81                            | 19               | 5.51                       | 4.127                           | 2.66                          | 0.931                          | 62                       | 30.4                               | 22.88                               | 2.44                                |
| 41                | 171                           | 110              | 4.03                       | 3.094                           | 2.36                          | 1.984                          | 61                       | 21.02                              | 23.732                              | 2.02                                |
| 42                | 61                            | 15               | 4.78                       | 2.435                           | 3.13                          | 0.844                          | 46                       | 33.53                              | 20.644                              | 2.09                                |
| 43                | 69                            | 32               | 5.73                       | 4.956                           | 2.87                          | 2.295                          | 37                       | 27.39                              | 14.321                              | 2.16                                |
| 44                | 103                           | 38               | 3.51                       | 1.881                           | 2                             | 0.621                          | 65                       | 21.54                              | 12.514                              | 2.17                                |
| 45                | 68                            | 55               | 4.06                       | 1.727                           | 1.94                          | 0.748                          | 13                       | 11.31                              | 7.547                               | 1.5                                 |
| 46                | 47                            | 20               | 3.65                       | 2.23                            | 2.19                          | 1.094                          | 27                       | 19.01                              | 8.71                                | 1.64                                |
| 47                | 93                            | 11               | 5.54                       | 2.411                           | 2.82                          | 1.721                          | 82                       | 30.53                              | 20.585                              | 1.72                                |
| 48                | 49                            | 14               | 8.69                       | 2.959                           | 3.83                          | 2.134                          | 35                       | 23                                 | 11.691                              | 2.18                                |
| 51                | 77                            | 2                | 7.95                       | 2.209                           | 3.48                          | 0.562                          | 75                       | 29.47                              | 19.514                              | 1.92                                |
| 52                | 41                            | 18               | 5.44                       | 3.229                           | 3.14                          | 1.625                          | 23                       | 31.12                              | 23.474                              | 2.22                                |
| 53                | 95                            | 8                | 8.56                       | 3.788                           | 3.15                          | 1.329                          | 87                       | 25.09                              | 14.571                              | 1.74                                |
| 54                | 62                            | 6                | 7.83                       | 4.673                           | 2.69                          | 1.062                          | 56                       | 30.18                              | 15.145                              | 2                                   |
| 55                | 83                            | 9                | 4.07                       | 1.372                           | 3.02                          | 1.236                          | 74                       | 34.46                              | 21.817                              | 1.52                                |
| 56                | 67                            | 32               | 7.07                       | 4.638                           | 3.51                          | 2.238                          | 35                       | 22.43                              | 12.73                               | 2.48                                |

# *Feature Summary Statistics*

| <i>Image File</i> | <i>Scratch<br/>Breadth<br/>S. D.</i> | <i>Scratch<br/>Orientation<br/>Mean</i> | <i>Scratch<br/>Orientation<br/>S. D.</i> | <i>Scratch R</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> |
|-------------------|--------------------------------------|-----------------------------------------|------------------------------------------|------------------|-----------------|------------|------------|
| 31                | 0.657                                | 79.35                                   | 47.718                                   | 0.249            | 2               | F          | 40+        |
| 32                | 0.942                                | 68.66                                   | 32.162                                   | 0.532            | 2               | M          | 30-39      |
| 34                | 0.957                                | 50.93                                   | 40.725                                   | 0.364            | 2               | M          | 20-29      |
| 35                | 2.205                                | 101.72                                  | 40.812                                   | 0.362            | 2               | F          | 40+        |
| 36                | 0.88                                 | 37.19                                   | 31.338                                   | 0.549            | 1               | M          | 40+        |
| 37                | 0.975                                | 146.93                                  | 35.468                                   | 0.464            | 2               | F          | 40+        |
| 38                | 0.626                                | 173.48                                  | 42.993                                   | 0.324            | 2               | F          | 20-29      |
| 39                | 0.738                                | 92.36                                   | 36.239                                   | 0.449            | 2               | M          | 40+        |
| 40                | 1.015                                | 65.44                                   | 30.512                                   | 0.567            | 2               | M          | 20-29      |
| 41                | 1.071                                | 87.12                                   | 42.558                                   | 0.331            | 2               | M          | 40+        |
| 42                | 0.77                                 | 86.4                                    | 47.75                                    | 0.249            | 1               | M          | 40+        |
| 43                | 0.944                                | 93.23                                   | 24.665                                   | 0.69             | 2               | M          | 30-39      |
| 44                | 0.719                                | 22.63                                   | 42.453                                   | 0.333            | 2               | F          | 30-39      |
| 45                | 0.592                                | 78.08                                   | 23.282                                   | 0.718            | 1               | F          | <20        |
| 46                | 0.61                                 | 81.88                                   | 28.877                                   | 0.601            | 2               | F          | 30-39      |
| 47                | 0.526                                | 103.22                                  | 34.168                                   | 0.491            | 2               | F          | 20-29      |
| 48                | 0.938                                | 103.59                                  | 34.131                                   | 0.491            | 3               | F          | <20        |
| 51                | 0.824                                | 66.29                                   | 39.85                                    | 0.38             | 3               | F          | <20        |
| 52                | 0.993                                | 163.52                                  | 63.081                                   | 0.088            | 3               | M          | 40+        |
| 53                | 0.729                                | 26.04                                   | 55.827                                   | 0.149            | 3               | M          | 30-39      |
| 54                | 0.613                                | 118.59                                  | 22.829                                   | 0.727            | 3               | M          | <20        |
| 55                | 0.578                                | 58.37                                   | 31.537                                   | 0.545            | 3               | F          | <20        |
| 56                | 0.784                                | 103.99                                  | 23.481                                   | 0.714            | 3               | F          | 30-39      |

### *Feature Summary Statistics*

| <i>Image File</i> | <i>Major Axis<br/>Length<br/>Mean</i> | <i>Major Axis<br/>Length<br/>S. D.</i> | <i>Minor Axis<br/>Length<br/>Mean</i> | <i>Minor Axis<br/>Length<br/>S. D.</i> | <i>Preferred<br/>Orientation<br/>Mean</i> | <i>Preferred<br/>Orientation<br/>S. D.</i> | <i>Major/Minor<br/>Axis Ratio<br/>Mean</i> | <i>Major/Minor<br/>Axis Ratio<br/>S. D.</i> | <i>R</i> |
|-------------------|---------------------------------------|----------------------------------------|---------------------------------------|----------------------------------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------|----------|
| 58                | 27.38                                 | 21.771                                 | 1.97                                  | 1.285                                  | 106.32                                    | 32.68                                      | 19.39                                      | 19.004                                      | 0.521    |
| 59                | 17.2                                  | 12.728                                 | 2.37                                  | 1.016                                  | 94.32                                     | 43.888                                     | 8.16                                       | 6.908                                       | 0.309    |
| 61                | 27.79                                 | 16.508                                 | 1.99                                  | 0.84                                   | 61.02                                     | 40.847                                     | 16.79                                      | 11.963                                      | 0.361    |
| 62                | 31.81                                 | 24.38                                  | 2.04                                  | 0.94                                   | 93.38                                     | 57.67                                      | 18.28                                      | 15.696                                      | 0.131    |
| 63                | 31.06                                 | 26.577                                 | 2.12                                  | 0.762                                  | 62.48                                     | 28.625                                     | 16.24                                      | 13.859                                      | 0.607    |
| 64                | 24.88                                 | 18.519                                 | 2.63                                  | 2.183                                  | 91.96                                     | 57.438                                     | 12.26                                      | 13.054                                      | 0.133    |
| 66                | 29.88                                 | 18.298                                 | 2.32                                  | 1.618                                  | 79.27                                     | 40.479                                     | 17.26                                      | 13.627                                      | 0.368    |
| 67                | 22.42                                 | 22.774                                 | 1.77                                  | 0.702                                  | 72.57                                     | 56.548                                     | 14.65                                      | 17.348                                      | 0.142    |
| 68                | 15.9                                  | 11.891                                 | 1.52                                  | 0.635                                  | 1.99                                      | 54.16                                      | 12.18                                      | 10.512                                      | 0.167    |
| 69                | 11.38                                 | 11.908                                 | 3.7                                   | 7.959                                  | 87.42                                     | 37.996                                     | 6.09                                       | 6.574                                       | 0.414    |
| 70                | 35.29                                 | 21.586                                 | 1.79                                  | 0.556                                  | 81                                        | 35.647                                     | 21.39                                      | 14.362                                      | 0.461    |
| 71                | 34.15                                 | 37.625                                 | 1.81                                  | 1.039                                  | 104.09                                    | 64.267                                     | 23.61                                      | 28.354                                      | 0.08     |
| 72                | 34.25                                 | 25.335                                 | 1.8                                   | 0.94                                   | 31.19                                     | 53.505                                     | 23.66                                      | 21.264                                      | 0.174    |
| 73                | 29.4                                  | 28.277                                 | 1.66                                  | 0.96                                   | 78.45                                     | 42.503                                     | 22.02                                      | 21.498                                      | 0.332    |

### *Feature Summary Statistics*

| <i>Image File</i> | <i>Number of<br/>Features</i> | <i>Pit Tally</i> | <i>Pit Length<br/>Mean</i> | <i>Pit<br/>Length<br/>S. D.</i> | <i>Pit<br/>Width<br/>Mean</i> | <i>Pit<br/>Width<br/>S. D.</i> | <i>Scratch<br/>Tally</i> | <i>Scratch<br/>Length<br/>Mean</i> | <i>Scratch<br/>Length<br/>S. D.</i> | <i>Scratch<br/>Breadth<br/>Mean</i> |
|-------------------|-------------------------------|------------------|----------------------------|---------------------------------|-------------------------------|--------------------------------|--------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| 58                | 62                            | 8                | 6.7                        | 3.772                           | 3.27                          | 1.007                          | 54                       | 30.44                              | 21.67                               | 1.78                                |
| 59                | 166                           | 51               | 6.8                        | 3.458                           | 2.9                           | 1.326                          | 115                      | 21.82                              | 12.624                              | 2.14                                |
| 61                | 87                            | 10               | 4.94                       | 1.003                           | 3.29                          | 1.132                          | 77                       | 30.75                              | 15.186                              | 1.83                                |
| 62                | 111                           | 9                | 8.43                       | 5.108                           | 3.71                          | 1.509                          | 102                      | 33.88                              | 24.336                              | 1.89                                |
| 63                | 109                           | 27               | 3.76                       | 1.599                           | 2.34                          | 0.659                          | 82                       | 40.04                              | 24.714                              | 2.05                                |
| 64                | 48                            | 7                | 8.75                       | 5.208                           | 3.34                          | 1.521                          | 41                       | 27.63                              | 18.591                              | 2.51                                |
| 66                | 82                            | 10               | 11.42                      | 4.88                            | 4.97                          | 2.925                          | 72                       | 32.45                              | 18.007                              | 1.95                                |
| 67                | 89                            | 23               | 4.44                       | 1.876                           | 2.18                          | 0.748                          | 66                       | 28.69                              | 23.383                              | 1.63                                |
| 68                | 96                            | 18               | 3.98                       | 1.729                           | 2.01                          | 0.861                          | 78                       | 18.65                              | 11.528                              | 1.41                                |
| 69                | 32                            | 19               | 7.72                       | 12.913                          | 5.25                          | 10.13                          | 13                       | 16.74                              | 7.986                               | 1.42                                |
| 70                | 48                            | 1                | 32.01                      | n/a                             | 11.18                         | n/a                            | 47                       | 35.87                              | 21.441                              | 1.76                                |
| 71                | 87                            | 17               | 5.26                       | 2.818                           | 3.17                          | 1.639                          | 70                       | 41.17                              | 38.82                               | 1.48                                |
| 72                | 108                           | 13               | 5.24                       | 1.884                           | 3.06                          | 1.556                          | 95                       | 38.22                              | 24.451                              | 1.62                                |
| 73                | 154                           | 24               | 4.36                       | 3.13                            | 2.63                          | 1.587                          | 130                      | 34.02                              | 28.433                              | 1.48                                |



### *Feature Summary Statistics*

| <i>Image File</i> | <i>Scratch<br/>Breadth<br/>S. D.</i> | <i>Scratch<br/>Orientation<br/>Mean</i> | <i>Scratch<br/>Orientation<br/>S. D.</i> | <i>Scratch R</i> | <i>Cemetery</i> | <i>Sex</i> | <i>Age</i> |
|-------------------|--------------------------------------|-----------------------------------------|------------------------------------------|------------------|-----------------|------------|------------|
| 58                | 1.214                                | 109.25                                  | 29.934                                   | 0.579            | 3               | F          | 20-29      |
| 59                | 0.736                                | 93.04                                   | 38.963                                   | 0.396            | 3               | M          | 40+        |
| 61                | 0.631                                | 61.65                                   | 39.782                                   | 0.381            | 3               | M          | <20        |
| 62                | 0.715                                | 88.6                                    | 53.164                                   | 0.178            | 3               | F          | 20-29      |
| 63                | 0.784                                | 64.3                                    | 26.383                                   | 0.654            | 3               | F          | 20-29      |
| 64                | 2.269                                | 98.08                                   | 52.708                                   | 0.184            | 3               | M          | 20-29      |
| 66                | 0.881                                | 83.62                                   | 34.523                                   | 0.483            | 3               | M          | 20-29      |
| 67                | 0.632                                | 95.91                                   | 56.704                                   | 0.141            | 3               | M          | 30-39      |
| 68                | 0.515                                | 175.34                                  | 50.537                                   | 0.21             | 3               | F          | 30-39      |
| 69                | 0.536                                | 90.48                                   | 52.418                                   | 0.187            | MoB             | F          | Adult      |
| 70                | 0.54                                 | 80.51                                   | 36.143                                   | 0.451            | MoB             | ?          | Adolescent |
| 71                | 0.397                                | 102.37                                  | 58.077                                   | 0.128            | Mob             | ?          | Adult      |
| 72                | 0.668                                | 32.42                                   | 51.417                                   | 0.199            | Leaven          | F          | Adult      |
| 73                | 0.661                                | 79.07                                   | 37.631                                   | 0.421            | Leaven          | M          | Adult      |

**APPENDIX F**  
**RAW DATA BY TOOTH**

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 01                      | 1                         | 126.79                       | 117                         | 1.43                         | 44                          |
| 01                      | 2                         | 39.94                        | 97                          | 1.84                         | 164                         |
| 01                      | 3                         | 45.73                        | 10                          | 2.39                         | 122                         |
| 01                      | 4                         | 45.02                        | 86                          | 1.01                         | 0                           |
| 01                      | 5                         | 15.78                        | 93                          | 1.77                         | 0                           |
| 01                      | 6                         | 27.89                        | 100                         | 0.71                         | 44                          |
| 01                      | 7                         | 20.58                        | 54                          | 1.27                         | 143                         |
| 01                      | 8                         | 10.07                        | 56                          | 1.01                         | 0                           |
| 01                      | 9                         | 39.29                        | 73                          | 0.91                         | 146                         |
| 01                      | 10                        | 69.37                        | 88                          | 3.14                         | 165                         |
| 01                      | 11                        | 33.02                        | 90                          | 1.6                          | 18                          |
| 01                      | 12                        | 24.7                         | 94                          | 0.8                          | 18                          |
| 01                      | 13                        | 59.46                        | 51                          | 1.01                         | 90                          |
| 01                      | 14                        | 32.65                        | 105                         | 0.8                          | 71                          |
| 01                      | 15                        | 19.47                        | 120                         | 1.27                         | 53                          |
| 01                      | 16                        | 9.56                         | 140                         | 0.8                          | 71                          |
| 01                      | 17                        | 19.4                         | 104                         | 1.01                         | 0                           |
| 01                      | 18                        | 4.32                         | 176                         | 3.84                         | 82                          |
| 01                      | 19                        | 20.78                        | 122                         | 0.56                         | 63                          |
| 01                      | 20                        | 47.56                        | 19                          | 0.8                          | 108                         |
| 01                      | 21                        | 16.01                        | 104                         | 1.01                         | 0                           |
| 01                      | 22                        | 70.6                         | 173                         | 2.03                         | 90                          |
| 01                      | 23                        | 17.24                        | 46                          | 0.76                         | 0                           |
| 01                      | 24                        | 13.04                        | 83                          | 1.29                         | 168                         |
| 01                      | 25                        | 17.58                        | 79                          | 0.71                         | 44                          |
| 01                      | 26                        | 14.22                        | 88                          | 6.2                          | 145                         |
| 01                      | 27                        | 9.1                          | 120                         | 0.56                         | 63                          |
| 01                      | 28                        | 40.07                        | 120                         | 0.91                         | 33                          |
| 01                      | 29                        | 16.47                        | 116                         | 2.8                          | 5                           |
| 01                      | 30                        | 34.42                        | 11                          | 1.27                         | 90                          |
| 01                      | 31                        | 4.66                         | 29                          | 1.01                         | 90                          |
| 01                      | 32                        | 25.32                        | 45                          | 1.27                         | 126                         |
| 01                      | 33                        | 10.17                        | 92                          | 1.04                         | 165                         |
| 01                      | 34                        | 8.9                          | 86                          | 0.76                         | 0                           |
| 01                      | 35                        | 10.74                        | 6                           | 0.76                         | 90                          |
| 01                      | 36                        | 31.23                        | 79                          | 1.79                         | 8                           |
| 01                      | 37                        | 8.2                          | 111                         | 1.48                         | 30                          |
| 01                      | 38                        | 9.72                         | 40                          | 1.27                         | 126                         |
| 01                      | 39                        | 15.51                        | 129                         | 0.35 n/a                     |                             |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 01                      | 40                        | 34.81                        | 88                          | 0.91                         | 56                          |
| 01                      | 41                        | 13.75                        | 85                          | 1.36                         | 21                          |
| 01                      | 42                        | 28.61                        | 83                          | 23.19                        | 61                          |
| 01                      | 43                        | 13.77                        | 112                         | 1.43                         | 44                          |
| 01                      | 44                        | 24.26                        | 109                         | 0.91                         | 56                          |
| 01                      | 45                        | 53.28                        | 64                          | 1.7                          | 153                         |
| 01                      | 46                        | 19.23                        | 123                         | 4.25                         | 17                          |
| 01                      | 47                        | 55.46                        | 81                          | 0.91                         | 33                          |
| 01                      | 48                        | 12.81                        | 140                         | 1.04                         | 75                          |
| 01                      | 49                        | 3.31                         | 94                          | 1.77                         | 0                           |
| 01                      | 50                        | 3.45                         | 72                          | 2.34                         | 167                         |
| 01                      | 51                        | 2.55                         | 84                          | 1.54                         | 9                           |
| 01                      | 52                        | 2.54                         | 90                          | 1.79                         | 8                           |
| 01                      | 53                        | 4.06                         | 90                          | 2.34                         | 12                          |
| 01                      | 54                        | 3.31                         | 175                         | 3.04                         | 90                          |
| 01                      | 55                        | 9.91                         | 87                          | 1.52                         | 0                           |
| 01                      | 56                        | 29.8                         | 124                         | 1.07                         | 44                          |
| 01                      | 57                        | 17.55                        | 93                          | 0.8                          | 161                         |
| 01                      | 58                        | 5.23                         | 119                         | 1.13                         | 26                          |
| 01                      | 59                        | 14.18                        | 134                         | 1.98                         | 39                          |
| 01                      | 60                        | 29.72                        | 89                          | 1.04                         | 14                          |
| 01                      | 61                        | 15.5                         | 108                         | 1.27                         | 53                          |
| 01                      | 62                        | 15.15                        | 103                         | 1.27                         | 53                          |
| 01                      | 63                        | 9                            | 111                         | 1.04                         | 75                          |
| 01                      | 64                        | 6.35                         | 0                           | 4.77                         | 64                          |
| 01                      | 65                        | 3.09                         | 9                           | 2.97                         | 109                         |
| 01                      | 66                        | 3.55                         | 90                          | 3.04                         | 0                           |
| 01                      | 67                        | 12.23                        | 175                         | 1.98                         | 50                          |
| 01                      | 68                        | 3.55                         | 0                           | 2.54                         | 90                          |
| 01                      | 69                        | 4.63                         | 9                           | 1.83                         | 56                          |
| 01                      | 70                        | 3.05                         | 4                           | 2.03                         | 90                          |
| 01                      | 71                        | 4.31                         | 44                          | 1.93                         | 113                         |
| 01                      | 72                        | 4.82                         | 90                          | 3.55                         | 0                           |
| 01                      | 73                        | 14.76                        | 116                         | 1.29                         | 11                          |
| 01                      | 74                        | 19.78                        | 119                         | 0.56                         | 63                          |
| 01                      | 75                        | 21.13                        | 20                          | 1.01                         | 90                          |
| 01                      | 76                        | 34.07                        | 159                         | 1.36                         | 68                          |
| 01                      | 77                        | 16.28                        | 86                          | 1.04                         | 165                         |
| 01                      | 78                        | 9.58                         | 32                          | 1.07                         | 135                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 01                             | 79                               | 17.99                               | 103                                | 1.54                                | 9                                  |
| 01                             | 80                               | 9.9                                 | 88                                 | 1.01                                | 0                                  |
| 01                             | 81                               | 8.38                                | 35                                 | 1.6                                 | 108                                |
| 01                             | 82                               | 4.66                                | 67                                 | 1.77                                | 0                                  |
| 01                             | 83                               | 3.96                                | 129                                | 1.98                                | 39                                 |
| 01                             | 84                               | 3.94                                | 14                                 | 2.3                                 | 96                                 |
| 01                             | 85                               | 5.23                                | 67                                 | 2.97                                | 160                                |
| 01                             | 86                               | 1.93                                | 156                                | 1.93                                | 66                                 |
| 01                             | 87                               | 1.93                                | 66                                 | 1.6                                 | 161                                |
| 01                             | 88                               | 4.81                                | 71                                 | 2.73                                | 158                                |
| 01                             | 89                               | 3.81                                | 90                                 | 3.56                                | 175                                |
| 01                             | 90                               | 3.84                                | 7                                  | 2.79                                | 90                                 |
| 01                             | 91                               | 2.55                                | 174                                | 0.76                                | 90                                 |
| 01                             | 92                               | 4.07                                | 176                                | 2.3                                 | 83                                 |
| 01                             | 93                               | 8.59                                | 71                                 | 1.29                                | 168                                |
| 01                             | 94                               | 11.63                               | 36                                 | 1.62                                | 141                                |
| 01                             | 95                               | 5.8                                 | 23                                 | 2.17                                | 110                                |
| 01                             | 96                               | 19.27                               | 108                                | 0.71                                | 44                                 |
| 01                             | 97                               | 7.5                                 | 118                                | 1.04                                | 75                                 |
| 01                             | 98                               | 31.19                               | 96                                 | 1.04                                | 14                                 |
| 01                             | 99                               | 24.21                               | 77                                 | 1.27                                | 0                                  |
| 01                             | 100                              | 42.16                               | 89                                 | 1.01                                | 0                                  |
| 01                             | 101                              | 6.18                                | 19                                 | 1.27                                | 126                                |
| 01                             | 102                              | 5.43                                | 52                                 | 0.56                                | 153                                |
| 01                             | 103                              | 3.3                                 | 157                                | 1.62                                | 51                                 |
| 01                             | 104                              | 14.76                               | 93                                 | 1.79                                | 8                                  |
| 01                             | 105                              | 18.69                               | 36                                 | 1.79                                | 135                                |
| 01                             | 106                              | 9.52                                | 136                                | 1.04                                | 75                                 |
| 01                             | 107                              | 8.63                                | 90                                 | 0.8                                 | 18                                 |
| 01                             | 108                              | 5.57                                | 114                                | 0.91                                | 56                                 |
| 01                             | 109                              | 24.8                                | 34                                 | 1.27                                | 126                                |
| 01                             | 110                              | 18.86                               | 136                                | 0.76                                | 90                                 |
| 01                             | 111                              | 29.96                               | 82                                 | 2.55                                | 174                                |
| 01                             | 112                              | 29.98                               | 38                                 | 1.48                                | 120                                |
| 01                             | 113                              | 6.62                                | 32                                 | 1.13                                | 116                                |
| 01                             | 114                              | 4.31                                | 118                                | 1.27                                | 36                                 |
| 01                             | 115                              | 3.75                                | 118                                | 1.7                                 | 26                                 |
| 01                             | 116                              | 8.38                                | 0                                  | 1.79                                | 81                                 |
| 01                             | 117                              | 9.39                                | 90                                 | 2.03                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 03                      | 1                         | 34.52                        | 11                          | 1.52                         | 90                          |
| 03                      | 2                         | 19.04                        | 43                          | 1.04                         | 165                         |
| 03                      | 3                         | 8.51                         | 10                          | 1.29                         | 101                         |
| 03                      | 4                         | 24.91                        | 50                          | 1.01                         | 0                           |
| 03                      | 5                         | 2.55                         | 174                         | 2.34                         | 49                          |
| 03                      | 6                         | 8.38                         | 54                          | 1.62                         | 141                         |
| 03                      | 7                         | 2.5                          | 156                         | 1.43                         | 44                          |
| 03                      | 8                         | 2.04                         | 172                         | 2.03                         | 90                          |
| 03                      | 9                         | 1.84                         | 105                         | 1.6                          | 18                          |
| 03                      | 10                        | 3.4                          | 153                         | 1.98                         | 50                          |
| 03                      | 11                        | 1.36                         | 158                         | 1.13                         | 63                          |
| 03                      | 12                        | 3.34                         | 171                         | 1.52                         | 90                          |
| 03                      | 13                        | 4.81                         | 161                         | 2.34                         | 77                          |
| 03                      | 14                        | 3.25                         | 141                         | 1.27                         | 36                          |
| 03                      | 15                        | 1.27                         | 53                          | 0.71                         | 135                         |
| 03                      | 16                        | 2.04                         | 97                          | 1.01                         | 0                           |
| 03                      | 17                        | 1.62                         | 51                          | 1.6                          | 108                         |
| 03                      | 18                        | 3.1                          | 145                         | 1.98                         | 50                          |
| 03                      | 19                        | 1.29                         | 101                         | 1.07                         | 44                          |
| 03                      | 20                        | 6.59                         | 15                          | 1.79                         | 98                          |
| 03                      | 21                        | 6.11                         | 4                           | 2.5                          | 113                         |
| 03                      | 22                        | 2.04                         | 29                          | 1.7                          | 116                         |
| 03                      | 23                        | 5.9                          | 64                          | 1.6                          | 161                         |
| 03                      | 24                        | 3.94                         | 14                          | 1.93                         | 113                         |
| 03                      | 25                        | 3.1                          | 124                         | 2.97                         | 19                          |
| 03                      | 26                        | 2.55                         | 95                          | 1.04                         | 14                          |
| 03                      | 27                        | 4.36                         | 125                         | 1.7                          | 26                          |
| 03                      | 28                        | 4.32                         | 93                          | 3.38                         | 12                          |
| 03                      | 29                        | 9.2                          | 6                           | 2.65                         | 106                         |
| 03                      | 30                        | 2.18                         | 54                          | 2.04                         | 150                         |
| 03                      | 31                        | 6.1                          | 16                          | 1.43                         | 135                         |
| 03                      | 32                        | 3.09                         | 9                           | 1.29                         | 101                         |
| 03                      | 33                        | 2.04                         | 97                          | 1.77                         | 0                           |
| 03                      | 34                        | 2.04                         | 172                         | 1.79                         | 81                          |
| 03                      | 35                        | 2.79                         | 0                           | 2.55                         | 84                          |
| 03                      | 36                        | 3.05                         | 94                          | 2.79                         | 0                           |
| 03                      | 37                        | 2.28                         | 0                           | 1.54                         | 99                          |
| 03                      | 38                        | 20.83                        | 44                          | 3.45                         | 126                         |
| 03                      | 39                        | 2.7                          | 48                          | 2.18                         | 144                         |



### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 03                      | 40                        | 3.23                         | 135                         | 1.83                         | 33                          |
| 03                      | 41                        | 2.34                         | 139                         | 1.48                         | 30                          |
| 03                      | 42                        | 1.54                         | 170                         | 1.04                         | 75                          |
| 03                      | 43                        | 3.34                         | 98                          | 2.28                         | 0                           |
| 03                      | 44                        | 7.87                         | 178                         | 1.79                         | 98                          |
| 03                      | 45                        | 5.86                         | 94                          | 4.81                         | 18                          |
| 03                      | 46                        | 4.93                         | 78                          | 2.8                          | 174                         |
| 03                      | 47                        | 11.27                        | 112                         | 7.26                         | 53                          |
| 03                      | 48                        | 2.04                         | 172                         | 1.77                         | 90                          |
| 03                      | 49                        | 2.51                         | 135                         | 2.04                         | 29                          |
| 03                      | 50                        | 3.3                          | 112                         | 1.6                          | 18                          |
| 03                      | 51                        | 4.34                         | 110                         | 1.48                         | 30                          |
| 03                      | 52                        | 2.5                          | 23                          | 1.79                         | 135                         |
| 03                      | 53                        | 1.54                         | 99                          | 1.52                         | 0                           |
| 03                      | 54                        | 2.04                         | 7                           | 1.27                         | 90                          |
| 03                      | 55                        | 2.34                         | 139                         | 1.29                         | 78                          |
| 03                      | 56                        | 3.25                         | 141                         | 1.62                         | 38                          |
| 03                      | 57                        | 4.32                         | 130                         | 1.01                         | 0                           |
| 03                      | 58                        | 1.27                         | 0                           | 1.27                         | 90                          |
| 03                      | 59                        | 1.27                         | 0                           | 1.27                         | 90                          |
| 03                      | 60                        | 1.77                         | 0                           | 1.27                         | 90                          |
| 03                      | 61                        | 2.34                         | 12                          | 2.04                         | 97                          |
| 03                      | 62                        | 2.8                          | 5                           | 1.29                         | 78                          |
| 03                      | 63                        | 2.3                          | 6                           | 1.27                         | 90                          |
| 03                      | 64                        | 3.14                         | 165                         | 1.84                         | 74                          |
| 03                      | 65                        | 1.54                         | 9                           | 1.27                         | 90                          |
| 03                      | 66                        | 9.36                         | 102                         | 3.18                         | 151                         |
| 03                      | 67                        | 2.89                         | 52                          | 1.7                          | 153                         |
| 03                      | 68                        | 2.18                         | 125                         | 1.77                         | 0                           |
| 03                      | 69                        | 9                            | 21                          | 0.76                         | 90                          |
| 03                      | 70                        | 28.7                         | 0                           | 0.8                          | 71                          |
| 03                      | 71                        | 123.09                       | 50                          | 8.24                         | 146                         |
| 03                      | 72                        | 33.69                        | 49                          | 7.84                         | 155                         |
| 03                      | 73                        | 2.27                         | 63                          | 1.48                         | 149                         |
| 03                      | 74                        | 39.76                        | 48                          | 8.75                         | 163                         |
| 03                      | 75                        | 13.29                        | 44                          | 2.96                         | 149                         |
| 03                      | 76                        | 5.92                         | 170                         | 1.52                         | 90                          |
| 03                      | 77                        | 16.42                        | 58                          | 2.3                          | 173                         |
| 03                      | 78                        | 19.47                        | 15                          | 2.65                         | 73                          |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 03                      | 79                        | 3.34                         | 171                         | 2.03                         | 90                          |
| 03                      | 80                        | 3.34                         | 171                         | 1.6                          | 71                          |
| 03                      | 81                        | 3.04                         | 90                          | 2.3                          | 6                           |
| 03                      | 82                        | 6.53                         | 13                          | 2.3                          | 83                          |
| 03                      | 83                        | 4.88                         | 8                           | 1.77                         | 90                          |
| 05                      | 1                         | 42.64                        | 12                          | 1.29                         | 101                         |
| 05                      | 2                         | 42.77                        | 15                          | 1.54                         | 99                          |
| 05                      | 3                         | 19.43                        | 173                         | 1.52                         | 90                          |
| 05                      | 4                         | 16.69                        | 56                          | 1.77                         | 0                           |
| 05                      | 5                         | 3.38                         | 102                         | 1.36                         | 21                          |
| 05                      | 6                         | 5.94                         | 109                         | 2.74                         | 33                          |
| 05                      | 7                         | 5.04                         | 130                         | 1.27                         | 36                          |
| 05                      | 8                         | 43.83                        | 11                          | 2.04                         | 82                          |
| 05                      | 9                         | 20.94                        | 14                          | 0.8                          | 108                         |
| 05                      | 10                        | 22.5                         | 16                          | 1.27                         | 90                          |
| 05                      | 11                        | 2.04                         | 7                           | 1.77                         | 90                          |
| 05                      | 12                        | 12.15                        | 26                          | 1.04                         | 104                         |
| 05                      | 13                        | 16.58                        | 25                          | 1.54                         | 99                          |
| 05                      | 14                        | 15.91                        | 28                          | 1.36                         | 111                         |
| 05                      | 15                        | 21.95                        | 60                          | 5.14                         | 147                         |
| 05                      | 16                        | 33.11                        | 4                           | 1.27                         | 90                          |
| 05                      | 17                        | 57.69                        | 2                           | 1.77                         | 90                          |
| 05                      | 18                        | 8.44                         | 21                          | 1.48                         | 120                         |
| 05                      | 19                        | 2.55                         | 95                          | 1.77                         | 0                           |
| 05                      | 20                        | 17.59                        | 72                          | 1.01                         | 0                           |
| 05                      | 21                        | 6.27                         | 68                          | 1.27                         | 0                           |
| 05                      | 22                        | 17.42                        | 45                          | 1.62                         | 128                         |
| 05                      | 23                        | 10.23                        | 43                          | 0.91                         | 146                         |
| 05                      | 24                        | 19.83                        | 13                          | 1.13                         | 116                         |
| 05                      | 25                        | 22.37                        | 26                          | 1.43                         | 135                         |
| 05                      | 26                        | 8.45                         | 32                          | 1.6                          | 108                         |
| 05                      | 27                        | 2.17                         | 110                         | 1.01                         | 0                           |
| 05                      | 28                        | 2.3                          | 96                          | 1.7                          | 26                          |
| 05                      | 29                        | 4.31                         | 151                         | 1.62                         | 51                          |
| 05                      | 30                        | 2.89                         | 142                         | 1.07                         | 44                          |
| 05                      | 31                        | 1.48                         | 30                          | 1.43                         | 135                         |
| 05                      | 32                        | 1.29                         | 101                         | 0.76                         | 0                           |
| 05                      | 33                        | 3.63                         | 102                         | 2.04                         | 7                           |
| 05                      | 34                        | 2.54                         | 90                          | 2.03                         | 0                           |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 05                      | 35                        | 33.75                        | 28                          | 1.52                         | 90                          |
| 05                      | 36                        | 18.38                        | 78                          | 1.27                         | 0                           |
| 05                      | 37                        | 14.53                        | 174                         | 2.03                         | 90                          |
| 05                      | 38                        | 6.11                         | 175                         | 1.48                         | 59                          |
| 05                      | 39                        | 1.01                         | 90                          | 0.76                         | 0                           |
| 05                      | 40                        | 11.94                        | 87                          | 0.76                         | 0                           |
| 05                      | 41                        | 9.77                         | 27                          | 1.04                         | 104                         |
| 05                      | 42                        | 3.61                         | 39                          | 1.54                         | 99                          |
| 05                      | 43                        | 6.2                          | 34                          | 1.29                         | 101                         |
| 05                      | 44                        | 6.74                         | 70                          | 4.93                         | 11                          |
| 05                      | 45                        | 7.22                         | 10                          | 3.56                         | 85                          |
| 05                      | 46                        | 2.28                         | 90                          | 1.77                         | 0                           |
| 05                      | 47                        | 5.79                         | 105                         | 1.6                          | 18                          |
| 05                      | 48                        | 2.3                          | 83                          | 1.7                          | 153                         |
| 05                      | 49                        | 2.54                         | 0                           | 2.28                         | 90                          |
| 05                      | 50                        | 31.84                        | 158                         | 2.28                         | 90                          |
| 05                      | 51                        | 36.14                        | 161                         | 1.27                         | 90                          |
| 05                      | 52                        | 26.96                        | 29                          | 1.79                         | 98                          |
| 05                      | 53                        | 1.79                         | 98                          | 1.6                          | 18                          |
| 05                      | 54                        | 10.37                        | 21                          | 1.52                         | 90                          |
| 05                      | 55                        | 21.79                        | 21                          | 1.04                         | 104                         |
| 05                      | 56                        | 3.04                         | 0                           | 1.77                         | 90                          |
| 05                      | 57                        | 2.83                         | 63                          | 2.09                         | 165                         |
| 05                      | 58                        | 2.55                         | 5                           | 2.28                         | 90                          |
| 05                      | 59                        | 3.69                         | 15                          | 1.77                         | 90                          |
| 05                      | 60                        | 3.52                         | 149                         | 1.7                          | 63                          |
| 05                      | 61                        | 2.39                         | 32                          | 1.98                         | 129                         |
| 05                      | 62                        | 2.89                         | 164                         | 1.77                         | 90                          |
| 05                      | 63                        | 4.74                         | 15                          | 1.48                         | 120                         |
| 05                      | 64                        | 4.16                         | 127                         | 1.27                         | 0                           |
| 05                      | 65                        | 2.09                         | 104                         | 2.04                         | 7                           |
| 05                      | 66                        | 2.54                         | 126                         | 2.4                          | 18                          |
| 05                      | 67                        | 2.74                         | 123                         | 2.27                         | 26                          |
| 05                      | 68                        | 1.62                         | 38                          | 1.52                         | 0                           |
| 05                      | 69                        | 5.47                         | 111                         | 3.86                         | 156                         |
| 05                      | 70                        | 5.35                         | 121                         | 1.48                         | 30                          |
| 05                      | 71                        | 1.79                         | 171                         | 1.77                         | 90                          |
| 05                      | 72                        | 2.61                         | 60                          | 1.98                         | 140                         |
| 05                      | 73                        | 3.09                         | 80                          | 1.04                         | 165                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 05                      | 74                        | 7.22                         | 71                          | 2.3                          | 6                           |
| 05                      | 75                        | 3.77                         | 137                         | 1.36                         | 21                          |
| 05                      | 76                        | 5.04                         | 40                          | 1.6                          | 108                         |
| 05                      | 77                        | 12.19                        | 91                          | 2.28                         | 0                           |
| 05                      | 78                        | 10.44                        | 94                          | 3.41                         | 41                          |
| 05                      | 79                        | 4.32                         | 86                          | 1.7                          | 26                          |
| 05                      | 80                        | 10.06                        | 169                         | 2.34                         | 77                          |
| 05                      | 81                        | 10.5                         | 32                          | 0.8                          | 71                          |
| 05                      | 82                        | 5                            | 120                         | 2.34                         | 49                          |
| 05                      | 83                        | 2.3                          | 6                           | 1.77                         | 90                          |
| 05                      | 84                        | 3.3                          | 157                         | 2.5                          | 66                          |
| 05                      | 85                        | 10.22                        | 104                         | 1.01                         | 0                           |
| 05                      | 86                        | 32.2                         | 18                          | 2.27                         | 116                         |
| 05                      | 87                        | 4.06                         | 90                          | 2.55                         | 174                         |
| 05                      | 88                        | 3.59                         | 171                         | 2.34                         | 102                         |
| 05                      | 89                        | 9.8                          | 36                          | 1.54                         | 99                          |
| 05                      | 90                        | 11.51                        | 14                          | 2.55                         | 95                          |
| 07                      | 1                         | 118.03                       | 14                          | 3.45                         | 107                         |
| 07                      | 2                         | 83.72                        | 68                          | 5.62                         | 161                         |
| 07                      | 3                         | 14.78                        | 94                          | 2.54                         | 0                           |
| 07                      | 4                         | 13.32                        | 82                          | 1.52                         | 0                           |
| 07                      | 5                         | 119.88                       | 14                          | 4.63                         | 99                          |
| 07                      | 6                         | 14.57                        | 67                          | 3.66                         | 146                         |
| 07                      | 7                         | 4.09                         | 82                          | 3.84                         | 172                         |
| 07                      | 8                         | 4.85                         | 6                           | 4.57                         | 93                          |
| 07                      | 9                         | 15.82                        | 84                          | 2.28                         | 0                           |
| 07                      | 10                        | 6.11                         | 85                          | 2.54                         | 0                           |
| 07                      | 11                        | 10.77                        | 98                          | 2.28                         | 0                           |
| 07                      | 12                        | 84.3                         | 64                          | 4.81                         | 161                         |
| 07                      | 13                        | 16.82                        | 28                          | 3.53                         | 111                         |
| 07                      | 14                        | 6.27                         | 21                          | 3.77                         | 109                         |
| 07                      | 15                        | 5.43                         | 37                          | 1.43                         | 135                         |
| 07                      | 16                        | 6.37                         | 156                         | 2.54                         | 53                          |
| 07                      | 17                        | 7.79                         | 109                         | 0.91                         | 33                          |
| 07                      | 18                        | 16.14                        | 12                          | 2.8                          | 95                          |
| 07                      | 19                        | 8.86                         | 62                          | 5.11                         | 153                         |
| 07                      | 20                        | 9.3                          | 55                          | 6.1                          | 135                         |
| 07                      | 21                        | 23.48                        | 141                         | 2.18                         | 54                          |
| 07                      | 22                        | 8.13                         | 1                           | 7.62                         | 91                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 07                      | 23                        | 6.97                         | 169                         | 1.79                         | 81                          |
| 07                      | 24                        | 31.65                        | 80                          | 1.52                         | 0                           |
| 07                      | 25                        | 13.2                         | 30                          | 2.83                         | 116                         |
| 07                      | 26                        | 24.29                        | 96                          | 2.83                         | 10                          |
| 07                      | 27                        | 6.11                         | 85                          | 4.68                         | 12                          |
| 07                      | 28                        | 6.37                         | 4                           | 4.31                         | 90                          |
| 07                      | 29                        | 7.62                         | 1                           | 5.34                         | 87                          |
| 07                      | 30                        | 38.02                        | 67                          | 1.6                          | 161                         |
| 07                      | 31                        | 17.74                        | 66                          | 2.5                          | 156                         |
| 07                      | 32                        | 8.65                         | 86                          | 1.01                         | 0                           |
| 07                      | 33                        | 7.47                         | 17                          | 1.79                         | 98                          |
| 07                      | 34                        | 14.47                        | 90                          | 1.27                         | 0                           |
| 07                      | 35                        | 4.34                         | 20                          | 2.79                         | 90                          |
| 07                      | 36                        | 5.73                         | 12                          | 3.3                          | 90                          |
| 07                      | 37                        | 4.31                         | 90                          | 2.79                         | 0                           |
| 07                      | 38                        | 4.31                         | 0                           | 4.07                         | 86                          |
| 07                      | 39                        | 11.67                        | 44                          | 9.98                         | 97                          |
| 07                      | 40                        | 12.14                        | 37                          | 1.7                          | 116                         |
| 07                      | 41                        | 31.87                        | 95                          | 1.54                         | 9                           |
| 07                      | 42                        | 5.23                         | 22                          | 2.55                         | 95                          |
| 07                      | 43                        | 3.81                         | 0                           | 3.59                         | 81                          |
| 07                      | 44                        | 3.31                         | 175                         | 2.8                          | 84                          |
| 07                      | 45                        | 9.96                         | 70                          | 2.04                         | 172                         |
| 07                      | 46                        | 58.03                        | 11                          | 3.3                          | 90                          |
| 07                      | 47                        | 10.08                        | 130                         | 2.27                         | 63                          |
| 07                      | 48                        | 5.23                         | 22                          | 3.31                         | 85                          |
| 07                      | 49                        | 6.47                         | 101                         | 1.98                         | 39                          |
| 07                      | 50                        | 10.21                        | 145                         | 3.1                          | 55                          |
| 07                      | 51                        | 16.14                        | 77                          | 2.73                         | 158                         |
| 08                      | 1                         | 3.55                         | 90                          | 2.59                         | 11                          |
| 08                      | 2                         | 9.24                         | 142                         | 1.62                         | 51                          |
| 08                      | 3                         | 28.7                         | 166                         | 1.52                         | 90                          |
| 08                      | 4                         | 16.62                        | 18                          | 3.75                         | 118                         |
| 08                      | 5                         | 6.14                         | 82                          | 1.77                         | 0                           |
| 08                      | 6                         | 2.79                         | 90                          | 1.01                         | 0                           |
| 08                      | 7                         | 16.84                        | 156                         | 2.54                         | 53                          |
| 08                      | 8                         | 34.82                        | 87                          | 2.04                         | 172                         |
| 08                      | 9                         | 24.63                        | 37                          | 1.83                         | 123                         |
| 08                      | 10                        | 9.49                         | 74                          | 3.38                         | 167                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 08                      | 11                        | 30.71                        | 45                          | 4.36                         | 144                         |
| 08                      | 12                        | 13.07                        | 97                          | 1.48                         | 30                          |
| 08                      | 13                        | 9.48                         | 69                          | 1.93                         | 156                         |
| 08                      | 14                        | 10.87                        | 52                          | 1.62                         | 141                         |
| 08                      | 15                        | 25.57                        | 55                          | 2.39                         | 147                         |
| 08                      | 16                        | 27.77                        | 50                          | 4.72                         | 126                         |
| 08                      | 17                        | 12.15                        | 169                         | 7.38                         | 86                          |
| 08                      | 18                        | 6.62                         | 122                         | 2.18                         | 35                          |
| 08                      | 19                        | 3.55                         | 0                           | 3.04                         | 90                          |
| 08                      | 20                        | 3.04                         | 0                           | 2.59                         | 78                          |
| 08                      | 21                        | 5.67                         | 169                         | 3.81                         | 86                          |
| 08                      | 22                        | 10.94                        | 93                          | 1.01                         | 0                           |
| 08                      | 23                        | 27.15                        | 27                          | 3.45                         | 126                         |
| 08                      | 24                        | 4.66                         | 67                          | 2.89                         | 164                         |
| 08                      | 25                        | 14.05                        | 49                          | 1.83                         | 146                         |
| 08                      | 26                        | 15.27                        | 47                          | 2.39                         | 147                         |
| 08                      | 27                        | 15.39                        | 37                          | 1.98                         | 129                         |
| 08                      | 28                        | 24.63                        | 90                          | 1.04                         | 165                         |
| 08                      | 29                        | 10.07                        | 123                         | 2.15                         | 44                          |
| 08                      | 30                        | 2.79                         | 0                           | 2.03                         | 90                          |
| 08                      | 31                        | 5.67                         | 79                          | 1.84                         | 164                         |
| 08                      | 32                        | 13.54                        | 30                          | 1.48                         | 120                         |
| 08                      | 33                        | 7.9                          | 135                         | 1.62                         | 51                          |
| 08                      | 34                        | 10.9                         | 27                          | 2.04                         | 119                         |
| 08                      | 35                        | 9.53                         | 48                          | 2.15                         | 135                         |
| 08                      | 36                        | 3.09                         | 80                          | 1.52                         | 0                           |
| 08                      | 37                        | 8.53                         | 67                          | 2.4                          | 161                         |
| 08                      | 38                        | 16.81                        | 104                         | 2.65                         | 16                          |
| 08                      | 39                        | 8.98                         | 137                         | 1.93                         | 66                          |
| 08                      | 40                        | 4.82                         | 90                          | 2.03                         | 0                           |
| 08                      | 41                        | 10.07                        | 56                          | 1.62                         | 141                         |
| 08                      | 42                        | 15.99                        | 43                          | 2.73                         | 111                         |
| 08                      | 43                        | 33.79                        | 47                          | 4.36                         | 144                         |
| 08                      | 44                        | 13.25                        | 53                          | 2.87                         | 135                         |
| 08                      | 45                        | 10.7                         | 67                          | 2.34                         | 167                         |
| 08                      | 46                        | 12.04                        | 65                          | 1.6                          | 161                         |
| 08                      | 47                        | 23.14                        | 176                         | 2.09                         | 75                          |
| 08                      | 48                        | 9.48                         | 82                          | 1.54                         | 170                         |
| 08                      | 49                        | 6.5                          | 128                         | 1.83                         | 56                          |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 08                      | 50                        | 11.78                        | 7                           | 3.56                         | 85                          |
| 08                      | 51                        | 23.18                        | 42                          | 3.41                         | 131                         |
| 09                      | 1                         | 22.6                         | 115                         | 1.01                         | 0                           |
| 09                      | 2                         | 46.45                        | 13                          | 2.04                         | 82                          |
| 09                      | 3                         | 30.31                        | 171                         | 1.77                         | 90                          |
| 09                      | 4                         | 42.09                        | 162                         | 2.15                         | 44                          |
| 09                      | 5                         | 27.28                        | 61                          | 1.27                         | 0                           |
| 09                      | 6                         | 33.27                        | 90                          | 0.5                          | 0                           |
| 09                      | 7                         | 35.93                        | 145                         | 1.04                         | 75                          |
| 09                      | 8                         | 49.08                        | 83                          | 0.76                         | 0                           |
| 09                      | 9                         | 20.12                        | 42                          | 1.13                         | 116                         |
| 09                      | 10                        | 19.95                        | 111                         | 1.27                         | 90                          |
| 09                      | 11                        | 34.12                        | 156                         | 1.77                         | 90                          |
| 09                      | 12                        | 11.89                        | 109                         | 1.79                         | 8                           |
| 09                      | 13                        | 3.84                         | 82                          | 2.54                         | 0                           |
| 09                      | 14                        | 40.23                        | 21                          | 1.13                         | 116                         |
| 09                      | 15                        | 6.64                         | 136                         | 1.7                          | 26                          |
| 09                      | 16                        | 6.13                         | 114                         | 1.07                         | 44                          |
| 09                      | 17                        | 16.32                        | 110                         | 1.6                          | 18                          |
| 09                      | 18                        | 26.18                        | 140                         | 1.98                         | 50                          |
| 09                      | 19                        | 28.02                        | 8                           | 1.77                         | 90                          |
| 09                      | 20                        | 36.36                        | 151                         | 1.84                         | 74                          |
| 09                      | 21                        | 92.3                         | 158                         | 1.27                         | 90                          |
| 09                      | 22                        | 41.74                        | 131                         | 1.36                         | 68                          |
| 09                      | 23                        | 26.04                        | 135                         | 1.29                         | 78                          |
| 09                      | 24                        | 12.4                         | 112                         | 1.01                         | 0                           |
| 09                      | 25                        | 50.32                        | 2                           | 1.77                         | 90                          |
| 09                      | 26                        | 11.94                        | 87                          | 1.77                         | 0                           |
| 09                      | 27                        | 26.03                        | 84                          | 1.79                         | 8                           |
| 09                      | 28                        | 55.75                        | 158                         | 2.3                          | 83                          |
| 09                      | 29                        | 20.22                        | 64                          | 1.54                         | 170                         |
| 09                      | 30                        | 35.5                         | 123                         | 1.98                         | 39                          |
| 09                      | 31                        | 13.48                        | 47                          | 2.89                         | 127                         |
| 09                      | 32                        | 5.59                         | 92                          | 3.96                         | 39                          |
| 09                      | 33                        | 4.66                         | 67                          | 3.81                         | 3                           |
| 09                      | 34                        | 4.07                         | 86                          | 3.3                          | 0                           |
| 09                      | 35                        | 5.38                         | 160                         | 1.27                         | 90                          |
| 09                      | 36                        | 6.13                         | 155                         | 1.52                         | 90                          |
| 09                      | 37                        | 17.99                        | 161                         | 2.03                         | 90                          |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 09                      | 38                        | 41.94                        | 159                         | 2.28                         | 90                          |
| 09                      | 39                        | 9                            | 106                         | 0.56                         | 26                          |
| 09                      | 40                        | 21.73                        | 136                         | 1.13                         | 63                          |
| 09                      | 41                        | 22.26                        | 110                         | 1.7                          | 26                          |
| 09                      | 42                        | 34.37                        | 145                         | 1.93                         | 66                          |
| 09                      | 43                        | 2.79                         | 0                           | 2.54                         | 90                          |
| 09                      | 44                        | 4.83                         | 176                         | 4.31                         | 90                          |
| 09                      | 45                        | 11.17                        | 0                           | 1.77                         | 90                          |
| 09                      | 46                        | 13.46                        | 35                          | 2.03                         | 90                          |
| 09                      | 47                        | 7.74                         | 41                          | 5.35                         | 121                         |
| 09                      | 48                        | 7.62                         | 90                          | 0.76                         | 0                           |
| 09                      | 49                        | 11.15                        | 120                         | 2.28                         | 0                           |
| 09                      | 50                        | 49.03                        | 1                           | 1.77                         | 90                          |
| 09                      | 51                        | 81.04                        | 1                           | 1.77                         | 90                          |
| 09                      | 52                        | 8.62                         | 42                          | 5.84                         | 2                           |
| 09                      | 53                        | 3.87                         | 31                          | 2.03                         | 90                          |
| 09                      | 54                        | 8.07                         | 24                          | 4.09                         | 82                          |
| 09                      | 55                        | 6.2                          | 34                          | 2.79                         | 90                          |
| 09                      | 56                        | 20.81                        | 160                         | 1.29                         | 78                          |
| 09                      | 57                        | 14.99                        | 141                         | 3.1                          | 34                          |
| 09                      | 58                        | 33.14                        | 13                          | 2.03                         | 90                          |
| 10                      | 1                         | 59.2                         | 67                          | 1.27                         | 126                         |
| 10                      | 2                         | 3.56                         | 94                          | 3.31                         | 4                           |
| 10                      | 3                         | 45.23                        | 67                          | 0.56                         | 153                         |
| 10                      | 4                         | 32.45                        | 59                          | 1.01                         | 0                           |
| 10                      | 5                         | 23.41                        | 65                          | 1.01                         | 0                           |
| 10                      | 6                         | 81.55                        | 31                          | 1.52                         | 90                          |
| 10                      | 7                         | 51.05                        | 47                          | 1.84                         | 105                         |
| 10                      | 8                         | 26.04                        | 43                          | 1.13                         | 153                         |
| 10                      | 9                         | 19.91                        | 119                         | 1.36                         | 68                          |
| 10                      | 10                        | 14.32                        | 127                         | 1.6                          | 108                         |
| 10                      | 11                        | 10.31                        | 142                         | 1.52                         | 90                          |
| 10                      | 12                        | 23.71                        | 45                          | 1.27                         | 90                          |
| 10                      | 13                        | 27.5                         | 61                          | 1.04                         | 165                         |
| 10                      | 14                        | 24.76                        | 100                         | 1.07                         | 44                          |
| 10                      | 15                        | 36.16                        | 29                          | 1.52                         | 90                          |
| 10                      | 16                        | 10.04                        | 110                         | 1.13                         | 26                          |
| 10                      | 17                        | 44.4                         | 54                          | 2.04                         | 172                         |
| 10                      | 18                        | 32.94                        | 27                          | 1.7                          | 116                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 10                      | 19                        | 47.27                        | 164                         | 1.07                         | 44                          |
| 10                      | 20                        | 29.92                        | 49                          | 0.5                          | 0                           |
| 10                      | 21                        | 15.81                        | 60                          | 1.01                         | 0                           |
| 10                      | 22                        | 28.74                        | 56                          | 1.54                         | 9                           |
| 10                      | 23                        | 20.39                        | 76                          | 1.54                         | 9                           |
| 10                      | 24                        | 41.14                        | 57                          | 1.04                         | 165                         |
| 10                      | 25                        | 23.41                        | 65                          | 1.04                         | 165                         |
| 10                      | 26                        | 7.5                          | 61                          | 1.07                         | 135                         |
| 10                      | 27                        | 19.37                        | 55                          | 4.44                         | 149                         |
| 10                      | 28                        | 30.32                        | 36                          | 0.76                         | 90                          |
| 10                      | 29                        | 2.7                          | 138                         | 1.84                         | 74                          |
| 10                      | 30                        | 23.35                        | 44                          | 1.36                         | 111                         |
| 10                      | 31                        | 4.49                         | 42                          | 2.28                         | 0                           |
| 10                      | 32                        | 14.48                        | 52                          | 0.76                         | 0                           |
| 10                      | 33                        | 6.86                         | 51                          | 1.79                         | 8                           |
| 10                      | 34                        | 38.43                        | 29                          | 0.5                          | 90                          |
| 10                      | 35                        | 9.08                         | 63                          | 1.52                         | 0                           |
| 10                      | 36                        | 54.68                        | 57                          | 0.76                         | 0                           |
| 10                      | 37                        | 22.31                        | 48                          | 1.27                         | 0                           |
| 10                      | 38                        | 13.54                        | 66                          | 1.04                         | 14                          |
| 10                      | 39                        | 24.46                        | 41                          | 2.04                         | 172                         |
| 10                      | 40                        | 25.37                        | 41                          | 1.04                         | 165                         |
| 10                      | 41                        | 20.6                         | 30                          | 1.36                         | 68                          |
| 10                      | 42                        | 28.03                        | 107                         | 1.07                         | 44                          |
| 10                      | 43                        | 18.47                        | 58                          | 2.15                         | 135                         |
| 10                      | 44                        | 11.43                        | 36                          | 1.6                          | 161                         |
| 10                      | 45                        | 71.73                        | 37                          | 1.98                         | 140                         |
| 10                      | 46                        | 52.02                        | 54                          | 1.52                         | 0                           |
| 10                      | 47                        | 28.15                        | 15                          | 2.09                         | 75                          |
| 10                      | 48                        | 20.81                        | 66                          | 2.79                         | 0                           |
| 10                      | 49                        | 16.7                         | 45                          | 0.76                         | 0                           |
| 10                      | 50                        | 28.32                        | 29                          | 2.09                         | 104                         |
| 10                      | 51                        | 19.6                         | 73                          | 1.84                         | 164                         |
| 10                      | 52                        | 22.31                        | 41                          | 1.62                         | 128                         |
| 10                      | 53                        | 40.67                        | 27                          | 3.04                         | 90                          |
| 10                      | 54                        | 2.79                         | 0                           | 2.79                         | 90                          |
| 10                      | 55                        | 1.52                         | 0                           | 1.52                         | 90                          |
| 10                      | 56                        | 1.79                         | 98                          | 1.52                         | 0                           |
| 10                      | 57                        | 37.42                        | 60                          | 0.5                          | 0                           |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 10                      | 58                        | 5.63                         | 54                          | 2.83                         | 10                          |
| 10                      | 59                        | 34.64                        | 36                          | 1.62                         | 141                         |
| 10                      | 60                        | 9.7                          | 83                          | 1.04                         | 14                          |
| 10                      | 61                        | 29.52                        | 54                          | 1.27                         | 143                         |
| 10                      | 62                        | 3.56                         | 4                           | 3.3                          | 90                          |
| 10                      | 63                        | 10.11                        | 64                          | 8.03                         | 161                         |
| 10                      | 64                        | 2.55                         | 84                          | 2.28                         | 0                           |
| 10                      | 65                        | 4.31                         | 0                           | 2.28                         | 90                          |
| 10                      | 66                        | 8.29                         | 62                          | 0.5                          | 0                           |
| 10                      | 67                        | 11.38                        | 51                          | 2.8                          | 174                         |
| 10                      | 68                        | 17.96                        | 56                          | 1.54                         | 9                           |
| 10                      | 69                        | 2.96                         | 59                          | 1.52                         | 0                           |
| 10                      | 70                        | 17.4                         | 56                          | 1.77                         | 0                           |
| 10                      | 71                        | 1.84                         | 15                          | 1.77                         | 90                          |
| 10                      | 72                        | 20.78                        | 57                          | 1.52                         | 0                           |
| 10                      | 73                        | 4.09                         | 7                           | 2.54                         | 90                          |
| 10                      | 74                        | 27.22                        | 49                          | 2.04                         | 7                           |
| 10                      | 75                        | 11.41                        | 32                          | 3.31                         | 175                         |
| 10                      | 76                        | 15.95                        | 52                          | 1.52                         | 0                           |
| 10                      | 77                        | 8.19                         | 73                          | 6.85                         | 0                           |
| 10                      | 78                        | 4.49                         | 47                          | 1.29                         | 168                         |
| 10                      | 79                        | 20.22                        | 35                          | 1.6                          | 161                         |
| 10                      | 80                        | 3.38                         | 77                          | 3.04                         | 0                           |
| 10                      | 81                        | 2.3                          | 83                          | 2.03                         | 0                           |
| 10                      | 82                        | 2.18                         | 35                          | 1.27                         | 143                         |
| 10                      | 83                        | 4.66                         | 44                          | 2.83                         | 100                         |
| 10                      | 84                        | 27.13                        | 43                          | 1.48                         | 149                         |
| 10                      | 85                        | 16.3                         | 52                          | 2.8                          | 5                           |
| 11                      | 1                         | 15.62                        | 82                          | 1.52                         | 0                           |
| 11                      | 2                         | 15.91                        | 73                          | 1.6                          | 161                         |
| 11                      | 3                         | 17.61                        | 61                          | 1.79                         | 135                         |
| 11                      | 4                         | 6.35                         | 90                          | 4.34                         | 173                         |
| 11                      | 5                         | 18.4                         | 63                          | 2.27                         | 153                         |
| 11                      | 6                         | 30.5                         | 55                          | 1.93                         | 156                         |
| 11                      | 7                         | 47.83                        | 59                          | 1.84                         | 164                         |
| 11                      | 8                         | 70.54                        | 100                         | 3.53                         | 21                          |
| 11                      | 9                         | 38.3                         | 143                         | 1.62                         | 38                          |
| 11                      | 10                        | 54.8                         | 146                         | 1.48                         | 30                          |
| 11                      | 11                        | 9.67                         | 76                          | 2.55                         | 174                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 11                      | 12                        | 20.65                        | 58                          | 1.48                         | 149                         |
| 11                      | 13                        | 153.68                       | 41                          | 2.87                         | 135                         |
| 11                      | 14                        | 31.32                        | 67                          | 2.28                         | 0                           |
| 11                      | 15                        | 9.65                         | 63                          | 3.53                         | 158                         |
| 11                      | 16                        | 16.23                        | 69                          | 1.36                         | 158                         |
| 11                      | 17                        | 29.8                         | 60                          | 1.62                         | 128                         |
| 11                      | 18                        | 33.58                        | 77                          | 2.03                         | 0                           |
| 11                      | 19                        | 19.69                        | 120                         | 1.83                         | 33                          |
| 11                      | 20                        | 16.63                        | 97                          | 1.7                          | 26                          |
| 11                      | 21                        | 39.95                        | 55                          | 3.96                         | 140                         |
| 11                      | 22                        | 46.78                        | 87                          | 1.54                         | 9                           |
| 11                      | 23                        | 40.16                        | 60                          | 2.34                         | 139                         |
| 11                      | 24                        | 13.74                        | 168                         | 5.38                         | 70                          |
| 11                      | 25                        | 37.03                        | 9                           | 1.48                         | 120                         |
| 11                      | 26                        | 19.38                        | 58                          | 3.94                         | 165                         |
| 11                      | 27                        | 17.7                         | 171                         | 2.27                         | 63                          |
| 11                      | 28                        | 21.55                        | 68                          | 1.7                          | 153                         |
| 11                      | 29                        | 34.76                        | 121                         | 2.83                         | 26                          |
| 11                      | 30                        | 26.81                        | 118                         | 1.93                         | 23                          |
| 11                      | 31                        | 34.38                        | 48                          | 5.04                         | 130                         |
| 11                      | 32                        | 14.69                        | 161                         | 13.18                        | 74                          |
| 11                      | 33                        | 27.28                        | 65                          | 4.68                         | 167                         |
| 11                      | 34                        | 6.7                          | 65                          | 4.81                         | 161                         |
| 11                      | 35                        | 40.79                        | 57                          | 4.93                         | 145                         |
| 11                      | 36                        | 21.28                        | 70                          | 1.52                         | 0                           |
| 11                      | 37                        | 32.95                        | 173                         | 2.54                         | 90                          |
| 11                      | 38                        | 20.45                        | 61                          | 4.6                          | 173                         |
| 11                      | 39                        | 61.2                         | 23                          | 4.13                         | 100                         |
| 11                      | 40                        | 26.61                        | 76                          | 1.52                         | 0                           |
| 11                      | 41                        | 24.7                         | 75                          | 2.8                          | 174                         |
| 11                      | 42                        | 30.68                        | 143                         | 6.35                         | 53                          |
| 11                      | 43                        | 14.11                        | 59                          | 4.25                         | 162                         |
| 11                      | 44                        | 9.65                         | 90                          | 2.3                          | 173                         |
| 11                      | 45                        | 8.33                         | 52                          | 2.09                         | 165                         |
| 11                      | 46                        | 14.37                        | 46                          | 2.51                         | 135                         |
| 11                      | 47                        | 19.71                        | 104                         | 3.45                         | 17                          |
| 11                      | 48                        | 10                           | 66                          | 1.93                         | 156                         |
| 11                      | 49                        | 41.75                        | 9                           | 2.54                         | 90                          |
| 11                      | 50                        | 24.58                        | 66                          | 1.6                          | 161                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 11                      | 51                        | 16.27                        | 67                          | 1.54                         | 170                         |
| 11                      | 52                        | 38.64                        | 177                         | 2.8                          | 95                          |
| 11                      | 53                        | 16.2                         | 76                          | 1.54                         | 170                         |
| 11                      | 54                        | 53.16                        | 44                          | 2.09                         | 165                         |
| 11                      | 55                        | 15.5                         | 71                          | 2.17                         | 159                         |
| 11                      | 56                        | 25.22                        | 99                          | 2.03                         | 0                           |
| 11                      | 57                        | 44.8                         | 55                          | 8.24                         | 146                         |
| 12                      | 1                         | 27.7                         | 148                         | 1.62                         | 38                          |
| 12                      | 2                         | 60.33                        | 152                         | 2.61                         | 60                          |
| 12                      | 3                         | 39.43                        | 3                           | 2.28                         | 90                          |
| 12                      | 4                         | 6.11                         | 175                         | 2.3                          | 83                          |
| 12                      | 5                         | 2.83                         | 10                          | 1.27                         | 90                          |
| 12                      | 6                         | 4.06                         | 0                           | 1.7                          | 63                          |
| 12                      | 7                         | 25.3                         | 72                          | 1.77                         | 0                           |
| 12                      | 8                         | 8.13                         | 178                         | 4.31                         | 90                          |
| 12                      | 9                         | 10.66                        | 0                           | 1.52                         | 90                          |
| 12                      | 10                        | 31.25                        | 178                         | 4.31                         | 90                          |
| 12                      | 11                        | 54.31                        | 174                         | 2.5                          | 66                          |
| 12                      | 12                        | 43.48                        | 177                         | 2.8                          | 84                          |
| 12                      | 13                        | 19.38                        | 5                           | 1.77                         | 90                          |
| 12                      | 14                        | 13.11                        | 8                           | 2.59                         | 101                         |
| 12                      | 15                        | 30.58                        | 125                         | 2.74                         | 33                          |
| 12                      | 16                        | 38.16                        | 176                         | 1.77                         | 90                          |
| 12                      | 17                        | 6.64                         | 46                          | 1.83                         | 146                         |
| 12                      | 18                        | 13.25                        | 159                         | 2.54                         | 53                          |
| 12                      | 19                        | 6.62                         | 94                          | 4.6                          | 6                           |
| 12                      | 20                        | 5.35                         | 174                         | 2.79                         | 90                          |
| 12                      | 21                        | 30.33                        | 175                         | 1.54                         | 80                          |
| 12                      | 22                        | 24.38                        | 178                         | 1.52                         | 90                          |
| 12                      | 23                        | 16.47                        | 109                         | 3.45                         | 17                          |
| 12                      | 24                        | 54.12                        | 1                           | 3.04                         | 90                          |
| 12                      | 25                        | 19.85                        | 3                           | 2.79                         | 90                          |
| 12                      | 26                        | 20.37                        | 4                           | 2.79                         | 90                          |
| 12                      | 27                        | 3.3                          | 0                           | 2.3                          | 83                          |
| 12                      | 28                        | 7.64                         | 74                          | 1.52                         | 0                           |
| 12                      | 29                        | 18.14                        | 133                         | 1.48                         | 30                          |
| 12                      | 30                        | 26.03                        | 174                         | 2.04                         | 82                          |
| 12                      | 31                        | 4.31                         | 61                          | 2.55                         | 174                         |
| 12                      | 32                        | 3.18                         | 61                          | 1.54                         | 9                           |



### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 12                             | 33                               | 4.06                                | 90                                 | 2.28                                | 0                                  |
| 12                             | 34                               | 25.93                               | 98                                 | 1.79                                | 8                                  |
| 12                             | 35                               | 25.45                               | 102                                | 1.29                                | 11                                 |
| 12                             | 36                               | 61.47                               | 0                                  | 2.54                                | 90                                 |
| 12                             | 37                               | 12.76                               | 47                                 | 2.18                                | 144                                |
| 12                             | 38                               | 14.73                               | 54                                 | 2.04                                | 150                                |
| 12                             | 39                               | 15.12                               | 172                                | 1.01                                | 90                                 |
| 12                             | 40                               | 25.68                               | 177                                | 3.94                                | 75                                 |
| 12                             | 41                               | 69.13                               | 2                                  | 4.32                                | 93                                 |
| 12                             | 42                               | 8.07                                | 24                                 | 1.98                                | 129                                |
| 12                             | 43                               | 39.45                               | 176                                | 2.73                                | 68                                 |
| 12                             | 44                               | 8.38                                | 178                                | 2.34                                | 77                                 |
| 12                             | 45                               | 6.42                                | 161                                | 4.83                                | 86                                 |
| 12                             | 46                               | 3.94                                | 14                                 | 2.3                                 | 83                                 |
| 12                             | 47                               | 4.82                                | 0                                  | 3.59                                | 81                                 |
| 12                             | 48                               | 6.7                                 | 52                                 | 3.25                                | 128                                |
| 12                             | 49                               | 4.34                                | 83                                 | 4.09                                | 7                                  |
| 12                             | 50                               | 4.77                                | 154                                | 4.06                                | 90                                 |
| 12                             | 51                               | 2.97                                | 70                                 | 2.59                                | 168                                |
| 12                             | 52                               | 13.44                               | 22                                 | 2.74                                | 123                                |
| 12                             | 53                               | 2.8                                 | 174                                | 2.3                                 | 83                                 |
| 12                             | 54                               | 21.08                               | 179                                | 2.34                                | 77                                 |
| 12                             | 55                               | 9.24                                | 105                                | 1.36                                | 21                                 |
| 12                             | 56                               | 9.42                                | 94                                 | 1.27                                | 0                                  |
| 12                             | 57                               | 22.44                               | 174                                | 1.84                                | 74                                 |
| 12                             | 58                               | 37.08                               | 0                                  | 2.04                                | 82                                 |
| 12                             | 59                               | 11.98                               | 122                                | 1.52                                | 0                                  |
| 12                             | 60                               | 11.22                               | 127                                | 3.3                                 | 22                                 |
| 12                             | 61                               | 17.89                               | 173                                | 2.3                                 | 83                                 |
| 12                             | 62                               | 38.67                               | 176                                | 2.04                                | 82                                 |
| 12                             | 63                               | 14.08                               | 172                                | 2.3                                 | 83                                 |
| 12                             | 64                               | 19.81                               | 1                                  | 2.03                                | 90                                 |
| 12                             | 65                               | 9.54                                | 115                                | 1.83                                | 33                                 |
| 12                             | 66                               | 24.79                               | 173                                | 2.4                                 | 71                                 |
| 12                             | 67                               | 20.47                               | 44                                 | 3.25                                | 141                                |
| 12                             | 68                               | 15.34                               | 173                                | 3.31                                | 85                                 |
| 12                             | 69                               | 3.45                                | 107                                | 2.54                                | 0                                  |
| 12                             | 70                               | 4.82                                | 0                                  | 3.86                                | 113                                |
| 12                             | 71                               | 10.41                               | 102                                | 1.27                                | 0                                  |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 12                      | 72                        | 3.55                         | 0                           | 2.03                         | 90                          |
| 12                      | 73                        | 4.34                         | 173                         | 3.56                         | 85                          |
| 12                      | 74                        | 5.35                         | 174                         | 1.79                         | 81                          |
| 12                      | 75                        | 2.8                          | 174                         | 2.03                         | 90                          |
| 12                      | 76                        | 2.97                         | 19                          | 2.8                          | 95                          |
| 12                      | 77                        | 15.79                        | 4                           | 1.79                         | 98                          |
| 12                      | 78                        | 6.18                         | 160                         | 2.51                         | 44                          |
| 12                      | 79                        | 20.42                        | 158                         | 1.7                          | 63                          |
| 12                      | 80                        | 12.38                        | 164                         | 1.04                         | 75                          |
| 12                      | 81                        | 4.06                         | 0                           | 3.55                         | 90                          |
| 12                      | 82                        | 14.51                        | 94                          | 3.05                         | 4                           |
| 12                      | 83                        | 9.11                         | 12                          | 2.73                         | 111                         |
| 12                      | 84                        | 7.36                         | 0                           | 2.83                         | 79                          |
| 12                      | 85                        | 2.79                         | 0                           | 2.03                         | 90                          |
| 12                      | 86                        | 2.04                         | 172                         | 1.52                         | 90                          |
| 12                      | 87                        | 2.03                         | 0                           | 2.03                         | 90                          |
| 12                      | 88                        | 3.31                         | 175                         | 2.54                         | 90                          |
| 12                      | 89                        | 12.21                        | 46                          | 2.89                         | 127                         |
| 12                      | 90                        | 3.05                         | 85                          | 2.03                         | 0                           |
| 12                      | 91                        | 19.81                        | 0                           | 2.3                          | 83                          |
| 12                      | 92                        | 4.34                         | 173                         | 2.04                         | 82                          |
| 12                      | 93                        | 15.45                        | 170                         | 1.77                         | 90                          |
| 12                      | 94                        | 50.1                         | 177                         | 2.79                         | 90                          |
| 12                      | 95                        | 73.92                        | 0                           | 3.81                         | 90                          |
| 12                      | 96                        | 4.31                         | 0                           | 2.79                         | 90                          |
| 12                      | 97                        | 3.05                         | 175                         | 2.55                         | 84                          |
| 12                      | 98                        | 4.81                         | 161                         | 2.17                         | 69                          |
| 12                      | 99                        | 6.35                         | 163                         | 1.93                         | 66                          |
| 13                      | 1                         | 167.36                       | 163                         | 1.29                         | 78                          |
| 13                      | 2                         | 115.32                       | 79                          | 0.91                         | 33                          |
| 13                      | 3                         | 52.41                        | 79                          | 0.76                         | 0                           |
| 13                      | 4                         | 108.78                       | 172                         | 1.27                         | 90                          |
| 13                      | 5                         | 57.14                        | 139                         | 0.5                          | 90                          |
| 13                      | 6                         | 64.89                        | 141                         | 1.01                         | 90                          |
| 13                      | 7                         | 43.28                        | 175                         | 0.76                         | 90                          |
| 13                      | 8                         | 8.44                         | 158                         | 1.01                         | 90                          |
| 13                      | 9                         | 2.28                         | 0                           | 1.77                         | 90                          |
| 13                      | 10                        | 65.51                        | 167                         | 1.01                         | 90                          |
| 13                      | 11                        | 98.81                        | 166                         | 0.76                         | 90                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 13                             | 12                               | 83.39                               | 169                                | 1.04                                | 75                                 |
| 13                             | 13                               | 7.43                                | 172                                | 5.45                                | 62                                 |
| 13                             | 14                               | 47.81                               | 171                                | 1.27                                | 90                                 |
| 13                             | 15                               | 3.69                                | 74                                 | 1.77                                | 0                                  |
| 13                             | 16                               | 30.31                               | 171                                | 0.8                                 | 108                                |
| 13                             | 17                               | 29.06                               | 170                                | 0.56                                | 63                                 |
| 13                             | 18                               | 41.88                               | 171                                | 1.54                                | 80                                 |
| 13                             | 19                               | 39.29                               | 171                                | 1.04                                | 75                                 |
| 13                             | 20                               | 35.71                               | 168                                | 1.36                                | 68                                 |
| 13                             | 21                               | 41.46                               | 149                                | 0.56                                | 63                                 |
| 13                             | 22                               | 26.36                               | 166                                | 1.13                                | 63                                 |
| 13                             | 23                               | 115.66                              | 172                                | 0.8                                 | 71                                 |
| 13                             | 24                               | 46.09                               | 167                                | 1.01                                | 90                                 |
| 13                             | 25                               | 17.54                               | 177                                | 0.76                                | 90                                 |
| 13                             | 26                               | 27.89                               | 146                                | 1.04                                | 104                                |
| 13                             | 27                               | 70.95                               | 10                                 | 1.01                                | 90                                 |
| 13                             | 28                               | 26.11                               | 172                                | 1.13                                | 63                                 |
| 13                             | 29                               | 52.5                                | 151                                | 1.27                                | 90                                 |
| 13                             | 30                               | 25.78                               | 152                                | 1.01                                | 90                                 |
| 13                             | 31                               | 68.87                               | 174                                | 1.27                                | 90                                 |
| 13                             | 32                               | 67.81                               | 175                                | 0.76                                | 90                                 |
| 13                             | 33                               | 17.43                               | 161                                | 0.76                                | 90                                 |
| 13                             | 34                               | 106.49                              | 2                                  | 1.29                                | 101                                |
| 13                             | 35                               | 30.22                               | 138                                | 1.04                                | 14                                 |
| 13                             | 36                               | 61.44                               | 161                                | 1.01                                | 90                                 |
| 13                             | 37                               | 30.58                               | 4                                  | 1.52                                | 90                                 |
| 13                             | 38                               | 42.65                               | 162                                | 1.27                                | 90                                 |
| 13                             | 39                               | 19.71                               | 158                                | 1.13                                | 63                                 |
| 13                             | 40                               | 82.87                               | 167                                | 1.04                                | 104                                |
| 13                             | 41                               | 59.87                               | 166                                | 1.01                                | 90                                 |
| 13                             | 42                               | 18.98                               | 164                                | 2.03                                | 90                                 |
| 13                             | 43                               | 18.37                               | 130                                | 4.07                                | 3                                  |
| 13                             | 44                               | 22.54                               | 165                                | 1.13                                | 63                                 |
| 13                             | 45                               | 9.3                                 | 124                                | 0.56                                | 26                                 |
| 13                             | 46                               | 84.74                               | 172                                | 0.5                                 | 90                                 |
| 13                             | 47                               | 23.85                               | 161                                | 1.27                                | 90                                 |
| 13                             | 48                               | 16.98                               | 158                                | 0.8                                 | 71                                 |
| 13                             | 49                               | 13.25                               | 167                                | 0.5                                 | 90                                 |
| 13                             | 50                               | 29.48                               | 162                                | 1.29                                | 78                                 |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 13                             | 51                               | 26.93                               | 164                                | 0.8                                 | 71                                 |
| 13                             | 52                               | 44.08                               | 175                                | 1.27                                | 90                                 |
| 13                             | 53                               | 19.87                               | 153                                | 1.13                                | 63                                 |
| 13                             | 54                               | 4.2                                 | 115                                | 2.5                                 | 23                                 |
| 13                             | 55                               | 6.86                                | 141                                | 4.13                                | 47                                 |
| 13                             | 56                               | 4.06                                | 0                                  | 3.05                                | 85                                 |
| 13                             | 57                               | 18.87                               | 169                                | 0.8                                 | 71                                 |
| 13                             | 58                               | 21.37                               | 170                                | 0.5                                 | 90                                 |
| 13                             | 59                               | 2.54                                | 0                                  | 1.6                                 | 71                                 |
| 13                             | 60                               | 18.87                               | 19                                 | 1.36                                | 111                                |
| 13                             | 61                               | 34.31                               | 136                                | 1.01                                | 90                                 |
| 13                             | 62                               | 3.88                                | 168                                | 1.77                                | 90                                 |
| 13                             | 63                               | 10.22                               | 165                                | 1.04                                | 75                                 |
| 13                             | 64                               | 10.04                               | 163                                | 2.34                                | 77                                 |
| 13                             | 65                               | 2.89                                | 164                                | 2.54                                | 90                                 |
| 13                             | 66                               | 3.05                                | 4                                  | 2.3                                 | 96                                 |
| 15                             | 1                                | 12.85                               | 60                                 | 1.27                                | 143                                |
| 15                             | 2                                | 28.05                               | 73                                 | 1.52                                | 0                                  |
| 15                             | 3                                | 32.5                                | 135                                | 1.48                                | 30                                 |
| 15                             | 4                                | 2.59                                | 78                                 | 2.28                                | 0                                  |
| 15                             | 5                                | 4.06                                | 90                                 | 2.3                                 | 173                                |
| 15                             | 6                                | 46.02                               | 169                                | 1.79                                | 81                                 |
| 15                             | 7                                | 43.76                               | 176                                | 1.77                                | 90                                 |
| 15                             | 8                                | 51.42                               | 42                                 | 2.39                                | 122                                |
| 15                             | 9                                | 17.47                               | 125                                | 1.79                                | 44                                 |
| 15                             | 10                               | 28.02                               | 98                                 | 2.28                                | 0                                  |
| 15                             | 11                               | 5.58                                | 90                                 | 3.53                                | 21                                 |
| 15                             | 12                               | 28.96                               | 37                                 | 11.89                               | 109                                |
| 15                             | 13                               | 9.15                                | 86                                 | 5.84                                | 0                                  |
| 15                             | 14                               | 9.4                                 | 51                                 | 1.79                                | 135                                |
| 15                             | 15                               | 21.87                               | 105                                | 5.89                                | 7                                  |
| 15                             | 16                               | 7.4                                 | 120                                | 1.54                                | 170                                |
| 15                             | 17                               | 7.87                                | 88                                 | 2.04                                | 7                                  |
| 15                             | 18                               | 8.13                                | 1                                  | 3.04                                | 90                                 |
| 15                             | 19                               | 28.06                               | 27                                 | 2.28                                | 90                                 |
| 15                             | 20                               | 15.24                               | 53                                 | 2.7                                 | 131                                |
| 15                             | 21                               | 16.03                               | 60                                 | 1.7                                 | 153                                |
| 15                             | 22                               | 20.82                               | 90                                 | 1.77                                | 0                                  |
| 15                             | 23                               | 26.2                                | 176                                | 2.04                                | 97                                 |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 15                             | 24                               | 5.08                                | 0                                  | 4.32                                | 86                                 |
| 15                             | 25                               | 6.35                                | 2                                  | 3.3                                 | 90                                 |
| 15                             | 26                               | 5.73                                | 77                                 | 1.29                                | 11                                 |
| 15                             | 27                               | 10.16                               | 167                                | 1.79                                | 81                                 |
| 15                             | 28                               | 22.46                               | 132                                | 4.31                                | 28                                 |
| 15                             | 29                               | 15.95                               | 166                                | 2.04                                | 82                                 |
| 15                             | 30                               | 14.05                               | 49                                 | 3.23                                | 135                                |
| 15                             | 31                               | 2.54                                | 0                                  | 2.3                                 | 83                                 |
| 15                             | 32                               | 21.99                               | 96                                 | 2.97                                | 160                                |
| 15                             | 33                               | 8.1                                 | 147                                | 2.17                                | 69                                 |
| 15                             | 34                               | 8.38                                | 0                                  | 5.35                                | 95                                 |
| 15                             | 35                               | 16.38                               | 108                                | 2.59                                | 11                                 |
| 15                             | 36                               | 9.2                                 | 65                                 | 3.04                                | 0                                  |
| 15                             | 37                               | 8.74                                | 154                                | 3.94                                | 75                                 |
| 15                             | 38                               | 32.26                               | 25                                 | 2.73                                | 111                                |
| 15                             | 39                               | 18.35                               | 85                                 | 5.33                                | 0                                  |
| 15                             | 40                               | 7.13                                | 85                                 | 1.77                                | 0                                  |
| 15                             | 41                               | 5.61                                | 174                                | 1.36                                | 68                                 |
| 17                             | 1                                | 52.9                                | 56                                 | 1.6                                 | 161                                |
| 17                             | 2                                | 12.7                                | 126                                | 1.48                                | 30                                 |
| 17                             | 3                                | 18.87                               | 61                                 | 1.84                                | 164                                |
| 17                             | 4                                | 38.8                                | 17                                 | 3.77                                | 109                                |
| 17                             | 5                                | 28.68                               | 16                                 | 2.27                                | 116                                |
| 17                             | 6                                | 68.72                               | 62                                 | 2.7                                 | 138                                |
| 17                             | 7                                | 16.92                               | 62                                 | 1.7                                 | 153                                |
| 17                             | 8                                | 51.14                               | 55                                 | 2.51                                | 135                                |
| 17                             | 9                                | 12.45                               | 129                                | 1.27                                | 36                                 |
| 17                             | 10                               | 12.81                               | 50                                 | 2.7                                 | 138                                |
| 17                             | 11                               | 40.58                               | 16                                 | 3.09                                | 99                                 |
| 17                             | 12                               | 31.14                               | 52                                 | 3.87                                | 148                                |
| 17                             | 13                               | 23.64                               | 24                                 | 2.04                                | 119                                |
| 17                             | 14                               | 13.97                               | 24                                 | 1.07                                | 135                                |
| 17                             | 15                               | 16.03                               | 40                                 | 2.04                                | 119                                |
| 17                             | 16                               | 10.95                               | 45                                 | 2.7                                 | 138                                |
| 17                             | 17                               | 16.39                               | 49                                 | 2.61                                | 150                                |
| 17                             | 18                               | 28.16                               | 50                                 | 1.83                                | 123                                |
| 17                             | 19                               | 22.89                               | 56                                 | 1.04                                | 165                                |
| 17                             | 20                               | 20.22                               | 57                                 | 3.88                                | 168                                |
| 17                             | 21                               | 29.59                               | 55                                 | 2.03                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 17                      | 22                        | 11.72                        | 175                         | 4.13                         | 79                          |
| 17                      | 23                        | 11.31                        | 44                          | 2.87                         | 135                         |
| 17                      | 24                        | 11.54                        | 50                          | 2.04                         | 119                         |
| 17                      | 25                        | 9.54                         | 28                          | 2.5                          | 156                         |
| 17                      | 26                        | 17.12                        | 54                          | 2.15                         | 135                         |
| 17                      | 27                        | 27.85                        | 28                          | 2.27                         | 116                         |
| 17                      | 28                        | 10.02                        | 8                           | 1.29                         | 78                          |
| 17                      | 29                        | 11.98                        | 4                           | 2.03                         | 90                          |
| 17                      | 30                        | 4.83                         | 3                           | 1.04                         | 75                          |
| 17                      | 31                        | 33.18                        | 16                          | 1.7                          | 153                         |
| 17                      | 32                        | 22.4                         | 150                         | 2.09                         | 75                          |
| 17                      | 33                        | 28.22                        | 42                          | 4.13                         | 137                         |
| 17                      | 34                        | 3.81                         | 0                           | 3.56                         | 94                          |
| 17                      | 35                        | 23.18                        | 34                          | 3.81                         | 126                         |
| 17                      | 36                        | 21.95                        | 48                          | 2.34                         | 139                         |
| 17                      | 37                        | 23.85                        | 26                          | 2.97                         | 109                         |
| 17                      | 38                        | 44.88                        | 55                          | 3.63                         | 155                         |
| 17                      | 39                        | 10.61                        | 68                          | 2.59                         | 168                         |
| 17                      | 40                        | 11.51                        | 48                          | 2.51                         | 135                         |
| 17                      | 41                        | 7.53                         | 147                         | 2.27                         | 63                          |
| 17                      | 42                        | 9.58                         | 32                          | 2.34                         | 130                         |
| 17                      | 43                        | 7.97                         | 170                         | 1.48                         | 59                          |
| 17                      | 44                        | 29.83                        | 11                          | 4.57                         | 90                          |
| 17                      | 45                        | 23.62                        | 73                          | 1.84                         | 164                         |
| 17                      | 46                        | 16.39                        | 49                          | 3.4                          | 153                         |
| 17                      | 47                        | 18.05                        | 2                           | 1.13                         | 116                         |
| 17                      | 48                        | 7.53                         | 32                          | 1.07                         | 135                         |
| 17                      | 49                        | 16.77                        | 54                          | 0.76                         | 0                           |
| 17                      | 50                        | 14.28                        | 51                          | 0.91                         | 146                         |
| 17                      | 51                        | 10.06                        | 169                         | 5.62                         | 71                          |
| 17                      | 52                        | 6.1                          | 16                          | 4.43                         | 113                         |
| 17                      | 53                        | 5.62                         | 161                         | 1.98                         | 50                          |
| 17                      | 54                        | 5.86                         | 17                          | 2.83                         | 116                         |
| 17                      | 55                        | 17.33                        | 145                         | 2.83                         | 63                          |
| 17                      | 56                        | 15.59                        | 149                         | 1.27                         | 36                          |
| 17                      | 57                        | 11.81                        | 151                         | 1.27                         | 36                          |
| 17                      | 58                        | 33.97                        | 58                          | 1.84                         | 164                         |
| 17                      | 59                        | 11.48                        | 54                          | 1.48                         | 149                         |
| 17                      | 60                        | 24.06                        | 79                          | 1.93                         | 156                         |



### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 17                      | 61                        | 2.65                         | 163                         | 2.4                          | 71                          |
| 17                      | 62                        | 3.18                         | 28                          | 2.27                         | 116                         |
| 17                      | 63                        | 7.41                         | 128                         | 1.48                         | 59                          |
| 17                      | 64                        | 12.39                        | 45                          | 6.47                         | 131                         |
| 17                      | 65                        | 6.6                          | 22                          | 6.43                         | 99                          |
| 17                      | 66                        | 21.37                        | 43                          | 1.98                         | 129                         |
| 17                      | 67                        | 9.81                         | 79                          | 1.52                         | 0                           |
| 17                      | 68                        | 5.28                         | 125                         | 2.17                         | 20                          |
| 17                      | 69                        | 10.59                        | 45                          | 1.98                         | 140                         |
| 17                      | 70                        | 32.95                        | 173                         | 3.3                          | 90                          |
| 17                      | 71                        | 11.27                        | 165                         | 2.03                         | 90                          |
| 17                      | 72                        | 2.54                         | 53                          | 1.52                         | 0                           |
| 17                      | 73                        | 9.68                         | 4                           | 3.56                         | 94                          |
| 17                      | 74                        | 9.65                         | 26                          | 2.96                         | 120                         |
| 17                      | 75                        | 19.19                        | 25                          | 1.7                          | 116                         |
| 17                      | 76                        | 8.59                         | 34                          | 3.97                         | 116                         |
| 17                      | 77                        | 17.13                        | 173                         | 1.29                         | 101                         |
| 17                      | 78                        | 17.08                        | 95                          | 1.01                         | 0                           |
| 17                      | 79                        | 30.5                         | 87                          | 1.52                         | 0                           |
| 17                      | 80                        | 6.14                         | 172                         | 1.01                         | 90                          |
| 17                      | 81                        | 4.66                         | 135                         | 3.1                          | 34                          |
| 17                      | 82                        | 12.29                        | 141                         | 1.36                         | 68                          |
| 17                      | 83                        | 12.65                        | 51                          | 1.83                         | 123                         |
| 17                      | 84                        | 9.11                         | 12                          | 1.77                         | 90                          |
| 17                      | 85                        | 12.95                        | 25                          | 1.62                         | 128                         |
| 17                      | 86                        | 3.97                         | 153                         | 1.62                         | 51                          |
| 17                      | 87                        | 25.2                         | 40                          | 5.49                         | 123                         |
| 17                      | 88                        | 16.35                        | 64                          | 2.03                         | 0                           |
| 17                      | 89                        | 8.84                         | 39                          | 1.48                         | 120                         |
| 17                      | 90                        | 6.36                         | 28                          | 1.27                         | 126                         |
| 17                      | 91                        | 6.93                         | 23                          | 1.84                         | 105                         |
| 19                      | 1                         | 4.83                         | 176                         | 2.4                          | 108                         |
| 19                      | 2                         | 4.13                         | 47                          | 2.04                         | 7                           |
| 19                      | 3                         | 7                            | 46                          | 3.31                         | 147                         |
| 19                      | 4                         | 5.04                         | 40                          | 3.05                         | 138                         |
| 19                      | 5                         | 6.1                          | 44                          | 2.34                         | 139                         |
| 19                      | 6                         | 13.73                        | 70                          | 7.65                         | 174                         |
| 19                      | 7                         | 61.45                        | 46                          | 2.5                          | 113                         |
| 19                      | 8                         | 16.26                        | 38                          | 1.43                         | 135                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 19                             | 9                                | 18.89                               | 36                                 | 1.29                                | 168                                |
| 19                             | 10                               | 12.28                               | 150                                | 1.54                                | 80                                 |
| 19                             | 11                               | 14.52                               | 53                                 | 1.36                                | 158                                |
| 19                             | 12                               | 28.19                               | 90                                 | 0.56                                | 153                                |
| 19                             | 13                               | 17.02                               | 88                                 | 1.04                                | 165                                |
| 19                             | 14                               | 33.63                               | 62                                 | 1.43                                | 135                                |
| 19                             | 15                               | 30.91                               | 46                                 | 2.5                                 | 113                                |
| 19                             | 16                               | 21.55                               | 44                                 | 1.93                                | 156                                |
| 19                             | 17                               | 8.17                                | 53                                 | 1.43                                | 135                                |
| 19                             | 18                               | 6.58                                | 62                                 | 2.61                                | 150                                |
| 19                             | 19                               | 8.51                                | 26                                 | 1.62                                | 141                                |
| 19                             | 20                               | 42.92                               | 45                                 | 3.41                                | 131                                |
| 19                             | 21                               | 40.22                               | 62                                 | 2.09                                | 165                                |
| 19                             | 22                               | 6.11                                | 175                                | 1.01                                | 90                                 |
| 19                             | 23                               | 4.82                                | 0                                  | 1.27                                | 90                                 |
| 19                             | 24                               | 5.35                                | 5                                  | 1.79                                | 98                                 |
| 19                             | 25                               | 120.95                              | 50                                 | 2.34                                | 139                                |
| 19                             | 26                               | 61.86                               | 47                                 | 2.74                                | 123                                |
| 19                             | 27                               | 73.71                               | 53                                 | 2.51                                | 135                                |
| 19                             | 28                               | 54.41                               | 54                                 | 3.14                                | 165                                |
| 19                             | 29                               | 39.52                               | 33                                 | 2.34                                | 102                                |
| 19                             | 30                               | 32.68                               | 135                                | 3.21                                | 71                                 |
| 19                             | 31                               | 35.1                                | 107                                | 1.48                                | 30                                 |
| 19                             | 32                               | 8.59                                | 34                                 | 1.13                                | 116                                |
| 19                             | 33                               | 38.42                               | 24                                 | 2.04                                | 119                                |
| 19                             | 34                               | 39.71                               | 50                                 | 3.56                                | 4                                  |
| 19                             | 35                               | 37.06                               | 114                                | 2.04                                | 7                                  |
| 19                             | 36                               | 5.59                                | 92                                 | 1.77                                | 0                                  |
| 19                             | 37                               | 5.08                                | 90                                 | 1.52                                | 0                                  |
| 19                             | 38                               | 3.96                                | 50                                 | 1.13                                | 153                                |
| 19                             | 39                               | 4.79                                | 57                                 | 3.21                                | 108                                |
| 19                             | 40                               | 22.99                               | 135                                | 1.07                                | 44                                 |
| 19                             | 41                               | 22.45                               | 135                                | 1.27                                | 36                                 |
| 19                             | 42                               | 18.05                               | 103                                | 1.29                                | 11                                 |
| 19                             | 43                               | 25.89                               | 7                                  | 1.54                                | 99                                 |
| 19                             | 44                               | 25.8                                | 6                                  | 1.27                                | 90                                 |
| 19                             | 45                               | 19.11                               | 70                                 | 1.04                                | 165                                |
| 19                             | 46                               | 15.82                               | 137                                | 1.27                                | 36                                 |
| 19                             | 47                               | 21.61                               | 29                                 | 1.79                                | 98                                 |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 19                      | 48                        | 15.29                        | 85                          | 1.77                         | 0                           |
| 19                      | 49                        | 11.4                         | 78                          | 1.29                         | 168                         |
| 19                      | 50                        | 28.7                         | 36                          | 1.29                         | 78                          |
| 19                      | 51                        | 16.6                         | 96                          | 1.77                         | 0                           |
| 19                      | 52                        | 34.39                        | 54                          | 4.22                         | 122                         |
| 19                      | 53                        | 113.18                       | 11                          | 3.14                         | 75                          |
| 19                      | 54                        | 36.28                        | 44                          | 2.39                         | 147                         |
| 19                      | 55                        | 29.34                        | 41                          | 2.65                         | 163                         |
| 19                      | 56                        | 41.84                        | 145                         | 1.54                         | 80                          |
| 19                      | 57                        | 19.61                        | 85                          | 2.09                         | 165                         |
| 19                      | 58                        | 14.17                        | 53                          | 1.52                         | 0                           |
| 19                      | 59                        | 5.49                         | 33                          | 2.27                         | 116                         |
| 19                      | 60                        | 2.83                         | 63                          | 1.29                         | 11                          |
| 19                      | 61                        | 5.21                         | 133                         | 1.6                          | 71                          |
| 19                      | 62                        | 3.05                         | 131                         | 2.18                         | 35                          |
| 19                      | 63                        | 3.56                         | 175                         | 1.84                         | 74                          |
| 19                      | 64                        | 9.65                         | 90                          | 2.28                         | 0                           |
| 19                      | 65                        | 9.23                         | 82                          | 1.01                         | 0                           |
| 19                      | 66                        | 11.82                        | 75                          | 2.74                         | 123                         |
| 19                      | 67                        | 1.93                         | 23                          | 1.29                         | 101                         |
| 19                      | 68                        | 18.35                        | 131                         | 1.83                         | 33                          |
| 19                      | 69                        | 10.42                        | 46                          | 1.07                         | 135                         |
| 19                      | 70                        | 24.17                        | 93                          | 3.05                         | 175                         |
| 19                      | 71                        | 13.29                        | 135                         | 2.09                         | 75                          |
| 19                      | 72                        | 2.8                          | 95                          | 2.03                         | 0                           |
| 19                      | 73                        | 12.76                        | 42                          | 2.27                         | 116                         |
| 19                      | 74                        | 18.62                        | 95                          | 1.04                         | 14                          |
| 19                      | 75                        | 3.61                         | 39                          | 1.27                         | 0                           |
| 19                      | 76                        | 5.11                         | 63                          | 1.01                         | 0                           |
| 19                      | 77                        | 4.6                          | 173                         | 1.84                         | 74                          |
| 19                      | 78                        | 2.27                         | 153                         | 2.03                         | 90                          |
| 19                      | 79                        | 2.04                         | 82                          | 1.79                         | 171                         |
| 19                      | 80                        | 2.04                         | 97                          | 1.52                         | 0                           |
| 19                      | 81                        | 3.4                          | 26                          | 2.18                         | 125                         |
| 19                      | 82                        | 2.04                         | 97                          | 1.54                         | 9                           |
| 19                      | 83                        | 2.4                          | 71                          | 1.52                         | 0                           |
| 19                      | 84                        | 19.12                        | 50                          | 1.54                         | 170                         |
| 19                      | 85                        | 27.44                        | 88                          | 1.27                         | 0                           |
| 19                      | 86                        | 41.07                        | 40                          | 2.04                         | 150                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 19                      | 87                        | 29.75                        | 50                          | 2.54                         | 143                         |
| 19                      | 88                        | 18.18                        | 61                          | 2.03                         | 0                           |
| 19                      | 89                        | 35.66                        | 35                          | 1.54                         | 99                          |
| 19                      | 90                        | 15.95                        | 37                          | 0.71                         | 135                         |
| 19                      | 91                        | 6.77                         | 77                          | 4.57                         | 0                           |
| 19                      | 92                        | 12.7                         | 78                          | 2.79                         | 0                           |
| 19                      | 93                        | 6.71                         | 29                          | 4.32                         | 130                         |
| 20                      | 1                         | 39.43                        | 111                         | 1.27                         | 0                           |
| 20                      | 2                         | 63.22                        | 139                         | 1.7                          | 63                          |
| 20                      | 3                         | 40.29                        | 105                         | 1.77                         | 0                           |
| 20                      | 4                         | 12.37                        | 109                         | 1.79                         | 8                           |
| 20                      | 5                         | 33.19                        | 31                          | 1.84                         | 105                         |
| 20                      | 6                         | 47.03                        | 62                          | 2.54                         | 143                         |
| 20                      | 7                         | 9.54                         | 151                         | 2.39                         | 57                          |
| 20                      | 8                         | 26.92                        | 152                         | 1.48                         | 59                          |
| 20                      | 9                         | 6.11                         | 94                          | 1.27                         | 0                           |
| 20                      | 10                        | 8.1                          | 138                         | 0.8                          | 71                          |
| 20                      | 11                        | 11.17                        | 158                         | 1.13                         | 63                          |
| 20                      | 12                        | 12.76                        | 137                         | 1.27                         | 53                          |
| 20                      | 13                        | 17.33                        | 58                          | 1.7                          | 153                         |
| 20                      | 14                        | 4.32                         | 130                         | 1.84                         | 15                          |
| 20                      | 15                        | 20.67                        | 63                          | 5.11                         | 153                         |
| 20                      | 16                        | 70.79                        | 105                         | 1.27                         | 0                           |
| 20                      | 17                        | 46.51                        | 104                         | 2.28                         | 0                           |
| 20                      | 18                        | 25.26                        | 80                          | 1.04                         | 14                          |
| 20                      | 19                        | 24.21                        | 80                          | 0.8                          | 161                         |
| 20                      | 20                        | 11.43                        | 0                           | 2.28                         | 90                          |
| 20                      | 21                        | 21.02                        | 64                          | 1.27                         | 143                         |
| 20                      | 22                        | 21.71                        | 65                          | 1.01                         | 0                           |
| 20                      | 23                        | 28.63                        | 83                          | 2.28                         | 0                           |
| 20                      | 24                        | 22.42                        | 80                          | 0.76                         | 0                           |
| 20                      | 25                        | 26                           | 84                          | 0.76                         | 0                           |
| 20                      | 26                        | 21.66                        | 85                          | 0.76                         | 0                           |
| 20                      | 27                        | 20.16                        | 58                          | 1.01                         | 0                           |
| 20                      | 28                        | 6.93                         | 28                          | 4.18                         | 75                          |
| 20                      | 29                        | 15.29                        | 147                         | 1.54                         | 80                          |
| 20                      | 30                        | 9.89                         | 150                         | 1.43                         | 44                          |
| 20                      | 31                        | 41.86                        | 148                         | 1.83                         | 56                          |
| 20                      | 32                        | 13.17                        | 140                         | 1.43                         | 44                          |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 20                      | 33                        | 9.41                         | 93                          | 4.07                         | 3                           |
| 20                      | 34                        | 12.7                         | 0                           | 1.27                         | 90                          |
| 20                      | 35                        | 24.38                        | 89                          | 2.59                         | 11                          |
| 20                      | 36                        | 19.35                        | 109                         | 2.04                         | 7                           |
| 20                      | 37                        | 20.92                        | 150                         | 1.29                         | 78                          |
| 20                      | 38                        | 13.4                         | 152                         | 1.79                         | 81                          |
| 20                      | 39                        | 16.86                        | 127                         | 1.27                         | 36                          |
| 20                      | 40                        | 25.01                        | 119                         | 1.83                         | 33                          |
| 20                      | 41                        | 11.65                        | 163                         | 1.84                         | 74                          |
| 20                      | 42                        | 30.44                        | 100                         | 1.79                         | 171                         |
| 20                      | 43                        | 15.99                        | 46                          | 1.27                         | 143                         |
| 20                      | 44                        | 36.84                        | 74                          | 2.28                         | 0                           |
| 20                      | 45                        | 40.28                        | 48                          | 1.84                         | 105                         |
| 20                      | 46                        | 26.92                        | 178                         | 1.77                         | 90                          |
| 20                      | 47                        | 18.13                        | 11                          | 2.04                         | 82                          |
| 20                      | 48                        | 16.54                        | 162                         | 1.7                          | 63                          |
| 20                      | 49                        | 21.34                        | 34                          | 1.83                         | 123                         |
| 20                      | 50                        | 15.1                         | 109                         | 1.13                         | 26                          |
| 20                      | 51                        | 19.85                        | 106                         | 2.04                         | 7                           |
| 20                      | 52                        | 17.61                        | 65                          | 2.89                         | 164                         |
| 20                      | 53                        | 18.67                        | 67                          | 1.29                         | 168                         |
| 20                      | 54                        | 13.41                        | 155                         | 2.04                         | 82                          |
| 20                      | 55                        | 5.61                         | 95                          | 1.29                         | 11                          |
| 20                      | 56                        | 7.15                         | 117                         | 1.98                         | 50                          |
| 20                      | 57                        | 9.96                         | 70                          | 1.27                         | 0                           |
| 20                      | 58                        | 5.62                         | 161                         | 3.05                         | 94                          |
| 20                      | 59                        | 44.35                        | 156                         | 1.93                         | 66                          |
| 20                      | 60                        | 16.06                        | 55                          | 4.18                         | 165                         |
| 20                      | 61                        | 4.88                         | 152                         | 1.83                         | 56                          |
| 20                      | 62                        | 25.6                         | 10                          | 2.34                         | 102                         |
| 20                      | 63                        | 10.2                         | 108                         | 4.38                         | 10                          |
| 20                      | 64                        | 12.28                        | 161                         | 7.43                         | 82                          |
| 21                      | 1                         | 80.33                        | 61                          | 1.13                         | 116                         |
| 21                      | 2                         | 86.98                        | 101                         | 1.54                         | 9                           |
| 21                      | 3                         | 34.27                        | 96                          | 0.76                         | 0                           |
| 21                      | 4                         | 8.44                         | 96                          | 0.76                         | 0                           |
| 21                      | 5                         | 14.72                        | 75                          | 0.76                         | 0                           |
| 21                      | 6                         | 10.37                        | 158                         | 1.79                         | 81                          |
| 21                      | 7                         | 44.13                        | 78                          | 2.34                         | 139                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 21                      | 8                         | 33.11                        | 81                          | 1.27                         | 0                           |
| 21                      | 9                         | 35.02                        | 71                          | 1.79                         | 171                         |
| 21                      | 10                        | 52.6                         | 115                         | 2.18                         | 54                          |
| 21                      | 11                        | 106.45                       | 103                         | 1.84                         | 15                          |
| 21                      | 12                        | 97.09                        | 104                         | 1.6                          | 18                          |
| 21                      | 13                        | 59.94                        | 104                         | 1.52                         | 0                           |
| 21                      | 14                        | 54.84                        | 105                         | 1.27                         | 0                           |
| 21                      | 15                        | 23.85                        | 71                          | 1.48                         | 149                         |
| 21                      | 16                        | 16.25                        | 114                         | 1.62                         | 38                          |
| 21                      | 17                        | 23.51                        | 117                         | 2.54                         | 53                          |
| 21                      | 18                        | 30.38                        | 77                          | 2.04                         | 150                         |
| 21                      | 19                        | 40.9                         | 91                          | 2.79                         | 0                           |
| 21                      | 20                        | 18.21                        | 67                          | 0.76                         | 0                           |
| 21                      | 21                        | 12.5                         | 60                          | 2.54                         | 143                         |
| 21                      | 22                        | 63.81                        | 111                         | 1.48                         | 30                          |
| 21                      | 23                        | 29.77                        | 86                          | 1.52                         | 0                           |
| 21                      | 24                        | 40.05                        | 164                         | 2.03                         | 90                          |
| 21                      | 25                        | 43.48                        | 92                          | 1.52                         | 0                           |
| 21                      | 26                        | 73.61                        | 104                         | 1.6                          | 18                          |
| 21                      | 27                        | 100.22                       | 81                          | 1.27                         | 0                           |
| 21                      | 28                        | 19.68                        | 107                         | 1.48                         | 30                          |
| 21                      | 29                        | 35.23                        | 137                         | 2.83                         | 63                          |
| 21                      | 30                        | 8.76                         | 100                         | 1.93                         | 23                          |
| 21                      | 31                        | 20.08                        | 99                          | 2.03                         | 0                           |
| 21                      | 32                        | 107.43                       | 43                          | 2.04                         | 119                         |
| 21                      | 33                        | 79.42                        | 43                          | 1.04                         | 104                         |
| 21                      | 34                        | 54.27                        | 43                          | 1.36                         | 111                         |
| 21                      | 35                        | 63.49                        | 41                          | 1.7                          | 116                         |
| 21                      | 36                        | 58.16                        | 117                         | 2.39                         | 32                          |
| 21                      | 37                        | 19.78                        | 65                          | 2.59                         | 168                         |
| 21                      | 38                        | 16.35                        | 83                          | 2.04                         | 172                         |
| 21                      | 39                        | 14.37                        | 46                          | 1.98                         | 140                         |
| 21                      | 40                        | 7.61                         | 64                          | 1.29                         | 168                         |
| 21                      | 41                        | 11.5                         | 6                           | 1.27                         | 90                          |
| 21                      | 42                        | 5.92                         | 46                          | 2.04                         | 172                         |
| 21                      | 43                        | 15.5                         | 121                         | 1.43                         | 44                          |
| 21                      | 44                        | 4.74                         | 74                          | 1.6                          | 161                         |
| 21                      | 45                        | 14.21                        | 28                          | 1.48                         | 120                         |
| 21                      | 46                        | 11.51                        | 41                          | 2.34                         | 102                         |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 21                      | 47                        | 5.47                         | 68                          | 3.04                         | 0                           |
| 21                      | 48                        | 37.3                         | 60                          | 1.7                          | 153                         |
| 21                      | 49                        | 2.59                         | 78                          | 1.52                         | 0                           |
| 21                      | 50                        | 2.55                         | 95                          | 1.29                         | 11                          |
| 21                      | 51                        | 41.65                        | 0                           | 2.4                          | 108                         |
| 21                      | 52                        | 27.8                         | 84                          | 3.21                         | 18                          |
| 21                      | 53                        | 38.61                        | 134                         | 1.54                         | 80                          |
| 21                      | 54                        | 33.52                        | 173                         | 2.89                         | 74                          |
| 21                      | 55                        | 14.9                         | 171                         | 3.04                         | 90                          |
| 21                      | 56                        | 19.99                        | 62                          | 1.27                         | 0                           |
| 21                      | 57                        | 22.76                        | 79                          | 0.8                          | 18                          |
| 21                      | 58                        | 32.07                        | 98                          | 1.04                         | 14                          |
| 21                      | 59                        | 29.23                        | 97                          | 0.91                         | 33                          |
| 21                      | 60                        | 20.45                        | 75                          | 1.52                         | 0                           |
| 21                      | 61                        | 8.62                         | 137                         | 1.54                         | 80                          |
| 21                      | 62                        | 5.42                         | 79                          | 1.52                         | 0                           |
| 21                      | 63                        | 7.55                         | 70                          | 2.8                          | 5                           |
| 21                      | 64                        | 7.57                         | 166                         | 3.52                         | 59                          |
| 21                      | 65                        | 14.69                        | 108                         | 1.6                          | 18                          |
| 21                      | 66                        | 32.68                        | 67                          | 2.03                         | 0                           |
| 21                      | 67                        | 16.15                        | 53                          | 1.6                          | 161                         |
| 22                      | 1                         | 66.72                        | 94                          | 1.79                         | 171                         |
| 22                      | 2                         | 15.49                        | 100                         | 1.77                         | 0                           |
| 22                      | 3                         | 28.96                        | 91                          | 2.03                         | 0                           |
| 22                      | 4                         | 3.04                         | 90                          | 2.03                         | 0                           |
| 22                      | 5                         | 30.24                        | 82                          | 2.03                         | 0                           |
| 22                      | 6                         | 57.34                        | 100                         | 1.52                         | 0                           |
| 22                      | 7                         | 55.79                        | 98                          | 2.27                         | 26                          |
| 22                      | 8                         | 51.69                        | 99                          | 1.6                          | 18                          |
| 22                      | 9                         | 114.28                       | 77                          | 3.3                          | 0                           |
| 22                      | 10                        | 112.86                       | 76                          | 1.07                         | 135                         |
| 22                      | 11                        | 94.65                        | 69                          | 0.8                          | 161                         |
| 22                      | 12                        | 26.88                        | 67                          | 1.54                         | 9                           |
| 22                      | 13                        | 59.54                        | 99                          | 1.77                         | 0                           |
| 22                      | 14                        | 12.15                        | 79                          | 1.84                         | 164                         |
| 22                      | 15                        | 25.26                        | 105                         | 1.79                         | 8                           |
| 22                      | 16                        | 85.7                         | 95                          | 2.17                         | 159                         |
| 22                      | 17                        | 51.51                        | 95                          | 2.3                          | 173                         |
| 22                      | 18                        | 4.85                         | 96                          | 1.79                         | 8                           |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 22                      | 19                        | 4.32                         | 93                          | 1.77                         | 0                           |
| 22                      | 20                        | 3.3                          | 90                          | 1.27                         | 0                           |
| 22                      | 21                        | 26.7                         | 92                          | 1.29                         | 11                          |
| 22                      | 22                        | 34.47                        | 95                          | 1.29                         | 168                         |
| 22                      | 23                        | 10.46                        | 84                          | 1.77                         | 0                           |
| 22                      | 24                        | 8.8                          | 56                          | 1.52                         | 0                           |
| 22                      | 25                        | 17.45                        | 98                          | 1.27                         | 0                           |
| 22                      | 26                        | 7.4                          | 95                          | 1.27                         | 0                           |
| 22                      | 27                        | 3.66                         | 56                          | 2.34                         | 167                         |
| 22                      | 28                        | 3.77                         | 132                         | 3.05                         | 41                          |
| 22                      | 29                        | 6.42                         | 18                          | 2.3                          | 83                          |
| 22                      | 30                        | 55.75                        | 93                          | 1.54                         | 9                           |
| 22                      | 31                        | 51.81                        | 89                          | 1.6                          | 18                          |
| 22                      | 32                        | 39.66                        | 96                          | 1.6                          | 161                         |
| 22                      | 33                        | 39.08                        | 98                          | 1.04                         | 14                          |
| 22                      | 34                        | 80.34                        | 99                          | 2.3                          | 173                         |
| 22                      | 35                        | 89.09                        | 95                          | 1.43                         | 44                          |
| 22                      | 36                        | 55.85                        | 97                          | 1.54                         | 9                           |
| 22                      | 37                        | 47                           | 91                          | 1.52                         | 0                           |
| 22                      | 38                        | 41                           | 94                          | 1.27                         | 0                           |
| 22                      | 39                        | 8.24                         | 33                          | 4.01                         | 108                         |
| 22                      | 40                        | 14.53                        | 95                          | 2.34                         | 12                          |
| 22                      | 41                        | 5.45                         | 27                          | 3.04                         | 90                          |
| 22                      | 42                        | 21.07                        | 102                         | 3.25                         | 51                          |
| 22                      | 43                        | 7.15                         | 96                          | 1.79                         | 171                         |
| 22                      | 44                        | 8.59                         | 108                         | 1.98                         | 39                          |
| 22                      | 45                        | 8.62                         | 76                          | 1.01                         | 0                           |
| 22                      | 46                        | 15.62                        | 97                          | 2.79                         | 0                           |
| 22                      | 47                        | 16.78                        | 92                          | 1.83                         | 33                          |
| 22                      | 48                        | 6.27                         | 111                         | 2.87                         | 44                          |
| 22                      | 49                        | 12                           | 83                          | 1.77                         | 0                           |
| 22                      | 50                        | 68.98                        | 86                          | 1.77                         | 0                           |
| 22                      | 51                        | 4.34                         | 159                         | 2.89                         | 52                          |
| 22                      | 52                        | 9.39                         | 71                          | 2.51                         | 135                         |
| 22                      | 53                        | 2.28                         | 90                          | 1.84                         | 164                         |
| 22                      | 54                        | 2.4                          | 161                         | 1.79                         | 81                          |
| 22                      | 55                        | 7.79                         | 70                          | 5.67                         | 10                          |
| 22                      | 56                        | 9.93                         | 94                          | 2.55                         | 174                         |
| 22                      | 57                        | 3.3                          | 22                          | 3.21                         | 108                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 22                      | 58                        | 3.94                         | 75                          | 1.04                         | 165                         |
| 22                      | 59                        | 4.06                         | 90                          | 2.89                         | 142                         |
| 22                      | 60                        | 4.16                         | 142                         | 3.25                         | 38                          |
| 22                      | 61                        | 24.76                        | 103                         | 1.27                         | 0                           |
| 22                      | 62                        | 30.14                        | 102                         | 1.77                         | 0                           |
| 22                      | 63                        | 19.12                        | 100                         | 1.77                         | 0                           |
| 22                      | 64                        | 36.01                        | 96                          | 1.29                         | 168                         |
| 22                      | 65                        | 33.82                        | 93                          | 1.79                         | 171                         |
| 22                      | 66                        | 14.4                         | 130                         | 3.53                         | 68                          |
| 22                      | 67                        | 19.25                        | 98                          | 1.77                         | 0                           |
| 22                      | 68                        | 6.14                         | 141                         | 2.28                         | 90                          |
| 22                      | 69                        | 24.76                        | 95                          | 1.77                         | 0                           |
| 22                      | 70                        | 33.77                        | 96                          | 2.83                         | 26                          |
| 22                      | 71                        | 2.59                         | 101                         | 2.04                         | 29                          |
| 22                      | 72                        | 2.54                         | 90                          | 1.84                         | 15                          |
| 22                      | 73                        | 16.88                        | 96                          | 1.79                         | 8                           |
| 22                      | 74                        | 9.98                         | 97                          | 2.03                         | 0                           |
| 22                      | 75                        | 2.8                          | 84                          | 1.77                         | 0                           |
| 22                      | 76                        | 21.71                        | 169                         | 2.04                         | 97                          |
| 22                      | 77                        | 18.08                        | 169                         | 1.52                         | 90                          |
| 22                      | 78                        | 71.2                         | 98                          | 1.77                         | 0                           |
| 22                      | 79                        | 27.5                         | 94                          | 1.52                         | 0                           |
| 22                      | 80                        | 29.59                        | 95                          | 2.28                         | 0                           |
| 22                      | 81                        | 19.34                        | 93                          | 1.83                         | 33                          |
| 22                      | 82                        | 3.84                         | 97                          | 2.34                         | 12                          |
| 22                      | 83                        | 2.3                          | 96                          | 1.77                         | 0                           |
| 22                      | 84                        | 2.34                         | 102                         | 1.27                         | 36                          |
| 22                      | 85                        | 9.2                          | 96                          | 1.62                         | 38                          |
| 22                      | 86                        | 3.88                         | 101                         | 1.29                         | 11                          |
| 22                      | 87                        | 4.93                         | 101                         | 1.36                         | 21                          |
| 22                      | 88                        | 2.79                         | 90                          | 2.27                         | 26                          |
| 22                      | 89                        | 7.43                         | 172                         | 3.56                         | 94                          |
| 22                      | 90                        | 31.72                        | 96                          | 1.01                         | 0                           |
| 22                      | 91                        | 20.83                        | 99                          | 1.01                         | 0                           |
| 22                      | 92                        | 13.47                        | 92                          | 1.27                         | 0                           |
| 22                      | 93                        | 3.61                         | 129                         | 2.04                         | 82                          |
| 22                      | 94                        | 2.34                         | 167                         | 2.28                         | 90                          |
| 22                      | 95                        | 7.38                         | 86                          | 0.56                         | 26                          |
| 22                      | 96                        | 3.69                         | 164                         | 2.09                         | 75                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 22                             | 97                               | 5.67                                | 100                                | 1.29                                | 11                                 |
| 22                             | 98                               | 6.93                                | 28                                 | 1.6                                 | 108                                |
| 22                             | 99                               | 6.87                                | 85                                 | 1.29                                | 11                                 |
| 23                             | 100                              | 25.01                               | 74                                 | 1.13                                | 26                                 |
| 23                             | 101                              | 12.76                               | 95                                 | 0.56                                | 153                                |
| 23                             | 102                              | 11.24                               | 96                                 | 1.6                                 | 18                                 |
| 23                             | 1                                | 8.19                                | 7                                  | 5.89                                | 97                                 |
| 23                             | 2                                | 4.57                                | 56                                 | 3.3                                 | 0                                  |
| 23                             | 3                                | 10.92                               | 17                                 | 9.36                                | 102                                |
| 23                             | 4                                | 6.09                                | 0                                  | 3.81                                | 90                                 |
| 23                             | 5                                | 3.59                                | 81                                 | 1.79                                | 171                                |
| 23                             | 6                                | 6.49                                | 120                                | 6.42                                | 71                                 |
| 23                             | 7                                | 4.06                                | 90                                 | 3.05                                | 175                                |
| 23                             | 8                                | 5.38                                | 44                                 | 2.03                                | 0                                  |
| 23                             | 9                                | 3.45                                | 17                                 | 2.03                                | 90                                 |
| 23                             | 10                               | 2.5                                 | 66                                 | 2.28                                | 0                                  |
| 23                             | 11                               | 5.58                                | 0                                  | 4.85                                | 96                                 |
| 23                             | 12                               | 5.63                                | 97                                 | 4.63                                | 9                                  |
| 23                             | 13                               | 9.24                                | 142                                | 7.07                                | 21                                 |
| 23                             | 14                               | 18.14                               | 43                                 | 2.61                                | 150                                |
| 23                             | 15                               | 10.44                               | 85                                 | 2.03                                | 0                                  |
| 23                             | 16                               | 54.91                               | 80                                 | 2.59                                | 168                                |
| 23                             | 17                               | 43.43                               | 76                                 | 2.59                                | 168                                |
| 23                             | 18                               | 3.81                                | 0                                  | 2.3                                 | 96                                 |
| 23                             | 19                               | 2.83                                | 63                                 | 1.77                                | 0                                  |
| 23                             | 20                               | 4.1                                 | 21                                 | 1.27                                | 90                                 |
| 23                             | 21                               | 5.92                                | 30                                 | 2.03                                | 90                                 |
| 23                             | 22                               | 2.34                                | 49                                 | 1.83                                | 146                                |
| 23                             | 23                               | 2.97                                | 160                                | 1.77                                | 90                                 |
| 23                             | 24                               | 2.8                                 | 95                                 | 1.7                                 | 153                                |
| 23                             | 25                               | 2.28                                | 90                                 | 2.03                                | 0                                  |
| 23                             | 26                               | 164.34                              | 11                                 | 2.54                                | 90                                 |
| 23                             | 27                               | 2.09                                | 14                                 | 2.09                                | 75                                 |
| 23                             | 28                               | 2.79                                | 0                                  | 1.52                                | 90                                 |
| 23                             | 29                               | 2.09                                | 75                                 | 1.52                                | 0                                  |
| 23                             | 30                               | 2.03                                | 90                                 | 1.54                                | 9                                  |
| 23                             | 31                               | 52.31                               | 5                                  | 3.3                                 | 90                                 |
| 23                             | 32                               | 44.59                               | 47                                 | 1.79                                | 8                                  |
| 23                             | 33                               | 88.33                               | 65                                 | 2.8                                 | 174                                |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 23                      | 34                        | 31.92                        | 64                          | 1.79                         | 171                         |
| 23                      | 35                        | 29.82                        | 4                           | 1.77                         | 90                          |
| 23                      | 36                        | 49.65                        | 152                         | 3.34                         | 81                          |
| 23                      | 37                        | 26.08                        | 22                          | 4.07                         | 93                          |
| 23                      | 38                        | 31.54                        | 176                         | 2.28                         | 90                          |
| 23                      | 39                        | 57.2                         | 127                         | 2.39                         | 57                          |
| 23                      | 40                        | 24.51                        | 95                          | 1.52                         | 0                           |
| 23                      | 41                        | 4.57                         | 0                           | 2.27                         | 63                          |
| 23                      | 42                        | 3.4                          | 63                          | 2.8                          | 174                         |
| 23                      | 43                        | 135.68                       | 56                          | 2.04                         | 150                         |
| 23                      | 44                        | 4.07                         | 176                         | 4.07                         | 86                          |
| 23                      | 45                        | 6.39                         | 96                          | 3.09                         | 9                           |
| 23                      | 46                        | 29.34                        | 159                         | 1.52                         | 90                          |
| 23                      | 47                        | 14.34                        | 157                         | 1.84                         | 105                         |
| 23                      | 48                        | 2.55                         | 5                           | 2.27                         | 116                         |
| 23                      | 49                        | 6.74                         | 109                         | 1.43                         | 44                          |
| 23                      | 50                        | 40.11                        | 148                         | 1.77                         | 90                          |
| 23                      | 51                        | 41.59                        | 151                         | 1.84                         | 74                          |
| 23                      | 52                        | 4.13                         | 42                          | 2.27                         | 116                         |
| 23                      | 53                        | 12.01                        | 13                          | 1.84                         | 105                         |
| 23                      | 54                        | 10.46                        | 150                         | 1.7                          | 63                          |
| 23                      | 55                        | 6.41                         | 146                         | 1.01                         | 90                          |
| 23                      | 56                        | 5.84                         | 90                          | 1.27                         | 0                           |
| 23                      | 57                        | 8.56                         | 78                          | 1.01                         | 0                           |
| 23                      | 58                        | 16.38                        | 18                          | 2.15                         | 135                         |
| 23                      | 59                        | 95.22                        | 155                         | 2.09                         | 75                          |
| 23                      | 60                        | 27.88                        | 149                         | 1.36                         | 21                          |
| 23                      | 61                        | 2.04                         | 82                          | 2.03                         | 0                           |
| 23                      | 62                        | 2.61                         | 60                          | 2.28                         | 0                           |
| 23                      | 63                        | 1.77                         | 0                           | 1.77                         | 90                          |
| 23                      | 64                        | 7.57                         | 140                         | 2.17                         | 69                          |
| 23                      | 65                        | 50.29                        | 23                          | 2.03                         | 90                          |
| 23                      | 66                        | 59.52                        | 70                          | 1.93                         | 156                         |
| 23                      | 67                        | 2.03                         | 0                           | 1.84                         | 74                          |
| 23                      | 68                        | 3.3                          | 0                           | 3.18                         | 61                          |
| 23                      | 69                        | 47.83                        | 3                           | 3.81                         | 93                          |
| 23                      | 70                        | 48.24                        | 138                         | 1.6                          | 71                          |
| 23                      | 71                        | 38.81                        | 149                         | 1.52                         | 90                          |
| 23                      | 72                        | 54.45                        | 47                          | 1.98                         | 140                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 23                             | 73                               | 60.78                               | 84                                 | 2.28                                | 0                                  |
| 23                             | 74                               | 30.25                               | 156                                | 3.38                                | 77                                 |
| 23                             | 75                               | 22.13                               | 31                                 | 3.1                                 | 124                                |
| 23                             | 76                               | 12.19                               | 91                                 | 1.52                                | 0                                  |
| 23                             | 77                               | 21.37                               | 76                                 | 1.84                                | 164                                |
| 23                             | 78                               | 13.01                               | 174                                | 2.03                                | 90                                 |
| 23                             | 79                               | 2.5                                 | 113                                | 2.17                                | 20                                 |
| 23                             | 80                               | 38.39                               | 157                                | 2.09                                | 75                                 |
| 23                             | 81                               | 133.64                              | 157                                | 3.88                                | 78                                 |
| 23                             | 82                               | 83.24                               | 160                                | 1.6                                 | 71                                 |
| 23                             | 83                               | 73.25                               | 157                                | 1.36                                | 68                                 |
| 23                             | 84                               | 35.9                                | 85                                 | 1.79                                | 171                                |
| 23                             | 85                               | 22.15                               | 63                                 | 1.79                                | 171                                |
| 23                             | 86                               | 18.79                               | 179                                | 2.34                                | 77                                 |
| 23                             | 87                               | 52.23                               | 20                                 | 2.4                                 | 108                                |
| 23                             | 88                               | 35.02                               | 140                                | 3.06                                | 65                                 |
| 23                             | 89                               | 39.6                                | 32                                 | 2.04                                | 97                                 |
| 23                             | 90                               | 64.25                               | 161                                | 2.28                                | 90                                 |
| 23                             | 91                               | 36.22                               | 157                                | 2.54                                | 90                                 |
| 23                             | 92                               | 4.32                                | 176                                | 2.8                                 | 84                                 |
| 23                             | 93                               | 3.56                                | 175                                | 2.4                                 | 71                                 |
| 23                             | 94                               | 2.03                                | 0                                  | 1.27                                | 90                                 |
| 23                             | 95                               | 36.86                               | 97                                 | 1.01                                | 0                                  |
| 23                             | 96                               | 10.21                               | 34                                 | 1.48                                | 120                                |
| 23                             | 97                               | 12.85                               | 52                                 | 3.81                                | 0                                  |
| 23                             | 98                               | 11.7                                | 40                                 | 3.09                                | 170                                |
| 23                             | 99                               | 11.16                               | 17                                 | 3.05                                | 138                                |
| 23                             | 100                              | 4.16                                | 37                                 | 2.39                                | 147                                |
| 23                             | 101                              | 9.77                                | 171                                | 2.09                                | 75                                 |
| 23                             | 102                              | 5.08                                | 0                                  | 3.97                                | 63                                 |
| 23                             | 103                              | 21.59                               | 1                                  | 1.52                                | 90                                 |
| 23                             | 104                              | 41.42                               | 156                                | 1.36                                | 68                                 |
| 23                             | 105                              | 2.79                                | 90                                 | 2.61                                | 29                                 |
| 23                             | 106                              | 31.32                               | 149                                | 2.28                                | 90                                 |
| 23                             | 107                              | 52.6                                | 152                                | 3.1                                 | 55                                 |
| 23                             | 108                              | 31.54                               | 93                                 | 3.05                                | 4                                  |
| 23                             | 109                              | 35.74                               | 39                                 | 5.73                                | 167                                |
| 23                             | 110                              | 5.61                                | 174                                | 2.79                                | 90                                 |
| 23                             | 111                              | 10.29                               | 15                                 | 1.84                                | 164                                |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 24                      | 1                         | 34.82                        | 92                          | 1.01                         | 0                           |
| 24                      | 2                         | 100.85                       | 91                          | 2.03                         | 0                           |
| 24                      | 3                         | 13.21                        | 92                          | 0.76                         | 0                           |
| 24                      | 4                         | 48.77                        | 89                          | 0.76                         | 0                           |
| 24                      | 5                         | 20.86                        | 86                          | 1.01                         | 0                           |
| 24                      | 6                         | 25.22                        | 85                          | 0.8                          | 18                          |
| 24                      | 7                         | 17.78                        | 89                          | 0.8                          | 18                          |
| 24                      | 8                         | 5.59                         | 92                          | 0.56                         | 26                          |
| 24                      | 9                         | 7.13                         | 85                          | 1.27                         | 0                           |
| 24                      | 10                        | 12.06                        | 98                          | 0.76                         | 0                           |
| 24                      | 11                        | 7.57                         | 166                         | 1.01                         | 90                          |
| 24                      | 12                        | 19.55                        | 90                          | 0.8                          | 18                          |
| 24                      | 13                        | 7.4                          | 22                          | 1.13                         | 116                         |
| 24                      | 14                        | 24.63                        | 90                          | 0.8                          | 18                          |
| 24                      | 15                        | 14.3                         | 96                          | 2.55                         | 5                           |
| 24                      | 16                        | 41.6                         | 95                          | 2.04                         | 7                           |
| 24                      | 17                        | 13.12                        | 42                          | 0.91                         | 123                         |
| 24                      | 18                        | 24.43                        | 86                          | 1.01                         | 0                           |
| 24                      | 19                        | 23.95                        | 55                          | 2.18                         | 125                         |
| 24                      | 20                        | 6.6                          | 92                          | 0.76                         | 0                           |
| 24                      | 21                        | 19.58                        | 80                          | 2.54                         | 0                           |
| 24                      | 22                        | 33.32                        | 93                          | 2.04                         | 7                           |
| 24                      | 23                        | 24.4                         | 92                          | 2.54                         | 0                           |
| 24                      | 24                        | 25.96                        | 86                          | 1.62                         | 141                         |
| 24                      | 25                        | 6.47                         | 131                         | 1.29                         | 78                          |
| 24                      | 26                        | 10.44                        | 94                          | 1.01                         | 0                           |
| 24                      | 27                        | 23.11                        | 90                          | 0.25                         | n/a                         |
| 24                      | 28                        | 19.09                        | 93                          | 1.01                         | 0                           |
| 24                      | 29                        | 46.25                        | 88                          | 2.03                         | 0                           |
| 24                      | 30                        | 40.66                        | 48                          | 2.04                         | 119                         |
| 24                      | 31                        | 27.71                        | 87                          | 2.79                         | 0                           |
| 24                      | 32                        | 21.91                        | 85                          | 0.8                          | 18                          |
| 24                      | 33                        | 33.47                        | 78                          | 2.34                         | 167                         |
| 24                      | 34                        | 59.31                        | 33                          | 1.13                         | 116                         |
| 24                      | 35                        | 22.91                        | 148                         | 2.3                          | 83                          |
| 24                      | 36                        | 22.74                        | 173                         | 2.97                         | 70                          |
| 24                      | 37                        | 28.44                        | 79                          | 1.52                         | 0                           |
| 24                      | 38                        | 5.92                         | 80                          | 5.84                         | 177                         |
| 24                      | 39                        | 6.7                          | 155                         | 4.09                         | 60                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 24                      | 40                        | 9.67                         | 150                         | 1.43                         | 44                          |
| 24                      | 41                        | 43.52                        | 86                          | 1.27                         | 0                           |
| 24                      | 42                        | 15.99                        | 110                         | 2.39                         | 32                          |
| 24                      | 43                        | 7.91                         | 84                          | 1.52                         | 0                           |
| 24                      | 44                        | 15.49                        | 90                          | 1.54                         | 9                           |
| 24                      | 45                        | 51.51                        | 95                          | 1.04                         | 14                          |
| 24                      | 46                        | 16.95                        | 106                         | 1.52                         | 0                           |
| 24                      | 47                        | 18.3                         | 92                          | 1.54                         | 9                           |
| 24                      | 48                        | 48.3                         | 104                         | 1.52                         | 0                           |
| 24                      | 49                        | 26.96                        | 86                          | 1.13                         | 153                         |
| 24                      | 50                        | 38.39                        | 92                          | 1.27                         | 0                           |
| 24                      | 51                        | 37.44                        | 94                          | 1.79                         | 8                           |
| 24                      | 52                        | 19.83                        | 87                          | 1.79                         | 8                           |
| 24                      | 53                        | 12.45                        | 92                          | 3.55                         | 0                           |
| 24                      | 54                        | 17.52                        | 89                          | 1.79                         | 8                           |
| 24                      | 55                        | 7.87                         | 90                          | 3.3                          | 0                           |
| 24                      | 56                        | 39.88                        | 89                          | 1.79                         | 8                           |
| 24                      | 57                        | 3.75                         | 61                          | 3.05                         | 138                         |
| 24                      | 58                        | 10.58                        | 59                          | 2.09                         | 165                         |
| 24                      | 59                        | 7.27                         | 65                          | 2.04                         | 150                         |
| 24                      | 60                        | 20.35                        | 86                          | 1.01                         | 0                           |
| 24                      | 61                        | 41.91                        | 27                          | 2.04                         | 119                         |
| 24                      | 62                        | 20.98                        | 83                          | 2.04                         | 172                         |
| 24                      | 63                        | 16.88                        | 83                          | 0.56                         | 26                          |
| 24                      | 64                        | 6.27                         | 121                         | 2.96                         | 30                          |
| 24                      | 65                        | 3.56                         | 85                          | 3.09                         | 9                           |
| 24                      | 66                        | 2.55                         | 5                           | 2.34                         | 77                          |
| 24                      | 67                        | 8.07                         | 77                          | 1.27                         | 0                           |
| 24                      | 68                        | 22.11                        | 88                          | 0.76                         | 0                           |
| 24                      | 69                        | 43.44                        | 88                          | 0.76                         | 0                           |
| 24                      | 70                        | 13.75                        | 94                          | 3.59                         | 8                           |
| 24                      | 71                        | 11.14                        | 65                          | 1.83                         | 146                         |
| 24                      | 72                        | 24.13                        | 89                          | 1.29                         | 168                         |
| 24                      | 73                        | 8.13                         | 51                          | 2.74                         | 123                         |
| 24                      | 74                        | 8.38                         | 88                          | 6.35                         | 0                           |
| 24                      | 75                        | 10.91                        | 114                         | 2.27                         | 26                          |
| 24                      | 76                        | 15.49                        | 90                          | 2.04                         | 7                           |
| 24                      | 77                        | 5.08                         | 87                          | 2.65                         | 16                          |
| 24                      | 78                        | 9.24                         | 69                          | 2.03                         | 0                           |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 24                             | 79                               | 10.63                               | 56                                 | 1.62                                | 141                                |
| 24                             | 80                               | 38.62                               | 96                                 | 0.76                                | 0                                  |
| 24                             | 81                               | 6.42                                | 71                                 | 2.79                                | 0                                  |
| 24                             | 82                               | 20.08                               | 124                                | 1.07                                | 44                                 |
| 24                             | 83                               | 9.56                                | 106                                | 1.79                                | 8                                  |
| 24                             | 84                               | 2.83                                | 116                                | 1.27                                | 36                                 |
| 24                             | 85                               | 21.08                               | 88                                 | 1.77                                | 0                                  |
| 24                             | 86                               | 6.39                                | 96                                 | 1.79                                | 8                                  |
| 24                             | 87                               | 5.11                                | 63                                 | 2.27                                | 153                                |
| 24                             | 88                               | 8.73                                | 144                                | 1.93                                | 23                                 |
| 24                             | 89                               | 7.04                                | 25                                 | 1.13                                | 116                                |
| 24                             | 90                               | 15.59                               | 77                                 | 2.34                                | 167                                |
| 24                             | 91                               | 2.4                                 | 108                                | 1.98                                | 39                                 |
| 24                             | 92                               | 10.71                               | 84                                 | 1.01                                | 0                                  |
| 24                             | 93                               | 19.03                               | 103                                | 1.27                                | 0                                  |
| 24                             | 94                               | 44.19                               | 62                                 | 0.76                                | 0                                  |
| 24                             | 95                               | 17.91                               | 71                                 | 1.52                                | 0                                  |
| 24                             | 96                               | 2.89                                | 74                                 | 0.5                                 | 0                                  |
| 24                             | 97                               | 9.39                                | 90                                 | 1.01                                | 0                                  |
| 24                             | 98                               | 7.97                                | 149                                | 0.91                                | 33                                 |
| 24                             | 99                               | 4.16                                | 142                                | 1.07                                | 44                                 |
| 24                             | 100                              | 21.13                               | 85                                 | 1.01                                | 0                                  |
| 24                             | 101                              | 12.38                               | 118                                | 0.71                                | 44                                 |
| 24                             | 102                              | 27.99                               | 86                                 | 1.01                                | 0                                  |
| 24                             | 103                              | 36.88                               | 86                                 | 0.8                                 | 18                                 |
| 24                             | 104                              | 12.7                                | 90                                 | 1.04                                | 14                                 |
| 24                             | 105                              | 11.43                               | 90                                 | 1.52                                | 0                                  |
| 24                             | 106                              | 20.25                               | 30                                 | 1.83                                | 123                                |
| 24                             | 107                              | 14.33                               | 150                                | 1.84                                | 74                                 |
| 25                             | 1                                | 101.03                              | 83                                 | 2.3                                 | 173                                |
| 25                             | 2                                | 58.71                               | 80                                 | 2.89                                | 164                                |
| 25                             | 3                                | 28.44                               | 72                                 | 1.79                                | 171                                |
| 25                             | 4                                | 14.16                               | 165                                | 1.36                                | 68                                 |
| 25                             | 5                                | 66.9                                | 100                                | 2.03                                | 0                                  |
| 25                             | 6                                | 21.82                               | 155                                | 1.01                                | 90                                 |
| 25                             | 7                                | 28.51                               | 154                                | 1.27                                | 90                                 |
| 25                             | 8                                | 28.08                               | 155                                | 1.52                                | 90                                 |
| 25                             | 9                                | 30.66                               | 153                                | 1.48                                | 59                                 |
| 25                             | 10                               | 29.27                               | 135                                | 1.98                                | 50                                 |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 25                      | 11                        | 11.03                        | 113                         | 2.04                         | 172                         |
| 25                      | 12                        | 6.83                         | 131                         | 1.13                         | 63                          |
| 25                      | 13                        | 10.61                        | 21                          | 1.77                         | 90                          |
| 25                      | 14                        | 24.15                        | 87                          | 1.6                          | 18                          |
| 25                      | 15                        | 30.2                         | 109                         | 2.04                         | 29                          |
| 25                      | 16                        | 43.7                         | 96                          | 1.54                         | 9                           |
| 25                      | 17                        | 20.52                        | 139                         | 2.4                          | 71                          |
| 25                      | 18                        | 51.26                        | 104                         | 1.01                         | 0                           |
| 25                      | 19                        | 7.53                         | 122                         | 2.04                         | 172                         |
| 25                      | 20                        | 3.88                         | 101                         | 2.34                         | 12                          |
| 25                      | 21                        | 32.03                        | 62                          | 2.61                         | 150                         |
| 25                      | 22                        | 16.58                        | 101                         | 2.28                         | 0                           |
| 25                      | 23                        | 32.28                        | 104                         | 1.93                         | 23                          |
| 25                      | 24                        | 30.92                        | 104                         | 2.04                         | 172                         |
| 25                      | 25                        | 43.88                        | 77                          | 2.03                         | 0                           |
| 25                      | 26                        | 50.96                        | 12                          | 2.28                         | 90                          |
| 25                      | 27                        | 50.33                        | 177                         | 1.77                         | 90                          |
| 25                      | 28                        | 19.78                        | 167                         | 2.03                         | 90                          |
| 25                      | 29                        | 18.4                         | 39                          | 2.28                         | 90                          |
| 25                      | 30                        | 21                           | 75                          | 1.79                         | 8                           |
| 25                      | 31                        | 17.01                        | 0                           | 2.3                          | 96                          |
| 25                      | 32                        | 46.36                        | 112                         | 2.04                         | 29                          |
| 25                      | 33                        | 49.81                        | 55                          | 1.52                         | 0                           |
| 25                      | 34                        | 16.98                        | 124                         | 2.34                         | 12                          |
| 25                      | 35                        | 20.08                        | 108                         | 0.5                          | 0                           |
| 25                      | 36                        | 48.16                        | 154                         | 2.8                          | 84                          |
| 25                      | 37                        | 21.96                        | 79                          | 1.52                         | 0                           |
| 25                      | 38                        | 14.46                        | 59                          | 2.65                         | 163                         |
| 25                      | 39                        | 24.53                        | 53                          | 2.27                         | 153                         |
| 25                      | 40                        | 55.02                        | 50                          | 4.34                         | 173                         |
| 25                      | 41                        | 32.15                        | 76                          | 2.03                         | 0                           |
| 25                      | 42                        | 14.61                        | 82                          | 1.01                         | 0                           |
| 25                      | 43                        | 38.6                         | 78                          | 2.03                         | 0                           |
| 25                      | 44                        | 28.58                        | 75                          | 1.52                         | 0                           |
| 25                      | 45                        | 47.85                        | 170                         | 2.04                         | 82                          |
| 25                      | 46                        | 25.86                        | 17                          | 2.83                         | 116                         |
| 25                      | 47                        | 24.18                        | 162                         | 0.76                         | 90                          |
| 25                      | 48                        | 46.52                        | 159                         | 1.01                         | 90                          |
| 25                      | 49                        | 34.72                        | 95                          | 2.03                         | 0                           |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 25                      | 50                        | 11.92                        | 116                         | 1.84                         | 15                          |
| 25                      | 51                        | 50.41                        | 40                          | 2.34                         | 130                         |
| 25                      | 52                        | 42.97                        | 55                          | 4.32                         | 176                         |
| 25                      | 53                        | 15.5                         | 124                         | 1.54                         | 80                          |
| 25                      | 54                        | 15.75                        | 110                         | 1.04                         | 14                          |
| 25                      | 55                        | 33.99                        | 96                          | 1.27                         | 36                          |
| 25                      | 56                        | 36.58                        | 88                          | 1.79                         | 8                           |
| 25                      | 57                        | 5.08                         | 36                          | 1.79                         | 44                          |
| 25                      | 58                        | 14.19                        | 137                         | 1.36                         | 158                         |
| 25                      | 59                        | 16.55                        | 110                         | 3.41                         | 41                          |
| 25                      | 60                        | 22.37                        | 87                          | 2.97                         | 19                          |
| 25                      | 61                        | 17.15                        | 64                          | 1.54                         | 9                           |
| 25                      | 62                        | 11.31                        | 80                          | 1.01                         | 0                           |
| 25                      | 63                        | 16.34                        | 57                          | 2.28                         | 0                           |
| 25                      | 64                        | 8.53                         | 53                          | 1.29                         | 11                          |
| 25                      | 65                        | 7.22                         | 18                          | 1.83                         | 146                         |
| 25                      | 66                        | 2.83                         | 100                         | 1.79                         | 98                          |
| 25                      | 67                        | 18.52                        | 64                          | 1.62                         | 38                          |
| 25                      | 68                        | 28.7                         | 89                          | 1.36                         | 158                         |
| 25                      | 69                        | 22.26                        | 69                          | 1.79                         | 171                         |
| 25                      | 70                        | 47.81                        | 93                          | 1.77                         | 0                           |
| 25                      | 71                        | 39.15                        | 20                          | 1.79                         | 8                           |
| 25                      | 72                        | 19.65                        | 115                         | 4.99                         | 104                         |
| 25                      | 73                        | 19.11                        | 160                         | 1.29                         | 11                          |
| 25                      | 74                        | 12.34                        | 143                         | 1.54                         | 80                          |
| 25                      | 75                        | 3.81                         | 86                          | 1.27                         | 36                          |
| 25                      | 76                        | 32.88                        | 51                          | 2.28                         | 0                           |
| 25                      | 77                        | 33.36                        | 149                         | 2.09                         | 165                         |
| 25                      | 78                        | 4.72                         | 143                         | 1.6                          | 71                          |
| 25                      | 79                        | 6.5                          | 128                         | 2.51                         | 44                          |
| 25                      | 80                        | 5.34                         | 87                          | 2.74                         | 33                          |
| 25                      | 81                        | 9.1                          | 157                         | 3.3                          | 0                           |
| 27                      | 1                         | 60.24                        | 65                          | 1.83                         | 146                         |
| 27                      | 2                         | 10.69                        | 85                          | 1.79                         | 171                         |
| 27                      | 3                         | 27.16                        | 61                          | 2.34                         | 139                         |
| 27                      | 4                         | 27.76                        | 57                          | 3.31                         | 147                         |
| 27                      | 5                         | 2.55                         | 84                          | 2.54                         | 0                           |
| 27                      | 6                         | 31.45                        | 58                          | 3.23                         | 135                         |
| 27                      | 7                         | 6.9                          | 6                           | 1.01                         | 90                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 27                             | 8                                | 6.35                                | 2                                  | 1.52                                | 90                                 |
| 27                             | 9                                | 4.85                                | 6                                  | 1.77                                | 90                                 |
| 27                             | 10                               | 42.03                               | 152                                | 1.98                                | 50                                 |
| 27                             | 11                               | 35.6                                | 75                                 | 2.3                                 | 173                                |
| 27                             | 12                               | 24.53                               | 64                                 | 3.1                                 | 145                                |
| 27                             | 13                               | 14.65                               | 33                                 | 3.97                                | 116                                |
| 27                             | 14                               | 18.3                                | 60                                 | 3.53                                | 158                                |
| 27                             | 15                               | 15.56                               | 5                                  | 3.05                                | 94                                 |
| 27                             | 16                               | 43.1                                | 44                                 | 2.34                                | 130                                |
| 27                             | 17                               | 60.88                               | 72                                 | 2.83                                | 169                                |
| 27                             | 18                               | 41.64                               | 30                                 | 2.97                                | 109                                |
| 27                             | 19                               | 20.72                               | 36                                 | 1.62                                | 128                                |
| 27                             | 20                               | 23.73                               | 47                                 | 2.15                                | 135                                |
| 27                             | 21                               | 21.18                               | 52                                 | 3.05                                | 131                                |
| 27                             | 22                               | 100.75                              | 59                                 | 2.89                                | 142                                |
| 27                             | 23                               | 13.01                               | 84                                 | 3.05                                | 175                                |
| 27                             | 24                               | 28.7                                | 90                                 | 2.28                                | 0                                  |
| 27                             | 25                               | 11.18                               | 39                                 | 2.3                                 | 96                                 |
| 27                             | 26                               | 31.59                               | 53                                 | 1.7                                 | 153                                |
| 27                             | 27                               | 4.44                                | 59                                 | 2.17                                | 159                                |
| 27                             | 28                               | 17.06                               | 75                                 | 2.55                                | 174                                |
| 27                             | 29                               | 14.79                               | 74                                 | 2.65                                | 163                                |
| 27                             | 30                               | 36.89                               | 69                                 | 2.04                                | 172                                |
| 27                             | 31                               | 34.94                               | 70                                 | 1.52                                | 0                                  |
| 27                             | 32                               | 29.05                               | 67                                 | 2.04                                | 150                                |
| 27                             | 33                               | 19.67                               | 78                                 | 2.03                                | 0                                  |
| 27                             | 34                               | 4.99                                | 14                                 | 1.6                                 | 108                                |
| 27                             | 35                               | 6.7                                 | 24                                 | 2.39                                | 122                                |
| 27                             | 36                               | 16.16                               | 81                                 | 2.89                                | 164                                |
| 27                             | 37                               | 14.18                               | 135                                | 2.18                                | 35                                 |
| 27                             | 38                               | 7.11                                | 55                                 | 1.98                                | 140                                |
| 27                             | 39                               | 10.57                               | 65                                 | 1.52                                | 0                                  |
| 27                             | 40                               | 27.63                               | 36                                 | 3.52                                | 120                                |
| 27                             | 41                               | 4.31                                | 0                                  | 3.14                                | 75                                 |
| 27                             | 42                               | 13.86                               | 61                                 | 2.15                                | 135                                |
| 27                             | 43                               | 13.64                               | 61                                 | 2.89                                | 164                                |
| 27                             | 44                               | 12.61                               | 49                                 | 2.15                                | 135                                |
| 27                             | 45                               | 61.16                               | 53                                 | 2.18                                | 144                                |
| 27                             | 46                               | 37.49                               | 37                                 | 1.43                                | 135                                |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 27                      | 47                        | 22.75                        | 56                          | 2.54                         | 143                         |
| 27                      | 48                        | 3.84                         | 7                           | 3.3                          | 90                          |
| 27                      | 49                        | 3.77                         | 47                          | 2.34                         | 139                         |
| 27                      | 50                        | 4.43                         | 13                          | 3.09                         | 99                          |
| 27                      | 51                        | 4.01                         | 55                          | 3.41                         | 138                         |
| 27                      | 52                        | 8.29                         | 49                          | 1.7                          | 153                         |
| 27                      | 53                        | 84.74                        | 25                          | 3.52                         | 120                         |
| 27                      | 54                        | 10.42                        | 34                          | 7.77                         | 128                         |
| 27                      | 55                        | 8.66                         | 174                         | 7.82                         | 76                          |
| 27                      | 56                        | 6.9                          | 53                          | 3.14                         | 165                         |
| 27                      | 57                        | 6.62                         | 122                         | 1.62                         | 51                          |
| 27                      | 58                        | 10.45                        | 25                          | 3.31                         | 122                         |
| 27                      | 59                        | 6.09                         | 0                           | 3.55                         | 90                          |
| 27                      | 60                        | 30.8                         | 74                          | 1.27                         | 0                           |
| 27                      | 61                        | 4.57                         | 70                          | 3.09                         | 170                         |
| 27                      | 62                        | 4.88                         | 27                          | 1.48                         | 120                         |
| 27                      | 63                        | 5.06                         | 17                          | 1.52                         | 90                          |
| 27                      | 64                        | 25.13                        | 75                          | 3.05                         | 175                         |
| 27                      | 65                        | 9.42                         | 75                          | 1.04                         | 14                          |
| 27                      | 66                        | 20.11                        | 65                          | 1.6                          | 161                         |
| 27                      | 67                        | 3.86                         | 23                          | 1.83                         | 146                         |
| 27                      | 68                        | 9.36                         | 40                          | 2.4                          | 161                         |
| 27                      | 69                        | 15.99                        | 10                          | 3.81                         | 90                          |
| 27                      | 70                        | 7.72                         | 9                           | 7.38                         | 86                          |
| 28                      | 1                         | 53.77                        | 82                          | 2.03                         | 0                           |
| 28                      | 2                         | 24.74                        | 107                         | 1.27                         | 36                          |
| 28                      | 3                         | 28.14                        | 100                         | 1.84                         | 164                         |
| 28                      | 4                         | 39.1                         | 101                         | 0.76                         | 0                           |
| 28                      | 5                         | 42.21                        | 83                          | 2.83                         | 169                         |
| 28                      | 6                         | 49.91                        | 100                         | 2.17                         | 159                         |
| 28                      | 7                         | 29.9                         | 83                          | 2.59                         | 168                         |
| 28                      | 8                         | 24.7                         | 30                          | 1.01                         | 90                          |
| 28                      | 9                         | 2.28                         | 0                           | 2.28                         | 90                          |
| 28                      | 10                        | 2.3                          | 83                          | 2.17                         | 159                         |
| 28                      | 11                        | 2.79                         | 0                           | 2.54                         | 90                          |
| 28                      | 12                        | 20.44                        | 83                          | 1.77                         | 0                           |
| 28                      | 13                        | 42.06                        | 82                          | 3.3                          | 0                           |
| 28                      | 14                        | 67.52                        | 75                          | 2.59                         | 168                         |
| 28                      | 15                        | 64.84                        | 80                          | 1.04                         | 165                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 28                      | 16                        | 26.08                        | 83                          | 1.54                         | 170                         |
| 28                      | 17                        | 32.5                         | 114                         | 1.6                          | 18                          |
| 28                      | 18                        | 26.74                        | 175                         | 2.03                         | 90                          |
| 28                      | 19                        | 2.8                          | 174                         | 2.28                         | 90                          |
| 28                      | 20                        | 14.24                        | 148                         | 1.62                         | 51                          |
| 28                      | 21                        | 17.72                        | 152                         | 1.29                         | 78                          |
| 28                      | 22                        | 16.54                        | 72                          | 3.31                         | 4                           |
| 28                      | 23                        | 27.94                        | 82                          | 2.8                          | 174                         |
| 28                      | 24                        | 7.37                         | 91                          | 6.98                         | 160                         |
| 28                      | 25                        | 3.55                         | 90                          | 1.77                         | 0                           |
| 28                      | 26                        | 7.4                          | 22                          | 3.05                         | 85                          |
| 28                      | 27                        | 20.29                        | 134                         | 2.83                         | 63                          |
| 28                      | 28                        | 14.11                        | 81                          | 1.29                         | 11                          |
| 28                      | 29                        | 23.51                        | 79                          | 1.54                         | 9                           |
| 28                      | 30                        | 16.25                        | 89                          | 2.54                         | 0                           |
| 28                      | 31                        | 3.81                         | 0                           | 2.55                         | 84                          |
| 28                      | 32                        | 12.97                        | 176                         | 3.09                         | 80                          |
| 28                      | 33                        | 20.81                        | 19                          | 6.47                         | 101                         |
| 28                      | 34                        | 14.3                         | 19                          | 2.34                         | 102                         |
| 28                      | 35                        | 7.27                         | 60                          | 2.55                         | 5                           |
| 28                      | 36                        | 3.55                         | 90                          | 2.03                         | 0                           |
| 28                      | 37                        | 2.03                         | 0                           | 2.03                         | 90                          |
| 28                      | 38                        | 7.87                         | 88                          | 5.84                         | 0                           |
| 28                      | 39                        | 7.62                         | 91                          | 2.04                         | 29                          |
| 28                      | 40                        | 21.52                        | 160                         | 6.77                         | 77                          |
| 28                      | 41                        | 14.61                        | 82                          | 1.77                         | 0                           |
| 28                      | 42                        | 16.64                        | 77                          | 1.52                         | 0                           |
| 28                      | 43                        | 13.92                        | 51                          | 3.31                         | 147                         |
| 28                      | 44                        | 11.5                         | 96                          | 1.04                         | 165                         |
| 28                      | 45                        | 20.24                        | 70                          | 2.03                         | 0                           |
| 28                      | 46                        | 14.94                        | 35                          | 2.39                         | 122                         |
| 28                      | 47                        | 18.98                        | 65                          | 2.04                         | 172                         |
| 28                      | 48                        | 18.29                        | 103                         | 1.01                         | 0                           |
| 28                      | 49                        | 4.38                         | 100                         | 2.8                          | 5                           |
| 28                      | 50                        | 23.37                        | 137                         | 1.77                         | 90                          |
| 28                      | 51                        | 12.28                        | 97                          | 2.04                         | 7                           |
| 28                      | 52                        | 18.79                        | 108                         | 2.04                         | 29                          |
| 28                      | 53                        | 17.44                        | 163                         | 1.77                         | 90                          |
| 28                      | 54                        | 13.33                        | 72                          | 2.3                          | 173                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 28                      | 55                        | 15.95                        | 80                          | 13.11                        | 135                         |
| 28                      | 56                        | 12                           | 83                          | 3.04                         | 0                           |
| 28                      | 57                        | 16.14                        | 155                         | 1.04                         | 75                          |
| 28                      | 58                        | 13.54                        | 66                          | 2.5                          | 156                         |
| 28                      | 59                        | 13.03                        | 146                         | 6.62                         | 85                          |
| 29                      | 1                         | 22.2                         | 35                          | 3.05                         | 131                         |
| 29                      | 2                         | 17.31                        | 85                          | 1.77                         | 0                           |
| 29                      | 3                         | 43.95                        | 38                          | 3.94                         | 104                         |
| 29                      | 4                         | 27.48                        | 35                          | 3.87                         | 121                         |
| 29                      | 5                         | 117.55                       | 37                          | 5.8                          | 113                         |
| 29                      | 6                         | 92.3                         | 36                          | 3.06                         | 114                         |
| 29                      | 7                         | 6.47                         | 131                         | 4.31                         | 28                          |
| 29                      | 8                         | 7.55                         | 137                         | 5.59                         | 39                          |
| 29                      | 9                         | 7                            | 46                          | 1.62                         | 128                         |
| 29                      | 10                        | 23.21                        | 36                          | 2.83                         | 116                         |
| 29                      | 11                        | 13.21                        | 177                         | 4.38                         | 79                          |
| 29                      | 12                        | 6.2                          | 34                          | 1.7                          | 116                         |
| 29                      | 13                        | 8.19                         | 7                           | 2.8                          | 84                          |
| 29                      | 14                        | 3.59                         | 44                          | 1.27                         | 126                         |
| 29                      | 15                        | 14.77                        | 155                         | 2.04                         | 97                          |
| 29                      | 16                        | 27.4                         | 20                          | 1.79                         | 98                          |
| 29                      | 17                        | 39.2                         | 24                          | 2.89                         | 127                         |
| 29                      | 18                        | 3.14                         | 104                         | 1.77                         | 0                           |
| 29                      | 19                        | 6.02                         | 152                         | 2.73                         | 68                          |
| 29                      | 20                        | 4.34                         | 159                         | 2.89                         | 52                          |
| 29                      | 21                        | 4.32                         | 93                          | 3.69                         | 15                          |
| 29                      | 22                        | 4.38                         | 10                          | 2.03                         | 90                          |
| 29                      | 23                        | 11.2                         | 32                          | 2.18                         | 125                         |
| 29                      | 24                        | 5.43                         | 52                          | 2.96                         | 149                         |
| 29                      | 25                        | 8.22                         | 8                           | 2.54                         | 126                         |
| 29                      | 26                        | 4.44                         | 59                          | 2.04                         | 150                         |
| 29                      | 27                        | 8.45                         | 57                          | 3.31                         | 147                         |
| 29                      | 28                        | 7.84                         | 150                         | 2.15                         | 44                          |
| 29                      | 29                        | 51.22                        | 42                          | 2.34                         | 139                         |
| 29                      | 30                        | 35.44                        | 63                          | 1.6                          | 161                         |
| 29                      | 31                        | 23.54                        | 66                          | 1.79                         | 171                         |
| 29                      | 32                        | 4.82                         | 90                          | 3.55                         | 0                           |
| 29                      | 33                        | 4.07                         | 86                          | 4.06                         | 0                           |
| 29                      | 34                        | 20.94                        | 165                         | 1.93                         | 66                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 29                      | 35                        | 6.37                         | 4                           | 1.84                         | 105                         |
| 29                      | 36                        | 10.68                        | 25                          | 4.22                         | 122                         |
| 29                      | 37                        | 9.9                          | 22                          | 2.96                         | 120                         |
| 29                      | 38                        | 8.17                         | 36                          | 0.56                         | 153                         |
| 29                      | 39                        | 43.73                        | 25                          | 2.39                         | 122                         |
| 29                      | 40                        | 12.49                        | 26                          | 1.48                         | 120                         |
| 29                      | 41                        | 18.55                        | 30                          | 2.27                         | 116                         |
| 29                      | 42                        | 14.88                        | 27                          | 3.3                          | 112                         |
| 29                      | 43                        | 22.89                        | 49                          | 2.54                         | 143                         |
| 29                      | 44                        | 16.35                        | 154                         | 1.7                          | 63                          |
| 29                      | 45                        | 25.7                         | 18                          | 2.03                         | 90                          |
| 30                      | 1                         | 113.2                        | 86                          | 4.32                         | 3                           |
| 30                      | 2                         | 23.13                        | 92                          | 2.03                         | 0                           |
| 30                      | 3                         | 59.75                        | 165                         | 2.34                         | 77                          |
| 30                      | 4                         | 19.37                        | 79                          | 1.79                         | 171                         |
| 30                      | 5                         | 19.09                        | 76                          | 1.52                         | 0                           |
| 30                      | 6                         | 15.06                        | 95                          | 1.04                         | 14                          |
| 30                      | 7                         | 4.66                         | 44                          | 2.39                         | 147                         |
| 30                      | 8                         | 85.02                        | 146                         | 1.6                          | 71                          |
| 30                      | 9                         | 84.11                        | 146                         | 2.89                         | 52                          |
| 30                      | 10                        | 1.79                         | 98                          | 1.54                         | 9                           |
| 30                      | 11                        | 89.19                        | 96                          | 1.52                         | 0                           |
| 30                      | 12                        | 46.94                        | 24                          | 2.09                         | 104                         |
| 30                      | 13                        | 42.32                        | 23                          | 2.3                          | 96                          |
| 30                      | 14                        | 24.46                        | 102                         | 0.8                          | 18                          |
| 30                      | 15                        | 15.12                        | 7                           | 1.01                         | 90                          |
| 30                      | 16                        | 16                           | 54                          | 1.36                         | 158                         |
| 30                      | 17                        | 6.11                         | 175                         | 1.36                         | 68                          |
| 30                      | 18                        | 13.73                        | 56                          | 2.96                         | 149                         |
| 30                      | 19                        | 26.99                        | 160                         | 2.27                         | 63                          |
| 30                      | 20                        | 13.18                        | 74                          | 2.09                         | 165                         |
| 30                      | 21                        | 40.9                         | 118                         | 2.27                         | 26                          |
| 30                      | 22                        | 26.28                        | 138                         | 2.04                         | 82                          |
| 30                      | 23                        | 21.71                        | 96                          | 1.79                         | 171                         |
| 30                      | 24                        | 26.27                        | 73                          | 1.29                         | 168                         |
| 30                      | 25                        | 24.38                        | 91                          | 2.83                         | 10                          |
| 30                      | 26                        | 37.61                        | 64                          | 2.73                         | 158                         |
| 30                      | 27                        | 35.46                        | 144                         | 1.93                         | 66                          |
| 30                      | 28                        | 33.6                         | 145                         | 1.43                         | 44                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 30                             | 29                               | 31.64                               | 108                                | 2.65                                | 16                                 |
| 30                             | 30                               | 20.88                               | 108                                | 1.27                                | 0                                  |
| 30                             | 31                               | 38.05                               | 101                                | 5.42                                | 10                                 |
| 30                             | 32                               | 10.92                               | 17                                 | 5.35                                | 95                                 |
| 30                             | 33                               | 33.76                               | 24                                 | 3.3                                 | 90                                 |
| 30                             | 34                               | 30.6                                | 18                                 | 2.79                                | 90                                 |
| 30                             | 35                               | 26.58                               | 153                                | 1.7                                 | 63                                 |
| 30                             | 36                               | 33.4                                | 140                                | 2.61                                | 60                                 |
| 30                             | 37                               | 20.72                               | 160                                | 1.79                                | 81                                 |
| 30                             | 38                               | 22.09                               | 43                                 | 2.17                                | 110                                |
| 30                             | 39                               | 29.84                               | 47                                 | 1.93                                | 156                                |
| 30                             | 40                               | 17.74                               | 23                                 | 1.52                                | 90                                 |
| 30                             | 41                               | 21.48                               | 24                                 | 2.54                                | 90                                 |
| 30                             | 42                               | 53.12                               | 83                                 | 3.04                                | 0                                  |
| 30                             | 43                               | 55.93                               | 50                                 | 2.87                                | 135                                |
| 30                             | 44                               | 6.82                                | 44                                 | 2.61                                | 150                                |
| 30                             | 45                               | 33.48                               | 67                                 | 2.54                                | 0                                  |
| 30                             | 46                               | 44.1                                | 56                                 | 1.98                                | 129                                |
| 30                             | 47                               | 38.82                               | 96                                 | 2.39                                | 32                                 |
| 30                             | 48                               | 8.13                                | 178                                | 3.34                                | 81                                 |
| 30                             | 49                               | 22.48                               | 13                                 | 2.03                                | 90                                 |
| 30                             | 50                               | 52.92                               | 13                                 | 2.54                                | 90                                 |
| 30                             | 51                               | 16.91                               | 41                                 | 3.05                                | 131                                |
| 30                             | 52                               | 10.23                               | 23                                 | 1.27                                | 143                                |
| 30                             | 53                               | 4.93                                | 124                                | 2.89                                | 37                                 |
| 30                             | 54                               | 29.24                               | 78                                 | 2.54                                | 0                                  |
| 30                             | 55                               | 27.69                               | 78                                 | 1.29                                | 11                                 |
| 30                             | 56                               | 20.78                               | 38                                 | 2.03                                | 0                                  |
| 30                             | 57                               | 13.46                               | 90                                 | 6.09                                | 0                                  |
| 30                             | 58                               | 20.51                               | 158                                | 4.07                                | 86                                 |
| 30                             | 59                               | 15.27                               | 86                                 | 3.04                                | 0                                  |
| 30                             | 60                               | 28.43                               | 71                                 | 2.4                                 | 161                                |
| 30                             | 61                               | 27.47                               | 107                                | 1.29                                | 11                                 |
| 30                             | 62                               | 77.94                               | 85                                 | 5.23                                | 50                                 |
| 30                             | 63                               | 22.37                               | 92                                 | 1.6                                 | 18                                 |
| 30                             | 64                               | 14                                  | 44                                 | 1.77                                | 90                                 |
| 30                             | 65                               | 15.75                               | 37                                 | 2.04                                | 97                                 |
| 30                             | 66                               | 4.63                                | 80                                 | 3.81                                | 3                                  |
| 30                             | 67                               | 23.21                               | 156                                | 4.22                                | 57                                 |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 30                      | 68                        | 6.03                         | 112                         | 2.59                         | 11                          |
| 30                      | 69                        | 3.05                         | 85                          | 2.3                          | 6                           |
| 31                      | 1                         | 42.24                        | 108                         | 1.6                          | 18                          |
| 31                      | 2                         | 10.85                        | 10                          | 3.04                         | 90                          |
| 31                      | 3                         | 32.41                        | 113                         | 1.04                         | 14                          |
| 31                      | 4                         | 9.08                         | 26                          | 1.98                         | 129                         |
| 31                      | 5                         | 21.1                         | 87                          | 3.04                         | 0                           |
| 31                      | 6                         | 18.87                        | 95                          | 0.76                         | 0                           |
| 31                      | 7                         | 39.38                        | 157                         | 2.09                         | 75                          |
| 31                      | 8                         | 44.29                        | 67                          | 2.34                         | 167                         |
| 31                      | 9                         | 32.34                        | 43                          | 3.63                         | 155                         |
| 31                      | 10                        | 37.27                        | 118                         | 1.48                         | 30                          |
| 31                      | 11                        | 5.92                         | 80                          | 2.89                         | 164                         |
| 31                      | 12                        | 28.15                        | 111                         | 1.52                         | 0                           |
| 31                      | 13                        | 30.58                        | 101                         | 1.52                         | 0                           |
| 31                      | 14                        | 25.47                        | 99                          | 0.8                          | 161                         |
| 31                      | 15                        | 16.47                        | 160                         | 1.62                         | 38                          |
| 31                      | 16                        | 5.9                          | 115                         | 2.18                         | 54                          |
| 31                      | 17                        | 11.59                        | 28                          | 1.48                         | 120                         |
| 31                      | 18                        | 11.13                        | 145                         | 1.07                         | 44                          |
| 31                      | 19                        | 13.21                        | 127                         | 1.98                         | 39                          |
| 31                      | 20                        | 34.38                        | 22                          | 2.18                         | 125                         |
| 31                      | 21                        | 35.09                        | 92                          | 1.52                         | 0                           |
| 31                      | 22                        | 36.66                        | 93                          | 0.76                         | 0                           |
| 31                      | 23                        | 14.43                        | 61                          | 1.54                         | 170                         |
| 31                      | 24                        | 19.29                        | 99                          | 2.54                         | 0                           |
| 31                      | 25                        | 8.63                         | 88                          | 4.82                         | 0                           |
| 31                      | 26                        | 7.04                         | 64                          | 4.25                         | 162                         |
| 31                      | 27                        | 9.7                          | 96                          | 1.01                         | 0                           |
| 31                      | 28                        | 43.8                         | 40                          | 1.93                         | 113                         |
| 31                      | 29                        | 19.42                        | 11                          | 2.09                         | 104                         |
| 31                      | 30                        | 17.53                        | 10                          | 1.48                         | 120                         |
| 31                      | 31                        | 17.18                        | 34                          | 2.39                         | 122                         |
| 31                      | 32                        | 8.45                         | 57                          | 1.7                          | 153                         |
| 31                      | 33                        | 3.96                         | 129                         | 1.13                         | 26                          |
| 31                      | 34                        | 12.5                         | 60                          | 1.54                         | 170                         |
| 31                      | 35                        | 9.7                          | 42                          | 1.98                         | 140                         |
| 32                      | 1                         | 6.93                         | 8                           | 3.3                          | 90                          |
| 32                      | 2                         | 25.15                        | 69                          | 1.52                         | 0                           |



### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 32                      | 3                         | 23.4                         | 64                          | 1.84                         | 164                         |
| 32                      | 4                         | 29.79                        | 50                          | 1.98                         | 129                         |
| 32                      | 5                         | 7.11                         | 90                          | 4.82                         | 0                           |
| 32                      | 6                         | 9.95                         | 174                         | 3.94                         | 75                          |
| 32                      | 7                         | 23.88                        | 119                         | 1.7                          | 26                          |
| 32                      | 8                         | 49.97                        | 31                          | 2.09                         | 104                         |
| 32                      | 9                         | 5.99                         | 36                          | 0.91                         | 123                         |
| 32                      | 10                        | 29.34                        | 84                          | 1.52                         | 0                           |
| 32                      | 11                        | 57.21                        | 57                          | 2.39                         | 147                         |
| 32                      | 12                        | 26.79                        | 68                          | 1.36                         | 158                         |
| 32                      | 13                        | 40.34                        | 69                          | 2.59                         | 168                         |
| 32                      | 14                        | 41.89                        | 100                         | 2.7                          | 41                          |
| 32                      | 15                        | 7.07                         | 158                         | 2.09                         | 75                          |
| 32                      | 16                        | 7.36                         | 133                         | 1.62                         | 51                          |
| 32                      | 17                        | 37.88                        | 92                          | 2.54                         | 0                           |
| 32                      | 18                        | 2.54                         | 90                          | 1.54                         | 9                           |
| 32                      | 19                        | 2.4                          | 18                          | 1.84                         | 105                         |
| 32                      | 20                        | 5.28                         | 54                          | 1.93                         | 156                         |
| 32                      | 21                        | 4.18                         | 75                          | 3.21                         | 161                         |
| 32                      | 22                        | 3.66                         | 56                          | 2.51                         | 135                         |
| 32                      | 23                        | 1.77                         | 0                           | 1.52                         | 90                          |
| 32                      | 24                        | 2.03                         | 0                           | 1.54                         | 80                          |
| 32                      | 25                        | 3.75                         | 28                          | 1.62                         | 128                         |
| 32                      | 26                        | 2.96                         | 120                         | 2.34                         | 40                          |
| 32                      | 27                        | 2.34                         | 40                          | 2.18                         | 144                         |
| 32                      | 28                        | 2.27                         | 153                         | 1.98                         | 50                          |
| 32                      | 29                        | 7.82                         | 35                          | 1.79                         | 135                         |
| 32                      | 30                        | 26.07                        | 132                         | 4.22                         | 32                          |
| 32                      | 31                        | 14.08                        | 27                          | 1.43                         | 135                         |
| 32                      | 32                        | 24.81                        | 67                          | 2.03                         | 0                           |
| 32                      | 33                        | 30.5                         | 87                          | 2.03                         | 0                           |
| 32                      | 34                        | 35.87                        | 79                          | 2.28                         | 0                           |
| 32                      | 35                        | 3.3                          | 0                           | 3.05                         | 85                          |
| 32                      | 36                        | 13.43                        | 164                         | 1.27                         | 90                          |
| 32                      | 37                        | 33.6                         | 34                          | 3.05                         | 138                         |
| 32                      | 38                        | 19.6                         | 126                         | 1.62                         | 51                          |
| 32                      | 39                        | 15.12                        | 130                         | 1.98                         | 39                          |
| 32                      | 40                        | 20.5                         | 56                          | 1.77                         | 0                           |
| 32                      | 41                        | 2.55                         | 5                           | 1.84                         | 74                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 32                      | 42                        | 2.83                         | 79                          | 1.52                         | 0                           |
| 32                      | 43                        | 80.82                        | 65                          | 2.5                          | 156                         |
| 32                      | 44                        | 32.86                        | 94                          | 1.29                         | 11                          |
| 32                      | 45                        | 6.14                         | 29                          | 1.83                         | 123                         |
| 32                      | 46                        | 31.25                        | 38                          | 3.05                         | 138                         |
| 32                      | 47                        | 13.97                        | 117                         | 1.7                          | 26                          |
| 32                      | 48                        | 12.53                        | 96                          | 1.36                         | 21                          |
| 32                      | 49                        | 21.45                        | 73                          | 1.7                          | 153                         |
| 32                      | 50                        | 25.64                        | 82                          | 1.29                         | 168                         |
| 32                      | 51                        | 4.43                         | 13                          | 2.4                          | 108                         |
| 32                      | 52                        | 33.99                        | 60                          | 3.53                         | 158                         |
| 32                      | 53                        | 20.72                        | 72                          | 1.52                         | 0                           |
| 32                      | 54                        | 20.27                        | 77                          | 1.79                         | 8                           |
| 32                      | 55                        | 37.44                        | 36                          | 2.04                         | 119                         |
| 32                      | 56                        | 4.85                         | 6                           | 1.77                         | 90                          |
| 32                      | 57                        | 29.36                        | 30                          | 2.04                         | 119                         |
| 32                      | 58                        | 5.23                         | 75                          | 1.77                         | 0                           |
| 32                      | 59                        | 5.23                         | 75                          | 1.29                         | 11                          |
| 32                      | 60                        | 4.57                         | 90                          | 2.54                         | 0                           |
| 32                      | 61                        | 24.09                        | 42                          | 2.34                         | 130                         |
| 32                      | 62                        | 20.37                        | 79                          | 0.8                          | 18                          |
| 32                      | 63                        | 2.55                         | 95                          | 2.34                         | 12                          |
| 32                      | 64                        | 3.55                         | 0                           | 3.31                         | 85                          |
| 32                      | 65                        | 4.13                         | 79                          | 3.84                         | 172                         |
| 32                      | 66                        | 4.57                         | 90                          | 2.3                          | 6                           |
| 32                      | 67                        | 4.09                         | 29                          | 2.7                          | 131                         |
| 32                      | 68                        | 3.97                         | 116                         | 1.93                         | 23                          |
| 32                      | 69                        | 142.92                       | 51                          | 6.3                          | 139                         |
| 32                      | 70                        | 30.15                        | 66                          | 1.93                         | 156                         |
| 32                      | 71                        | 13.43                        | 74                          | 2.04                         | 7                           |
| 32                      | 72                        | 17.6                         | 26                          | 2.8                          | 95                          |
| 32                      | 73                        | 10.36                        | 36                          | 5                            | 120                         |
| 32                      | 74                        | 4.57                         | 93                          | 4.57                         | 0                           |
| 34                      | 1                         | 143.02                       | 9                           | 3.3                          | 90                          |
| 34                      | 2                         | 139.55                       | 47                          | 3.61                         | 129                         |
| 34                      | 3                         | 31.72                        | 107                         | 2.89                         | 15                          |
| 34                      | 4                         | 38.76                        | 37                          | 2.51                         | 135                         |
| 34                      | 5                         | 23.78                        | 120                         | 1.84                         | 15                          |
| 34                      | 6                         | 17.47                        | 125                         | 1.48                         | 59                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 34                      | 7                         | 20.5                         | 56                          | 1.79                         | 135                         |
| 34                      | 8                         | 69.73                        | 23                          | 2.28                         | 90                          |
| 34                      | 9                         | 4.18                         | 104                         | 2.17                         | 20                          |
| 34                      | 10                        | 17.78                        | 45                          | 2.15                         | 135                         |
| 34                      | 11                        | 41.62                        | 73                          | 1.84                         | 164                         |
| 34                      | 12                        | 22.29                        | 47                          | 2.89                         | 142                         |
| 34                      | 13                        | 9.72                         | 130                         | 1.62                         | 51                          |
| 34                      | 14                        | 33.72                        | 157                         | 1.27                         | 90                          |
| 34                      | 15                        | 43.01                        | 176                         | 1.52                         | 90                          |
| 34                      | 16                        | 7.89                         | 3                           | 6.1                          | 92                          |
| 34                      | 17                        | 4.6                          | 173                         | 1.52                         | 90                          |
| 34                      | 18                        | 59.63                        | 45                          | 2.18                         | 144                         |
| 34                      | 19                        | 38.17                        | 64                          | 1.79                         | 171                         |
| 34                      | 20                        | 121.2                        | 47                          | 1.36                         | 158                         |
| 34                      | 21                        | 45.15                        | 8                           | 3.31                         | 85                          |
| 34                      | 22                        | 87.15                        | 98                          | 2.5                          | 23                          |
| 34                      | 23                        | 25.92                        | 48                          | 1.98                         | 129                         |
| 34                      | 24                        | 89.5                         | 39                          | 1.7                          | 116                         |
| 34                      | 25                        | 37.35                        | 19                          | 2.79                         | 90                          |
| 34                      | 26                        | 11.94                        | 92                          | 1.27                         | 0                           |
| 34                      | 27                        | 27.4                         | 97                          | 0.76                         | 0                           |
| 34                      | 28                        | 114.12                       | 35                          | 2.09                         | 104                         |
| 34                      | 29                        | 57.53                        | 39                          | 1.79                         | 135                         |
| 34                      | 30                        | 81.4                         | 169                         | 2.51                         | 44                          |
| 34                      | 31                        | 21.25                        | 75                          | 3.38                         | 167                         |
| 34                      | 32                        | 42.71                        | 26                          | 1.36                         | 111                         |
| 34                      | 33                        | 28.06                        | 80                          | 4.57                         | 0                           |
| 34                      | 34                        | 29.42                        | 152                         | 1.48                         | 59                          |
| 34                      | 35                        | 23.3                         | 73                          | 3.05                         | 175                         |
| 34                      | 36                        | 15.8                         | 23                          | 2.73                         | 111                         |
| 34                      | 37                        | 6.58                         | 62                          | 1.01                         | 0                           |
| 34                      | 38                        | 5.49                         | 33                          | 1.43                         | 135                         |
| 34                      | 39                        | 3.04                         | 0                           | 1.77                         | 90                          |
| 34                      | 40                        | 3.81                         | 3                           | 2.55                         | 84                          |
| 34                      | 41                        | 2.83                         | 10                          | 2.55                         | 84                          |
| 34                      | 42                        | 37.82                        | 166                         | 2.34                         | 77                          |
| 34                      | 43                        | 15.15                        | 140                         | 2.39                         | 57                          |
| 34                      | 44                        | 25.67                        | 2                           | 1.79                         | 81                          |
| 34                      | 45                        | 88.78                        | 100                         | 5.23                         | 14                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 34                      | 46                        | 10.07                        | 123                         | 3.05                         | 48                          |
| 34                      | 47                        | 37.08                        | 13                          | 5.58                         | 90                          |
| 34                      | 48                        | 33.83                        | 54                          | 2.4                          | 161                         |
| 34                      | 49                        | 28.4                         | 58                          | 2.18                         | 144                         |
| 34                      | 50                        | 22.15                        | 40                          | 1.43                         | 135                         |
| 34                      | 51                        | 17.22                        | 37                          | 1.62                         | 141                         |
| 34                      | 52                        | 20.39                        | 50                          | 1.43                         | 135                         |
| 34                      | 53                        | 9.34                         | 42                          | 3.77                         | 132                         |
| 34                      | 54                        | 13.42                        | 60                          | 1.83                         | 146                         |
| 34                      | 55                        | 14.37                        | 107                         | 1.01                         | 0                           |
| 34                      | 56                        | 38.45                        | 23                          | 2.27                         | 116                         |
| 34                      | 57                        | 11.98                        | 175                         | 2.55                         | 84                          |
| 34                      | 58                        | 16.58                        | 101                         | 1.84                         | 15                          |
| 34                      | 59                        | 11.82                        | 104                         | 1.54                         | 9                           |
| 34                      | 60                        | 19.29                        | 99                          | 6.93                         | 8                           |
| 34                      | 61                        | 13.21                        | 52                          | 1.43                         | 135                         |
| 34                      | 62                        | 3.66                         | 56                          | 2.27                         | 153                         |
| 34                      | 63                        | 3.04                         | 90                          | 2.28                         | 0                           |
| 34                      | 64                        | 4.52                         | 141                         | 1.83                         | 56                          |
| 34                      | 65                        | 4.72                         | 126                         | 1.98                         | 50                          |
| 34                      | 66                        | 3.21                         | 18                          | 2.03                         | 90                          |
| 34                      | 67                        | 2.79                         | 0                           | 2.04                         | 97                          |
| 34                      | 68                        | 2.3                          | 96                          | 2.03                         | 0                           |
| 34                      | 69                        | 15.25                        | 92                          | 1.27                         | 0                           |
| 34                      | 70                        | 16.46                        | 38                          | 2.74                         | 123                         |
| 34                      | 71                        | 2.09                         | 165                         | 1.6                          | 71                          |
| 34                      | 72                        | 3.09                         | 99                          | 2.59                         | 11                          |
| 34                      | 73                        | 2.34                         | 167                         | 1.79                         | 81                          |
| 34                      | 74                        | 2.55                         | 84                          | 1.79                         | 171                         |
| 34                      | 75                        | 3.59                         | 8                           | 1.6                          | 108                         |
| 34                      | 76                        | 2.54                         | 90                          | 2.27                         | 26                          |
| 34                      | 77                        | 5                            | 66                          | 4.38                         | 169                         |
| 34                      | 78                        | 5.63                         | 172                         | 1.98                         | 50                          |
| 34                      | 79                        | 23.64                        | 39                          | 1.48                         | 149                         |
| 34                      | 80                        | 18.96                        | 39                          | 1.27                         | 143                         |
| 34                      | 81                        | 14.74                        | 47                          | 1.29                         | 168                         |
| 34                      | 82                        | 3.86                         | 113                         | 1.93                         | 23                          |
| 34                      | 83                        | 7.02                         | 102                         | 3.86                         | 23                          |
| 34                      | 84                        | 7.18                         | 98                          | 2.5                          | 23                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 34                             | 85                               | 3.21                                | 161                                | 2.73                                | 68                                 |
| 34                             | 86                               | 13.91                               | 68                                 | 2.79                                | 0                                  |
| 34                             | 87                               | 3.31                                | 147                                | 2.54                                | 53                                 |
| 34                             | 88                               | 6.37                                | 175                                | 2.79                                | 90                                 |
| 34                             | 89                               | 3.81                                | 176                                | 3.3                                 | 67                                 |
| 34                             | 90                               | 3.05                                | 4                                  | 1.84                                | 74                                 |
| 34                             | 91                               | 31.61                               | 66                                 | 2.03                                | 0                                  |
| 34                             | 92                               | 5.3                                 | 73                                 | 1.79                                | 171                                |
| 34                             | 93                               | 3.3                                 | 0                                  | 2.8                                 | 95                                 |
| 34                             | 94                               | 2.79                                | 90                                 | 1.52                                | 0                                  |
| 34                             | 95                               | 3.04                                | 90                                 | 2.8                                 | 174                                |
| 34                             | 96                               | 14.29                               | 102                                | 2.96                                | 30                                 |
| 35                             | 1                                | 2.89                                | 52                                 | 2.28                                | 0                                  |
| 35                             | 2                                | 6.62                                | 57                                 | 5.35                                | 5                                  |
| 35                             | 3                                | 3.56                                | 175                                | 2.04                                | 97                                 |
| 35                             | 4                                | 2.59                                | 11                                 | 2.03                                | 90                                 |
| 35                             | 5                                | 3.05                                | 48                                 | 2.39                                | 147                                |
| 35                             | 6                                | 2.54                                | 90                                 | 2.04                                | 7                                  |
| 35                             | 7                                | 26.04                               | 43                                 | 1.79                                | 135                                |
| 35                             | 8                                | 2.54                                | 90                                 | 2.03                                | 0                                  |
| 35                             | 9                                | 6.7                                 | 65                                 | 2.65                                | 163                                |
| 35                             | 10                               | 3.56                                | 85                                 | 3.3                                 | 0                                  |
| 35                             | 11                               | 2.03                                | 0                                  | 1.36                                | 111                                |
| 35                             | 12                               | 6.5                                 | 51                                 | 2.3                                 | 173                                |
| 35                             | 13                               | 8.37                                | 165                                | 1.36                                | 68                                 |
| 35                             | 14                               | 12.29                               | 38                                 | 1.7                                 | 153                                |
| 35                             | 15                               | 3.1                                 | 55                                 | 1.54                                | 170                                |
| 35                             | 16                               | 3.97                                | 63                                 | 2.03                                | 0                                  |
| 35                             | 17                               | 15.7                                | 22                                 | 2.3                                 | 96                                 |
| 35                             | 18                               | 2.83                                | 169                                | 2.28                                | 90                                 |
| 35                             | 19                               | 17.17                               | 97                                 | 1.27                                | 0                                  |
| 35                             | 20                               | 19.17                               | 101                                | 1.52                                | 0                                  |
| 35                             | 21                               | 10.36                               | 162                                | 1.83                                | 56                                 |
| 35                             | 22                               | 12.82                               | 123                                | 0.25                                | n/a                                |
| 35                             | 23                               | 12.82                               | 123                                | 0.76                                | 90                                 |
| 35                             | 24                               | 8.38                                | 35                                 | 2.04                                | 150                                |
| 35                             | 25                               | 14.19                               | 153                                | 1.54                                | 80                                 |
| 35                             | 26                               | 71.88                               | 101                                | 9.42                                | 4                                  |
| 35                             | 27                               | 37.16                               | 114                                | 1.48                                | 30                                 |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 35                      | 28                        | 9.31                         | 64                          | 1.27                         | 143                         |
| 35                      | 29                        | 25.44                        | 62                          | 1.52                         | 0                           |
| 35                      | 30                        | 11.14                        | 65                          | 1.52                         | 0                           |
| 35                      | 31                        | 42.29                        | 114                         | 2.04                         | 29                          |
| 35                      | 32                        | 63.03                        | 113                         | 1.98                         | 50                          |
| 35                      | 33                        | 22.88                        | 92                          | 1.29                         | 11                          |
| 35                      | 34                        | 20.52                        | 126                         | 1.27                         | 53                          |
| 35                      | 35                        | 28.47                        | 105                         | 1.79                         | 8                           |
| 35                      | 36                        | 41.65                        | 112                         | 1.93                         | 23                          |
| 35                      | 37                        | 24.35                        | 78                          | 2.03                         | 0                           |
| 35                      | 38                        | 20.82                        | 90                          | 4.49                         | 42                          |
| 35                      | 39                        | 25.42                        | 111                         | 2.09                         | 14                          |
| 35                      | 40                        | 21.45                        | 16                          | 2.04                         | 119                         |
| 35                      | 41                        | 3.63                         | 77                          | 1.79                         | 171                         |
| 35                      | 42                        | 7.97                         | 157                         | 6.93                         | 66                          |
| 35                      | 43                        | 5.73                         | 102                         | 2.09                         | 14                          |
| 35                      | 44                        | 2.83                         | 100                         | 2.59                         | 11                          |
| 35                      | 45                        | 4.09                         | 150                         | 3.38                         | 77                          |
| 35                      | 46                        | 2.79                         | 90                          | 2.59                         | 168                         |
| 35                      | 47                        | 7.33                         | 14                          | 3.38                         | 77                          |
| 35                      | 48                        | 26.34                        | 109                         | 1.48                         | 30                          |
| 35                      | 49                        | 26.15                        | 101                         | 1.36                         | 21                          |
| 35                      | 50                        | 19.52                        | 147                         | 1.29                         | 78                          |
| 35                      | 51                        | 5.84                         | 90                          | 2.74                         | 33                          |
| 35                      | 52                        | 14.18                        | 135                         | 1.7                          | 63                          |
| 35                      | 53                        | 6.83                         | 48                          | 2.17                         | 159                         |
| 35                      | 54                        | 40.16                        | 107                         | 2.54                         | 36                          |
| 35                      | 55                        | 31.79                        | 86                          | 1.52                         | 0                           |
| 35                      | 56                        | 16.26                        | 38                          | 5.89                         | 172                         |
| 35                      | 57                        | 8.44                         | 83                          | 3.05                         | 175                         |
| 35                      | 58                        | 8.4                          | 25                          | 1.79                         | 135                         |
| 35                      | 59                        | 24.74                        | 70                          | 2.04                         | 7                           |
| 35                      | 60                        | 32.68                        | 67                          | 1.13                         | 153                         |
| 35                      | 61                        | 33.13                        | 4                           | 32.1                         | 85                          |
| 35                      | 62                        | 52.42                        | 147                         | 11.96                        | 86                          |
| 35                      | 63                        | 2.55                         | 5                           | 2.3                          | 96                          |
| 35                      | 64                        | 2.8                          | 95                          | 2.28                         | 0                           |
| 35                      | 65                        | 3.94                         | 75                          | 1.84                         | 164                         |
| 35                      | 66                        | 4.83                         | 176                         | 2.55                         | 95                          |



### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 35                             | 67                               | 5.1                                 | 84                                 | 5.08                                | 177                                |
| 36                             | 1                                | 3.94                                | 14                                 | 3.81                                | 90                                 |
| 36                             | 2                                | 4.34                                | 6                                  | 2.54                                | 90                                 |
| 36                             | 3                                | 2.55                                | 84                                 | 2.4                                 | 161                                |
| 36                             | 4                                | 5.8                                 | 23                                 | 2.65                                | 106                                |
| 36                             | 5                                | 2.79                                | 90                                 | 1.93                                | 23                                 |
| 36                             | 6                                | 3.31                                | 85                                 | 2.83                                | 10                                 |
| 36                             | 7                                | 4.5                                 | 16                                 | 2.28                                | 90                                 |
| 36                             | 8                                | 4.43                                | 13                                 | 2.8                                 | 95                                 |
| 36                             | 9                                | 4.13                                | 100                                | 4.09                                | 7                                  |
| 36                             | 10                               | 3.31                                | 85                                 | 3.09                                | 170                                |
| 36                             | 11                               | 2.83                                | 169                                | 2.79                                | 90                                 |
| 36                             | 12                               | 5                                   | 59                                 | 2.34                                | 167                                |
| 36                             | 13                               | 4.09                                | 7                                  | 2.03                                | 90                                 |
| 36                             | 14                               | 5.48                                | 13                                 | 3.81                                | 90                                 |
| 36                             | 15                               | 5.63                                | 125                                | 4.54                                | 26                                 |
| 36                             | 16                               | 4.01                                | 18                                 | 2.65                                | 73                                 |
| 36                             | 17                               | 5.06                                | 17                                 | 3.31                                | 85                                 |
| 36                             | 18                               | 41.76                               | 85                                 | 1.77                                | 0                                  |
| 36                             | 19                               | 77.51                               | 41                                 | 2.61                                | 119                                |
| 36                             | 20                               | 30.53                               | 11                                 | 2.04                                | 97                                 |
| 36                             | 21                               | 36.7                                | 18                                 | 3.56                                | 94                                 |
| 36                             | 22                               | 35.85                               | 76                                 | 3.55                                | 0                                  |
| 36                             | 23                               | 57.16                               | 51                                 | 2.54                                | 143                                |
| 36                             | 24                               | 25.81                               | 166                                | 3.56                                | 85                                 |
| 36                             | 25                               | 4.57                                | 0                                  | 3.77                                | 109                                |
| 36                             | 26                               | 17.33                               | 58                                 | 3.55                                | 0                                  |
| 36                             | 27                               | 14.28                               | 51                                 | 3.04                                | 0                                  |
| 36                             | 28                               | 19.88                               | 61                                 | 2.3                                 | 6                                  |
| 36                             | 29                               | 20.21                               | 26                                 | 1.36                                | 111                                |
| 36                             | 30                               | 15.37                               | 59                                 | 1.54                                | 9                                  |
| 36                             | 31                               | 21.37                               | 69                                 | 1.54                                | 9                                  |
| 36                             | 32                               | 23.17                               | 63                                 | 2.03                                | 0                                  |
| 36                             | 33                               | 6.9                                 | 173                                | 5.08                                | 90                                 |
| 36                             | 34                               | 4.07                                | 176                                | 2.79                                | 90                                 |
| 36                             | 35                               | 2.8                                 | 5                                  | 2.55                                | 95                                 |
| 36                             | 36                               | 2.09                                | 14                                 | 1.29                                | 101                                |
| 36                             | 37                               | 6.1                                 | 87                                 | 3.3                                 | 0                                  |
| 36                             | 38                               | 29.35                               | 9                                  | 2.18                                | 35                                 |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 36                      | 39                        | 67.45                        | 10                          | 2.03                         | 90                          |
| 36                      | 40                        | 62.53                        | 46                          | 1.52                         | 90                          |
| 36                      | 41                        | 3.09                         | 170                         | 1.77                         | 90                          |
| 36                      | 42                        | 7.22                         | 79                          | 2.55                         | 174                         |
| 36                      | 43                        | 46.82                        | 15                          | 1.79                         | 8                           |
| 36                      | 44                        | 40.67                        | 64                          | 3.3                          | 90                          |
| 36                      | 45                        | 32.14                        | 63                          | 3.14                         | 165                         |
| 36                      | 46                        | 6.09                         | 90                          | 2.09                         | 165                         |
| 36                      | 47                        | 15.24                        | 0                           | 3.34                         | 81                          |
| 36                      | 48                        | 4.93                         | 78                          | 2.79                         | 0                           |
| 36                      | 49                        | 4.57                         | 19                          | 3.14                         | 75                          |
| 36                      | 50                        | 5.14                         | 110                         | 3.05                         | 175                         |
| 36                      | 51                        | 4.68                         | 12                          | 1.36                         | 21                          |
| 36                      | 52                        | 6.18                         | 9                           | 2.03                         | 90                          |
| 36                      | 53                        | 21.18                        | 37                          | 2.8                          | 95                          |
| 36                      | 54                        | 22.1                         | 1                           | 4.01                         | 124                         |
| 36                      | 55                        | 5.62                         | 71                          | 2.17                         | 69                          |
| 36                      | 56                        | 22.54                        | 67                          | 2.55                         | 174                         |
| 36                      | 57                        | 23.69                        | 70                          | 1.27                         | 0                           |
| 36                      | 58                        | 22.54                        | 67                          | 2.3                          | 173                         |
| 36                      | 59                        | 38.25                        | 14                          | 2.03                         | 0                           |
| 36                      | 60                        | 30.43                        | 14                          | 2.3                          | 96                          |
| 36                      | 61                        | 4.22                         | 122                         | 2.4                          | 108                         |
| 36                      | 62                        | 3.59                         | 44                          | 2.03                         | 90                          |
| 36                      | 63                        | 4.57                         | 90                          | 3.63                         | 12                          |
| 36                      | 64                        | 5.89                         | 82                          | 2.83                         | 10                          |
| 36                      | 65                        | 4.88                         | 62                          | 4.44                         | 149                         |
| 36                      | 66                        | 2.54                         | 143                         | 2.34                         | 77                          |
| 36                      | 67                        | 3.88                         | 78                          | 1.77                         | 0                           |
| 36                      | 68                        | 6.43                         | 9                           | 3.38                         | 77                          |
| 36                      | 69                        | 5.14                         | 69                          | 2.55                         | 5                           |
| 36                      | 70                        | 8.9                          | 176                         | 4.34                         | 69                          |
| 36                      | 71                        | 21.53                        | 72                          | 0.76                         | 0                           |
| 36                      | 72                        | 19.91                        | 5                           | 1.27                         | 0                           |
| 36                      | 73                        | 29.01                        | 3                           | 1.27                         | 90                          |
| 36                      | 74                        | 30.29                        | 3                           | 1.52                         | 90                          |
| 36                      | 75                        | 16.81                        | 25                          | 3.81                         | 93                          |
| 36                      | 76                        | 45.53                        | 164                         | 3.25                         | 141                         |
| 37                      | 1                         | 11.17                        | 90                          | 1.77                         | 0                           |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 37                      | 2                         | 19.41                        | 132                         | 1.48                         | 30                          |
| 37                      | 3                         | 35.46                        | 11                          | 2.27                         | 116                         |
| 37                      | 4                         | 54.95                        | 163                         | 1.79                         | 81                          |
| 37                      | 5                         | 6.59                         | 74                          | 2.03                         | 0                           |
| 37                      | 6                         | 39.35                        | 133                         | 4.1                          | 21                          |
| 37                      | 7                         | 15.83                        | 164                         | 1.77                         | 90                          |
| 37                      | 8                         | 15.5                         | 161                         | 1.36                         | 68                          |
| 37                      | 9                         | 62.14                        | 171                         | 2.3                          | 83                          |
| 37                      | 10                        | 45.02                        | 147                         | 1.6                          | 71                          |
| 37                      | 11                        | 18.17                        | 74                          | 4.06                         | 0                           |
| 37                      | 12                        | 11.5                         | 112                         | 1.62                         | 38                          |
| 37                      | 13                        | 8.37                         | 14                          | 2.27                         | 116                         |
| 38                      | 1                         | 145.41                       | 33                          | 1.36                         | 111                         |
| 38                      | 2                         | 69.46                        | 124                         | 1.13                         | 26                          |
| 38                      | 3                         | 5.48                         | 103                         | 4.99                         | 14                          |
| 38                      | 4                         | 68.79                        | 148                         | 2.28                         | 90                          |
| 38                      | 5                         | 14.79                        | 168                         | 2.03                         | 90                          |
| 38                      | 6                         | 72.35                        | 22                          | 2.34                         | 102                         |
| 38                      | 7                         | 59.09                        | 100                         | 2.34                         | 12                          |
| 38                      | 8                         | 81.67                        | 93                          | 1.29                         | 11                          |
| 38                      | 9                         | 13.22                        | 176                         | 3.04                         | 90                          |
| 38                      | 10                        | 86.64                        | 137                         | 3.75                         | 61                          |
| 38                      | 11                        | 24.4                         | 2                           | 1.52                         | 90                          |
| 38                      | 12                        | 11.94                        | 177                         | 1.27                         | 90                          |
| 38                      | 13                        | 26.67                        | 179                         | 1.77                         | 90                          |
| 38                      | 14                        | 68.26                        | 123                         | 1.98                         | 50                          |
| 38                      | 15                        | 145.01                       | 32                          | 2.96                         | 120                         |
| 38                      | 16                        | 18.13                        | 142                         | 1.83                         | 33                          |
| 38                      | 17                        | 41.02                        | 13                          | 1.84                         | 105                         |
| 38                      | 18                        | 37.4                         | 15                          | 1.93                         | 113                         |
| 38                      | 19                        | 27.73                        | 8                           | 1.29                         | 101                         |
| 38                      | 20                        | 86.98                        | 137                         | 3.96                         | 50                          |
| 38                      | 21                        | 13.26                        | 174                         | 1.77                         | 90                          |
| 38                      | 22                        | 23.88                        | 1                           | 2.8                          | 84                          |
| 38                      | 23                        | 44.19                        | 179                         | 1.79                         | 81                          |
| 38                      | 24                        | 64.9                         | 22                          | 1.83                         | 123                         |
| 38                      | 25                        | 68.87                        | 149                         | 2.3                          | 83                          |
| 38                      | 26                        | 91.7                         | 89                          | 2.34                         | 40                          |
| 38                      | 27                        | 8.9                          | 93                          | 3.05                         | 4                           |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 38                             | 28                               | 48.68                               | 136                                | 1.6                                 | 71                                 |
| 38                             | 29                               | 39.69                               | 135                                | 1.48                                | 59                                 |
| 38                             | 30                               | 17.06                               | 134                                | 1.04                                | 75                                 |
| 38                             | 31                               | 21.34                               | 91                                 | 1.77                                | 0                                  |
| 38                             | 32                               | 8.93                                | 75                                 | 2.03                                | 0                                  |
| 38                             | 33                               | 17.55                               | 14                                 | 2.04                                | 97                                 |
| 38                             | 34                               | 23.8                                | 50                                 | 2.51                                | 135                                |
| 38                             | 35                               | 11.55                               | 146                                | 2.27                                | 63                                 |
| 38                             | 36                               | 4.82                                | 90                                 | 1.77                                | 0                                  |
| 38                             | 37                               | 8.16                                | 174                                | 3.31                                | 85                                 |
| 38                             | 38                               | 11.17                               | 0                                  | 2.03                                | 90                                 |
| 38                             | 39                               | 33.49                               | 71                                 | 2.54                                | 0                                  |
| 38                             | 40                               | 28.19                               | 90                                 | 2.28                                | 0                                  |
| 38                             | 41                               | 6.1                                 | 44                                 | 2.7                                 | 138                                |
| 38                             | 42                               | 6.62                                | 4                                  | 4.57                                | 90                                 |
| 38                             | 43                               | 30.94                               | 170                                | 2.83                                | 79                                 |
| 38                             | 44                               | 24.64                               | 26                                 | 2.18                                | 125                                |
| 38                             | 45                               | 47.77                               | 8                                  | 2.03                                | 90                                 |
| 38                             | 46                               | 48.48                               | 9                                  | 2.54                                | 90                                 |
| 38                             | 47                               | 44.86                               | 7                                  | 2.03                                | 90                                 |
| 38                             | 48                               | 9.24                                | 105                                | 2.59                                | 168                                |
| 38                             | 49                               | 8.66                                | 174                                | 5.33                                | 90                                 |
| 38                             | 50                               | 6.1                                 | 177                                | 4.13                                | 79                                 |
| 38                             | 51                               | 6.9                                 | 96                                 | 4.32                                | 3                                  |
| 38                             | 52                               | 6.83                                | 158                                | 5.79                                | 37                                 |
| 38                             | 53                               | 3.55                                | 90                                 | 2.04                                | 7                                  |
| 38                             | 54                               | 28.99                               | 161                                | 1.54                                | 80                                 |
| 38                             | 55                               | 5.63                                | 97                                 | 2.28                                | 0                                  |
| 38                             | 56                               | 3.81                                | 90                                 | 1.77                                | 0                                  |
| 38                             | 57                               | 3.31                                | 94                                 | 3.05                                | 4                                  |
| 38                             | 58                               | 27.83                               | 64                                 | 1.6                                 | 18                                 |
| 39                             | 1                                | 25.46                               | 128                                | 2.04                                | 29                                 |
| 39                             | 2                                | 17.89                               | 83                                 | 2.03                                | 0                                  |
| 39                             | 3                                | 17.08                               | 78                                 | 1.52                                | 0                                  |
| 39                             | 4                                | 21.36                               | 115                                | 2.7                                 | 41                                 |
| 39                             | 5                                | 14.86                               | 123                                | 1.48                                | 30                                 |
| 39                             | 6                                | 47.95                               | 97                                 | 1.52                                | 0                                  |
| 39                             | 7                                | 16.55                               | 131                                | 1.6                                 | 71                                 |
| 39                             | 8                                | 19.04                               | 170                                | 1.79                                | 81                                 |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 39                      | 9                         | 10.11                        | 61                          | 2.27                         | 153                         |
| 39                      | 10                        | 21.13                        | 94                          | 2.03                         | 0                           |
| 39                      | 11                        | 54.44                        | 83                          | 4.85                         | 173                         |
| 39                      | 12                        | 36.88                        | 93                          | 3.56                         | 175                         |
| 39                      | 13                        | 13.54                        | 30                          | 1.77                         | 90                          |
| 39                      | 14                        | 48.63                        | 61                          | 1.36                         | 158                         |
| 39                      | 15                        | 38.51                        | 62                          | 1.79                         | 135                         |
| 39                      | 16                        | 25.2                         | 85                          | 23.62                        | 178                         |
| 39                      | 17                        | 43.6                         | 98                          | 1.79                         | 171                         |
| 39                      | 18                        | 42.89                        | 98                          | 2.03                         | 0                           |
| 39                      | 19                        | 11.16                        | 72                          | 2.54                         | 0                           |
| 39                      | 20                        | 9.42                         | 75                          | 1.84                         | 164                         |
| 39                      | 21                        | 3.3                          | 0                           | 2.17                         | 110                         |
| 39                      | 22                        | 2.73                         | 158                         | 2.61                         | 60                          |
| 39                      | 23                        | 6.22                         | 78                          | 2.04                         | 172                         |
| 39                      | 24                        | 2.54                         | 126                         | 2.51                         | 44                          |
| 39                      | 25                        | 14.16                        | 75                          | 2.89                         | 164                         |
| 39                      | 26                        | 30                           | 103                         | 1.77                         | 0                           |
| 39                      | 27                        | 35.41                        | 171                         | 1.27                         | 90                          |
| 39                      | 28                        | 39.91                        | 87                          | 1.29                         | 168                         |
| 39                      | 29                        | 17.89                        | 96                          | 4.32                         | 3                           |
| 39                      | 30                        | 92.58                        | 95                          | 2.59                         | 11                          |
| 39                      | 31                        | 15.46                        | 42                          | 2.3                          | 96                          |
| 39                      | 32                        | 23.64                        | 2                           | 2.3                          | 96                          |
| 39                      | 33                        | 8.44                         | 105                         | 1.04                         | 14                          |
| 39                      | 34                        | 16.51                        | 88                          | 4.82                         | 0                           |
| 39                      | 35                        | 3.31                         | 4                           | 2.04                         | 82                          |
| 39                      | 36                        | 5.08                         | 0                           | 2.3                          | 83                          |
| 39                      | 37                        | 7.52                         | 168                         | 2.61                         | 60                          |
| 39                      | 38                        | 3.88                         | 101                         | 3.31                         | 4                           |
| 39                      | 39                        | 27.12                        | 56                          | 2.5                          | 156                         |
| 39                      | 40                        | 14.19                        | 132                         | 2.18                         | 54                          |
| 39                      | 41                        | 4.43                         | 166                         | 1.54                         | 80                          |
| 39                      | 42                        | 2.74                         | 123                         | 2.04                         | 29                          |
| 39                      | 43                        | 9.23                         | 82                          | 7.97                         | 170                         |
| 39                      | 44                        | 2.55                         | 5                           | 2.03                         | 90                          |
| 39                      | 45                        | 2.4                          | 161                         | 2.04                         | 82                          |
| 39                      | 46                        | 4.18                         | 75                          | 2.79                         | 0                           |
| 39                      | 47                        | 5.08                         | 36                          | 2.87                         | 135                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 39                      | 48                        | 11.74                        | 68                          | 1.62                         | 141                         |
| 39                      | 49                        | 3.87                         | 58                          | 1.48                         | 149                         |
| 39                      | 50                        | 2.04                         | 82                          | 1.93                         | 156                         |
| 39                      | 51                        | 4.13                         | 169                         | 2.65                         | 73                          |
| 39                      | 52                        | 4.34                         | 69                          | 2.89                         | 15                          |
| 39                      | 53                        | 4.32                         | 86                          | 4.06                         | 0                           |
| 39                      | 54                        | 7.22                         | 169                         | 2.04                         | 82                          |
| 39                      | 55                        | 6.14                         | 7                           | 2.55                         | 84                          |
| 39                      | 56                        | 54.71                        | 21                          | 1.83                         | 123                         |
| 39                      | 57                        | 20.13                        | 150                         | 2.27                         | 63                          |
| 39                      | 58                        | 13.67                        | 111                         | 2.17                         | 20                          |
| 39                      | 59                        | 11.81                        | 98                          | 2.04                         | 172                         |
| 39                      | 60                        | 29.51                        | 105                         | 2.03                         | 0                           |
| 39                      | 61                        | 35.65                        | 85                          | 1.29                         | 168                         |
| 39                      | 62                        | 37.18                        | 85                          | 2.34                         | 139                         |
| 39                      | 63                        | 3.45                         | 143                         | 1.98                         | 39                          |
| 39                      | 64                        | 3.38                         | 12                          | 2.65                         | 106                         |
| 39                      | 65                        | 3.23                         | 135                         | 2.51                         | 44                          |
| 39                      | 66                        | 24.54                        | 173                         | 2.55                         | 84                          |
| 39                      | 67                        | 2.27                         | 26                          | 1.93                         | 113                         |
| 39                      | 68                        | 3.06                         | 65                          | 1.77                         | 0                           |
| 39                      | 69                        | 3.09                         | 170                         | 2.54                         | 90                          |
| 39                      | 70                        | 13.72                        | 128                         | 2.15                         | 44                          |
| 39                      | 71                        | 48.13                        | 82                          | 1.79                         | 171                         |
| 39                      | 72                        | 7.89                         | 176                         | 1.77                         | 90                          |
| 39                      | 73                        | 3.31                         | 94                          | 2.59                         | 11                          |
| 39                      | 74                        | 3.31                         | 85                          | 2.3                          | 173                         |
| 39                      | 75                        | 2.03                         | 0                           | 1.77                         | 90                          |
| 39                      | 76                        | 2.28                         | 0                           | 1.77                         | 90                          |
| 39                      | 77                        | 2.54                         | 0                           | 2.03                         | 90                          |
| 39                      | 78                        | 26.95                        | 87                          | 2.65                         | 163                         |
| 39                      | 79                        | 5.23                         | 75                          | 1.7                          | 153                         |
| 40                      | 1                         | 79.92                        | 45                          | 1.62                         | 141                         |
| 40                      | 2                         | 56.95                        | 70                          | 1.77                         | 0                           |
| 40                      | 3                         | 119.21                       | 69                          | 7.11                         | 0                           |
| 40                      | 4                         | 29.01                        | 103                         | 3.05                         | 4                           |
| 40                      | 5                         | 34.28                        | 80                          | 3.59                         | 8                           |
| 40                      | 6                         | 17.33                        | 10                          | 1.04                         | 104                         |
| 40                      | 7                         | 17.74                        | 13                          | 1.04                         | 104                         |



### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 40                             | 8                                | 21.77                               | 82                                 | 2.04                                | 7                                  |
| 40                             | 9                                | 35.85                               | 34                                 | 1.79                                | 98                                 |
| 40                             | 10                               | 3.81                                | 90                                 | 3.59                                | 8                                  |
| 40                             | 11                               | 3.59                                | 98                                 | 2.97                                | 19                                 |
| 40                             | 12                               | 30.22                               | 90                                 | 2.04                                | 7                                  |
| 40                             | 13                               | 102.77                              | 79                                 | 4.06                                | 0                                  |
| 40                             | 14                               | 29.16                               | 37                                 | 2.18                                | 125                                |
| 40                             | 15                               | 41.55                               | 85                                 | 2.54                                | 0                                  |
| 40                             | 16                               | 15.07                               | 57                                 | 2.27                                | 153                                |
| 40                             | 17                               | 16.51                               | 89                                 | 1.6                                 | 18                                 |
| 40                             | 18                               | 31.05                               | 15                                 | 3.97                                | 116                                |
| 40                             | 19                               | 29.5                                | 48                                 | 2.17                                | 159                                |
| 40                             | 20                               | 33.02                               | 89                                 | 2.04                                | 7                                  |
| 40                             | 21                               | 16.9                                | 57                                 | 2.3                                 | 173                                |
| 40                             | 22                               | 35.37                               | 68                                 | 3.09                                | 170                                |
| 40                             | 23                               | 36.36                               | 21                                 | 1.29                                | 101                                |
| 40                             | 24                               | 14.21                               | 114                                | 3.77                                | 19                                 |
| 40                             | 25                               | 19.41                               | 42                                 | 1.98                                | 129                                |
| 40                             | 26                               | 35.02                               | 70                                 | 3.31                                | 4                                  |
| 40                             | 27                               | 28.06                               | 68                                 | 3.81                                | 0                                  |
| 40                             | 28                               | 10.57                               | 125                                | 2.3                                 | 6                                  |
| 40                             | 29                               | 16.69                               | 76                                 | 1.77                                | 0                                  |
| 40                             | 30                               | 19.03                               | 76                                 | 3.59                                | 171                                |
| 40                             | 31                               | 20.4                                | 18                                 | 1.7                                 | 116                                |
| 40                             | 32                               | 9.06                                | 78                                 | 1.84                                | 15                                 |
| 40                             | 33                               | 2.28                                | 90                                 | 1.79                                | 8                                  |
| 40                             | 34                               | 2.28                                | 0                                  | 1.77                                | 90                                 |
| 40                             | 35                               | 28.19                               | 60                                 | 2.55                                | 174                                |
| 40                             | 36                               | 30.66                               | 63                                 | 2.79                                | 0                                  |
| 40                             | 37                               | 32.26                               | 68                                 | 2.54                                | 0                                  |
| 40                             | 38                               | 13.09                               | 18                                 | 2.28                                | 90                                 |
| 40                             | 39                               | 4.36                                | 54                                 | 3.31                                | 175                                |
| 40                             | 40                               | 2.28                                | 0                                  | 1.77                                | 90                                 |
| 40                             | 41                               | 1.79                                | 171                                | 1.27                                | 90                                 |
| 40                             | 42                               | 4.66                                | 60                                 | 2.54                                | 0                                  |
| 40                             | 43                               | 14.72                               | 32                                 | 4.5                                 | 163                                |
| 40                             | 44                               | 45.33                               | 110                                | 2.89                                | 37                                 |
| 40                             | 45                               | 26.74                               | 67                                 | 3.56                                | 175                                |
| 40                             | 46                               | 47.63                               | 72                                 | 2.03                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 40                      | 47                        | 118.13                       | 66                          | 3.81                         | 176                         |
| 40                      | 48                        | 21.13                        | 76                          | 2.28                         | 0                           |
| 40                      | 49                        | 39.98                        | 63                          | 2.79                         | 0                           |
| 40                      | 50                        | 32.9                         | 55                          | 3.3                          | 0                           |
| 40                      | 51                        | 38.07                        | 165                         | 1.52                         | 90                          |
| 40                      | 52                        | 35.06                        | 172                         | 5.08                         | 90                          |
| 40                      | 53                        | 12.73                        | 61                          | 3.59                         | 8                           |
| 40                      | 54                        | 10.81                        | 80                          | 2.03                         | 0                           |
| 40                      | 55                        | 9.06                         | 78                          | 1.79                         | 8                           |
| 40                      | 56                        | 19.61                        | 48                          | 2.89                         | 127                         |
| 40                      | 57                        | 10.46                        | 60                          | 2.28                         | 0                           |
| 40                      | 58                        | 21.94                        | 52                          | 2.55                         | 174                         |
| 40                      | 59                        | 23.91                        | 67                          | 3.3                          | 0                           |
| 40                      | 60                        | 9.72                         | 109                         | 2.04                         | 29                          |
| 40                      | 61                        | 6.62                         | 147                         | 3.31                         | 85                          |
| 40                      | 62                        | 3.75                         | 118                         | 1.93                         | 23                          |
| 40                      | 63                        | 4.07                         | 176                         | 2.97                         | 70                          |
| 40                      | 64                        | 25.15                        | 16                          | 2.3                          | 96                          |
| 40                      | 65                        | 8.77                         | 67                          | 1.52                         | 0                           |
| 40                      | 66                        | 5.45                         | 27                          | 2.03                         | 90                          |
| 40                      | 67                        | 17.37                        | 153                         | 1.27                         | 53                          |
| 40                      | 68                        | 12.95                        | 1                           | 1.62                         | 51                          |
| 40                      | 69                        | 31.79                        | 82                          | 1.27                         | 0                           |
| 40                      | 70                        | 24.17                        | 86                          | 1.77                         | 0                           |
| 40                      | 71                        | 3.87                         | 58                          | 2.18                         | 125                         |
| 40                      | 72                        | 1.48                         | 59                          | 1.36                         | 158                         |
| 40                      | 73                        | 11.24                        | 64                          | 1.54                         | 170                         |
| 40                      | 74                        | 26.51                        | 94                          | 1.98                         | 50                          |
| 40                      | 75                        | 48.13                        | 175                         | 2.03                         | 90                          |
| 40                      | 76                        | 23.9                         | 75                          | 2.04                         | 7                           |
| 40                      | 77                        | 21.98                        | 67                          | 2.54                         | 0                           |
| 40                      | 78                        | 8.98                         | 47                          | 3.66                         | 123                         |
| 40                      | 79                        | 13.09                        | 71                          | 2.3                          | 173                         |
| 40                      | 80                        | 3.81                         | 0                           | 2.28                         | 90                          |
| 40                      | 81                        | 17.51                        | 73                          | 2.04                         | 7                           |
| 41                      | 1                         | 69.53                        | 43                          | 2.7                          | 131                         |
| 41                      | 2                         | 7.63                         | 93                          | 2.28                         | 0                           |
| 41                      | 3                         | 7.75                         | 31                          | 1.79                         | 135                         |
| 41                      | 4                         | 5.21                         | 46                          | 2.54                         | 143                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 41                             | 5                                | 3.84                                | 97                                 | 2.83                                | 10                                 |
| 41                             | 6                                | 2.79                                | 0                                  | 2.15                                | 135                                |
| 41                             | 7                                | 1.27                                | 0                                  | 1.27                                | 90                                 |
| 41                             | 8                                | 1.29                                | 101                                | 0.8                                 | 18                                 |
| 41                             | 9                                | 155.54                              | 170                                | 3.21                                | 71                                 |
| 41                             | 10                               | 2.04                                | 60                                 | 1.52                                | 0                                  |
| 41                             | 11                               | 1.93                                | 23                                 | 1.77                                | 90                                 |
| 41                             | 12                               | 46.03                               | 109                                | 1.48                                | 30                                 |
| 41                             | 13                               | 16.58                               | 78                                 | 1.29                                | 11                                 |
| 41                             | 14                               | 2.7                                 | 48                                 | 1.83                                | 123                                |
| 41                             | 15                               | 8.77                                | 22                                 | 1.62                                | 128                                |
| 41                             | 16                               | 80.97                               | 170                                | 3.04                                | 90                                 |
| 41                             | 17                               | 26.38                               | 113                                | 5.86                                | 17                                 |
| 41                             | 18                               | 18.56                               | 176                                | 13.47                               | 87                                 |
| 41                             | 19                               | 2.03                                | 90                                 | 1.79                                | 8                                  |
| 41                             | 20                               | 17.95                               | 115                                | 2.09                                | 14                                 |
| 41                             | 21                               | 29.21                               | 36                                 | 1.27                                | 126                                |
| 41                             | 22                               | 19.6                                | 148                                | 2.89                                | 37                                 |
| 41                             | 23                               | 2.03                                | 0                                  | 1.52                                | 90                                 |
| 41                             | 24                               | 2.04                                | 82                                 | 1.77                                | 0                                  |
| 41                             | 25                               | 24.91                               | 106                                | 2.96                                | 30                                 |
| 41                             | 26                               | 3.3                                 | 22                                 | 1.27                                | 90                                 |
| 41                             | 27                               | 13.11                               | 68                                 | 1.84                                | 164                                |
| 41                             | 28                               | 8.56                                | 168                                | 2.65                                | 73                                 |
| 41                             | 29                               | 2.03                                | 0                                  | 2.03                                | 90                                 |
| 41                             | 30                               | 2.34                                | 102                                | 1.79                                | 8                                  |
| 41                             | 31                               | 24.76                               | 10                                 | 1.6                                 | 108                                |
| 41                             | 32                               | 4.01                                | 55                                 | 2.34                                | 139                                |
| 41                             | 33                               | 6.47                                | 25                                 | 3.31                                | 122                                |
| 41                             | 34                               | 4.31                                | 44                                 | 2.04                                | 119                                |
| 41                             | 35                               | 1.79                                | 81                                 | 1.54                                | 170                                |
| 41                             | 36                               | 2.34                                | 167                                | 2.09                                | 75                                 |
| 41                             | 37                               | 2.34                                | 12                                 | 2.03                                | 90                                 |
| 41                             | 38                               | 3.31                                | 122                                | 2.61                                | 29                                 |
| 41                             | 39                               | 19.08                               | 80                                 | 2.17                                | 159                                |
| 41                             | 40                               | 2.28                                | 0                                  | 2.03                                | 90                                 |
| 41                             | 41                               | 32.42                               | 78                                 | 1.52                                | 0                                  |
| 41                             | 42                               | 11.94                               | 88                                 | 2.04                                | 172                                |
| 41                             | 43                               | 18.52                               | 33                                 | 3.18                                | 118                                |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 41                      | 44                        | 3.97                         | 26                          | 1.6                          | 108                         |
| 41                      | 45                        | 2.27                         | 116                         | 2.03                         | 0                           |
| 41                      | 46                        | 3.04                         | 0                           | 2.61                         | 60                          |
| 41                      | 47                        | 2.96                         | 59                          | 2.04                         | 172                         |
| 41                      | 48                        | 2.83                         | 100                         | 2.09                         | 14                          |
| 41                      | 49                        | 15.79                        | 94                          | 1.52                         | 0                           |
| 41                      | 50                        | 16.23                        | 110                         | 0.91                         | 33                          |
| 41                      | 51                        | 4.07                         | 86                          | 2.8                          | 174                         |
| 41                      | 52                        | 4.13                         | 42                          | 1.84                         | 164                         |
| 41                      | 53                        | 2.83                         | 63                          | 2.18                         | 144                         |
| 41                      | 54                        | 5.38                         | 171                         | 4.57                         | 86                          |
| 41                      | 55                        | 14.12                        | 142                         | 2.34                         | 49                          |
| 41                      | 56                        | 12.41                        | 59                          | 3.14                         | 165                         |
| 41                      | 57                        | 5.86                         | 17                          | 1.48                         | 120                         |
| 41                      | 58                        | 8.45                         | 57                          | 1.84                         | 164                         |
| 41                      | 59                        | 9.08                         | 153                         | 1.7                          | 63                          |
| 41                      | 60                        | 5.33                         | 0                           | 5.33                         | 90                          |
| 41                      | 61                        | 11.38                        | 141                         | 1.48                         | 59                          |
| 41                      | 62                        | 8.45                         | 131                         | 1.54                         | 9                           |
| 41                      | 63                        | 18.21                        | 98                          | 3.55                         | 0                           |
| 41                      | 64                        | 8.02                         | 169                         | 1.54                         | 80                          |
| 41                      | 65                        | 12.82                        | 97                          | 2.3                          | 173                         |
| 41                      | 66                        | 8.68                         | 110                         | 3.09                         | 9                           |
| 41                      | 67                        | 15.37                        | 82                          | 1.04                         | 165                         |
| 41                      | 68                        | 25.94                        | 113                         | 3.94                         | 14                          |
| 41                      | 69                        | 32.04                        | 115                         | 5.11                         | 26                          |
| 41                      | 70                        | 8.44                         | 46                          | 1.43                         | 135                         |
| 41                      | 71                        | 18.41                        | 114                         | 2.8                          | 5                           |
| 41                      | 72                        | 13.69                        | 130                         | 1.13                         | 26                          |
| 41                      | 73                        | 4.72                         | 36                          | 1.98                         | 140                         |
| 41                      | 74                        | 5.67                         | 79                          | 1.27                         | 0                           |
| 41                      | 75                        | 6.62                         | 94                          | 3.04                         | 0                           |
| 41                      | 76                        | 9.17                         | 94                          | 1.27                         | 0                           |
| 41                      | 77                        | 11.25                        | 61                          | 1.93                         | 156                         |
| 41                      | 78                        | 9.24                         | 164                         | 1.27                         | 53                          |
| 41                      | 79                        | 20.08                        | 32                          | 12.4                         | 79                          |
| 41                      | 80                        | 4.57                         | 70                          | 1.01                         | 0                           |
| 41                      | 81                        | 14.86                        | 106                         | 1.54                         | 170                         |
| 41                      | 82                        | 24.91                        | 106                         | 2.4                          | 18                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 41                             | 83                               | 11.32                               | 47                                 | 2.04                                | 7                                  |
| 41                             | 84                               | 7.55                                | 42                                 | 2.34                                | 130                                |
| 41                             | 85                               | 8.1                                 | 41                                 | 1.62                                | 128                                |
| 41                             | 86                               | 21.4                                | 94                                 | 1.6                                 | 161                                |
| 41                             | 87                               | 2.34                                | 139                                | 1.01                                | 0                                  |
| 41                             | 88                               | 2.3                                 | 96                                 | 2.04                                | 29                                 |
| 41                             | 89                               | 1.79                                | 8                                  | 1.77                                | 90                                 |
| 41                             | 90                               | 3.75                                | 61                                 | 1.77                                | 0                                  |
| 41                             | 91                               | 3.3                                 | 90                                 | 1.36                                | 158                                |
| 41                             | 92                               | 4.2                                 | 64                                 | 1.54                                | 170                                |
| 41                             | 93                               | 6.3                                 | 130                                | 1.36                                | 158                                |
| 41                             | 94                               | 1.77                                | 90                                 | 1.27                                | 36                                 |
| 41                             | 95                               | 3.05                                | 48                                 | 1.52                                | 0                                  |
| 41                             | 96                               | 2.17                                | 159                                | 2.09                                | 75                                 |
| 41                             | 97                               | 1.52                                | 90                                 | 1.52                                | 0                                  |
| 41                             | 98                               | 6.74                                | 70                                 | 1.77                                | 0                                  |
| 41                             | 99                               | 3.86                                | 156                                | 1.29                                | 168                                |
| 41                             | 100                              | 1.54                                | 80                                 | 1.27                                | 90                                 |
| 41                             | 101                              | 1.79                                | 98                                 | 1.29                                | 11                                 |
| 41                             | 102                              | 1.79                                | 8                                  | 1.29                                | 78                                 |
| 41                             | 103                              | 2.28                                | 0                                  | 1.52                                | 90                                 |
| 41                             | 104                              | 2.74                                | 56                                 | 2.54                                | 0                                  |
| 41                             | 105                              | 6.35                                | 73                                 | 1.48                                | 149                                |
| 41                             | 106                              | 5.11                                | 153                                | 1.36                                | 158                                |
| 41                             | 107                              | 10.8                                | 41                                 | 2.18                                | 54                                 |
| 41                             | 108                              | 5.02                                | 44                                 | 1.6                                 | 108                                |
| 41                             | 109                              | 79.21                               | 96                                 | 2.34                                | 139                                |
| 41                             | 110                              | 3.34                                | 8                                  | 2.28                                | 90                                 |
| 41                             | 111                              | 2.28                                | 90                                 | 2.03                                | 0                                  |
| 41                             | 112                              | 3.84                                | 172                                | 1.27                                | 0                                  |
| 41                             | 113                              | 7.55                                | 137                                | 2.09                                | 75                                 |
| 41                             | 114                              | 7.33                                | 14                                 | 1.13                                | 63                                 |
| 41                             | 115                              | 5.38                                | 171                                | 2.4                                 | 108                                |
| 41                             | 116                              | 11.97                               | 72                                 | 1.36                                | 68                                 |
| 41                             | 117                              | 1.83                                | 146                                | 1.79                                | 81                                 |
| 41                             | 118                              | 3.05                                | 175                                | 2.79                                | 90                                 |
| 41                             | 119                              | 2.03                                | 90                                 | 1.27                                | 0                                  |
| 41                             | 120                              | 2.03                                | 90                                 | 2.03                                | 0                                  |
| 41                             | 121                              | 1.52                                | 90                                 | 1.52                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 41                      | 122                       | 3.77                         | 19                          | 1.27                         | 0                           |
| 41                      | 123                       | 2.89                         | 52                          | 1.48                         | 120                         |
| 41                      | 124                       | 9.33                         | 67                          | 1.79                         | 135                         |
| 41                      | 125                       | 3.31                         | 57                          | 2.17                         | 159                         |
| 41                      | 126                       | 2.61                         | 60                          | 2.5                          | 156                         |
| 41                      | 127                       | 2.39                         | 147                         | 2.04                         | 82                          |
| 41                      | 128                       | 2.18                         | 54                          | 1.77                         | 0                           |
| 41                      | 129                       | 4.68                         | 40                          | 2.73                         | 158                         |
| 41                      | 130                       | 3.3                          | 112                         | 2.27                         | 116                         |
| 41                      | 131                       | 3.96                         | 50                          | 2.18                         | 35                          |
| 41                      | 132                       | 2.83                         | 10                          | 1.98                         | 140                         |
| 41                      | 133                       | 1.52                         | 90                          | 1.52                         | 90                          |
| 41                      | 134                       | 1.84                         | 15                          | 1.29                         | 78                          |
| 41                      | 135                       | 3.04                         | 0                           | 2.83                         | 10                          |
| 41                      | 136                       | 2.03                         | 90                          | 1.52                         | 90                          |
| 41                      | 137                       | 4.38                         | 79                          | 2.03                         | 0                           |
| 41                      | 138                       | 4.66                         | 29                          | 1.52                         | 0                           |
| 41                      | 139                       | 11.5                         | 43                          | 1.62                         | 128                         |
| 41                      | 140                       | 3.66                         | 123                         | 1.48                         | 59                          |
| 41                      | 141                       | 2.65                         | 163                         | 2.39                         | 57                          |
| 41                      | 142                       | 2.89                         | 37                          | 1.98                         | 140                         |
| 41                      | 143                       | 1.54                         | 99                          | 1.04                         | 14                          |
| 41                      | 144                       | 1.79                         | 81                          | 1.52                         | 0                           |
| 41                      | 145                       | 1.79                         | 81                          | 1.54                         | 9                           |
| 41                      | 146                       | 4.1                          | 158                         | 1.83                         | 33                          |
| 41                      | 147                       | 7.33                         | 165                         | 5.13                         | 81                          |
| 41                      | 148                       | 4.32                         | 49                          | 2.18                         | 144                         |
| 41                      | 149                       | 3.1                          | 145                         | 1.98                         | 39                          |
| 41                      | 150                       | 2.55                         | 5                           | 1.77                         | 90                          |
| 41                      | 151                       | 3.21                         | 71                          | 1.79                         | 171                         |
| 41                      | 152                       | 4.66                         | 67                          | 1.01                         | 0                           |
| 41                      | 153                       | 7.54                         | 44                          | 0.71                         | 135                         |
| 41                      | 154                       | 43.74                        | 115                         | 5.63                         | 35                          |
| 41                      | 155                       | 15.7                         | 99                          | 1.36                         | 21                          |
| 41                      | 156                       | 20.16                        | 121                         | 1.7                          | 26                          |
| 41                      | 157                       | 12.44                        | 178                         | 11.43                        | 88                          |
| 41                      | 158                       | 11.37                        | 29                          | 9.6                          | 142                         |
| 41                      | 159                       | 8.8                          | 33                          | 2.7                          | 131                         |
| 41                      | 160                       | 6.87                         | 4                           | 2.39                         | 57                          |



### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 41                             | 161                              | 4.13                                | 79                                 | 1.52                                | 0                                  |
| 41                             | 162                              | 2.59                                | 78                                 | 1.01                                | 0                                  |
| 41                             | 163                              | 9.24                                | 74                                 | 1.27                                | 0                                  |
| 41                             | 164                              | 29.3                                | 42                                 | 1.27                                | 143                                |
| 41                             | 165                              | 8.63                                | 24                                 | 2.18                                | 125                                |
| 41                             | 166                              | 2.96                                | 59                                 | 1.62                                | 128                                |
| 41                             | 167                              | 2.28                                | 0                                  | 1.54                                | 99                                 |
| 41                             | 168                              | 1.84                                | 74                                 | 1.77                                | 0                                  |
| 41                             | 169                              | 4.09                                | 82                                 | 3.31                                | 175                                |
| 41                             | 170                              | 23.63                               | 110                                | 3.31                                | 32                                 |
| 41                             | 171                              | 5.38                                | 70                                 | 1.29                                | 168                                |
| 42                             | 1                                | 102.62                              | 90                                 | 4.06                                | 0                                  |
| 42                             | 2                                | 14.08                               | 97                                 | 1.77                                | 0                                  |
| 42                             | 3                                | 8.91                                | 109                                | 0.8                                 | 18                                 |
| 42                             | 4                                | 7.57                                | 103                                | 1.04                                | 14                                 |
| 42                             | 5                                | 10.12                               | 72                                 | 1.77                                | 0                                  |
| 42                             | 6                                | 80.15                               | 165                                | 1.52                                | 90                                 |
| 42                             | 7                                | 79.94                               | 21                                 | 3.18                                | 118                                |
| 42                             | 8                                | 50.6                                | 87                                 | 3.31                                | 4                                  |
| 42                             | 9                                | 53.88                               | 45                                 | 1.43                                | 135                                |
| 42                             | 10                               | 5.04                                | 49                                 | 3.61                                | 140                                |
| 42                             | 11                               | 71.92                               | 21                                 | 2.55                                | 95                                 |
| 42                             | 12                               | 31.84                               | 21                                 | 1.93                                | 113                                |
| 42                             | 13                               | 41.49                               | 24                                 | 2.73                                | 111                                |
| 42                             | 14                               | 4.57                                | 3                                  | 4.06                                | 90                                 |
| 42                             | 15                               | 3.31                                | 85                                 | 2.3                                 | 173                                |
| 42                             | 16                               | 8.72                                | 171                                | 3.86                                | 66                                 |
| 42                             | 17                               | 13.97                               | 70                                 | 1.52                                | 0                                  |
| 42                             | 18                               | 33.89                               | 19                                 | 1.98                                | 129                                |
| 42                             | 19                               | 48                                  | 105                                | 1.7                                 | 26                                 |
| 42                             | 20                               | 51.95                               | 105                                | 1.77                                | 0                                  |
| 42                             | 21                               | 39.87                               | 117                                | 2.28                                | 90                                 |
| 42                             | 22                               | 28.71                               | 88                                 | 1.13                                | 153                                |
| 42                             | 23                               | 37.36                               | 87                                 | 1.6                                 | 161                                |
| 42                             | 24                               | 3.56                                | 94                                 | 2.79                                | 0                                  |
| 42                             | 25                               | 4.93                                | 11                                 | 3.55                                | 90                                 |
| 42                             | 26                               | 33.04                               | 44                                 | 1.79                                | 171                                |
| 42                             | 27                               | 17.3                                | 139                                | 2.8                                 | 84                                 |
| 42                             | 28                               | 25.51                               | 125                                | 1.01                                | 0                                  |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 42                             | 29                               | 28.88                               | 129                                | 1.83                                | 33                                 |
| 42                             | 30                               | 37.55                               | 32                                 | 2.83                                | 153                                |
| 42                             | 31                               | 17.07                               | 157                                | 1.52                                | 90                                 |
| 42                             | 32                               | 30.98                               | 104                                | 1.93                                | 23                                 |
| 42                             | 33                               | 27.95                               | 72                                 | 2.03                                | 0                                  |
| 42                             | 34                               | 11.68                               | 91                                 | 4.32                                | 3                                  |
| 42                             | 35                               | 22.06                               | 168                                | 2.3                                 | 83                                 |
| 42                             | 36                               | 4.06                                | 90                                 | 3.81                                | 0                                  |
| 42                             | 37                               | 3.52                                | 30                                 | 2.79                                | 90                                 |
| 42                             | 38                               | 31.25                               | 82                                 | 1.01                                | 0                                  |
| 42                             | 39                               | 48.13                               | 20                                 | 3.1                                 | 124                                |
| 42                             | 40                               | 11.24                               | 108                                | 1.98                                | 39                                 |
| 42                             | 41                               | 15                                  | 92                                 | 2.03                                | 0                                  |
| 42                             | 42                               | 47.21                               | 5                                  | 2.28                                | 90                                 |
| 42                             | 43                               | 38.86                               | 88                                 | 2.04                                | 172                                |
| 42                             | 44                               | 30.58                               | 85                                 | 1.79                                | 171                                |
| 42                             | 45                               | 21.2                                | 83                                 | 2.04                                | 150                                |
| 42                             | 46                               | 23.77                               | 161                                | 3.75                                | 61                                 |
| 42                             | 47                               | 26.22                               | 58                                 | 3.1                                 | 145                                |
| 42                             | 48                               | 60.17                               | 171                                | 2.34                                | 77                                 |
| 42                             | 49                               | 22.15                               | 86                                 | 1.29                                | 168                                |
| 42                             | 50                               | 26.17                               | 91                                 | 1.52                                | 0                                  |
| 42                             | 51                               | 31.45                               | 137                                | 3.06                                | 65                                 |
| 42                             | 52                               | 16.35                               | 6                                  | 2.79                                | 90                                 |
| 42                             | 53                               | 13.52                               | 50                                 | 3.3                                 | 0                                  |
| 42                             | 54                               | 2.59                                | 11                                 | 2.55                                | 95                                 |
| 42                             | 55                               | 4.31                                | 61                                 | 2.55                                | 174                                |
| 42                             | 56                               | 5.23                                | 60                                 | 1.77                                | 0                                  |
| 42                             | 57                               | 13.54                               | 66                                 | 1.27                                | 0                                  |
| 42                             | 58                               | 18.23                               | 102                                | 1.36                                | 21                                 |
| 42                             | 59                               | 2.03                                | 90                                 | 1.77                                | 0                                  |
| 42                             | 60                               | 4.31                                | 0                                  | 4.13                                | 79                                 |
| 42                             | 61                               | 3.81                                | 0                                  | 3.04                                | 90                                 |
| 43                             | 1                                | 33.27                               | 90                                 | 1.29                                | 11                                 |
| 43                             | 2                                | 34.32                               | 87                                 | 1.79                                | 8                                  |
| 43                             | 3                                | 25.94                               | 108                                | 3.61                                | 50                                 |
| 43                             | 4                                | 56.64                               | 90                                 | 1.54                                | 170                                |
| 43                             | 5                                | 19.55                               | 89                                 | 1.01                                | 0                                  |
| 43                             | 6                                | 36.04                               | 105                                | 1.93                                | 23                                 |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 43                             | 7                                | 35.26                               | 101                                | 1.13                                | 26                                 |
| 43                             | 8                                | 10.6                                | 106                                | 1.27                                | 36                                 |
| 43                             | 9                                | 51.34                               | 87                                 | 2.79                                | 0                                  |
| 43                             | 10                               | 21.64                               | 121                                | 1.6                                 | 18                                 |
| 43                             | 11                               | 10.61                               | 101                                | 4.32                                | 176                                |
| 43                             | 12                               | 12.01                               | 76                                 | 1.01                                | 0                                  |
| 43                             | 13                               | 4.52                                | 38                                 | 2.51                                | 135                                |
| 43                             | 14                               | 4.32                                | 93                                 | 1.93                                | 23                                 |
| 43                             | 15                               | 18.07                               | 94                                 | 3.56                                | 4                                  |
| 43                             | 16                               | 24.13                               | 90                                 | 2.54                                | 0                                  |
| 43                             | 17                               | 57.15                               | 90                                 | 2.65                                | 16                                 |
| 43                             | 18                               | 22.09                               | 171                                | 12.21                               | 86                                 |
| 43                             | 19                               | 9.77                                | 152                                | 2.03                                | 90                                 |
| 43                             | 20                               | 9.56                                | 169                                | 3.81                                | 86                                 |
| 43                             | 21                               | 2.03                                | 90                                 | 1.27                                | 0                                  |
| 43                             | 22                               | 8.88                                | 30                                 | 2.34                                | 130                                |
| 43                             | 23                               | 5.49                                | 146                                | 1.7                                 | 63                                 |
| 43                             | 24                               | 26.49                               | 150                                | 2.87                                | 44                                 |
| 43                             | 25                               | 10.67                               | 91                                 | 2.27                                | 26                                 |
| 43                             | 26                               | 55.97                               | 86                                 | 3.04                                | 0                                  |
| 43                             | 27                               | 10.36                               | 72                                 | 2.89                                | 164                                |
| 43                             | 28                               | 41.4                                | 90                                 | 1.27                                | 0                                  |
| 43                             | 29                               | 43.22                               | 96                                 | 1.29                                | 11                                 |
| 43                             | 30                               | 6.35                                | 106                                | 1.77                                | 0                                  |
| 43                             | 31                               | 5.59                                | 87                                 | 1.52                                | 0                                  |
| 43                             | 32                               | 12.42                               | 40                                 | 1.62                                | 128                                |
| 43                             | 33                               | 30.68                               | 96                                 | 2.28                                | 0                                  |
| 43                             | 34                               | 1.93                                | 66                                 | 1.52                                | 0                                  |
| 43                             | 35                               | 29.78                               | 93                                 | 2.55                                | 5                                  |
| 43                             | 36                               | 12.89                               | 147                                | 2.18                                | 54                                 |
| 43                             | 37                               | 12.45                               | 73                                 | 1.93                                | 156                                |
| 43                             | 38                               | 2.55                                | 174                                | 1.77                                | 90                                 |
| 43                             | 39                               | 3.88                                | 11                                 | 2.28                                | 90                                 |
| 43                             | 40                               | 2.04                                | 172                                | 2.04                                | 97                                 |
| 43                             | 41                               | 12.19                               | 88                                 | 3.3                                 | 0                                  |
| 43                             | 42                               | 46.49                               | 91                                 | 2.34                                | 12                                 |
| 43                             | 43                               | 41.38                               | 98                                 | 2.54                                | 0                                  |
| 43                             | 44                               | 17.33                               | 95                                 | 0.76                                | 0                                  |
| 43                             | 45                               | 19.58                               | 80                                 | 1.04                                | 165                                |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 43                             | 46                               | 23.77                               | 113                                | 3.05                                | 85                                 |
| 43                             | 47                               | 16.32                               | 105                                | 2.96                                | 30                                 |
| 43                             | 48                               | 2.39                                | 32                                 | 2.3                                 | 96                                 |
| 43                             | 49                               | 20.99                               | 55                                 | 2.04                                | 119                                |
| 43                             | 50                               | 16.88                               | 68                                 | 2.54                                | 0                                  |
| 43                             | 51                               | 2.4                                 | 18                                 | 2.09                                | 104                                |
| 43                             | 52                               | 3.09                                | 80                                 | 2.28                                | 0                                  |
| 43                             | 53                               | 2.27                                | 26                                 | 1.36                                | 158                                |
| 43                             | 54                               | 24.13                               | 90                                 | 5.58                                | 0                                  |
| 43                             | 55                               | 3.38                                | 167                                | 2.55                                | 95                                 |
| 43                             | 56                               | 2.79                                | 0                                  | 2.03                                | 90                                 |
| 43                             | 57                               | 39.44                               | 72                                 | 1.6                                 | 161                                |
| 43                             | 58                               | 10.05                               | 44                                 | 1.7                                 | 116                                |
| 43                             | 59                               | 6.35                                | 0                                  | 2.54                                | 90                                 |
| 43                             | 60                               | 2.03                                | 0                                  | 2.03                                | 90                                 |
| 43                             | 61                               | 15.42                               | 162                                | 2.89                                | 37                                 |
| 43                             | 62                               | 20.08                               | 177                                | 10.16                               | 88                                 |
| 43                             | 63                               | 4.06                                | 90                                 | 2.28                                | 0                                  |
| 43                             | 64                               | 3.56                                | 4                                  | 2.79                                | 90                                 |
| 43                             | 65                               | 2.3                                 | 83                                 | 1.77                                | 0                                  |
| 43                             | 66                               | 2.8                                 | 84                                 | 2.79                                | 0                                  |
| 43                             | 67                               | 2.79                                | 0                                  | 2.28                                | 90                                 |
| 43                             | 68                               | 3.04                                | 0                                  | 2.3                                 | 83                                 |
| 43                             | 69                               | 7.77                                | 38                                 | 3.04                                | 90                                 |
| 44                             | 1                                | 23.88                               | 45                                 | 2.7                                 | 131                                |
| 44                             | 2                                | 18.75                               | 81                                 | 2.28                                | 0                                  |
| 44                             | 3                                | 30.85                               | 81                                 | 2.03                                | 0                                  |
| 44                             | 4                                | 34.01                               | 21                                 | 2.4                                 | 108                                |
| 44                             | 5                                | 11.4                                | 78                                 | 2.79                                | 0                                  |
| 44                             | 6                                | 19.27                               | 161                                | 1.93                                | 66                                 |
| 44                             | 7                                | 20.9                                | 152                                | 2.18                                | 54                                 |
| 44                             | 8                                | 8.83                                | 161                                | 1.48                                | 59                                 |
| 44                             | 9                                | 25.09                               | 35                                 | 1.93                                | 113                                |
| 44                             | 10                               | 16.04                               | 79                                 | 1.77                                | 0                                  |
| 44                             | 11                               | 26.83                               | 40                                 | 2.96                                | 120                                |
| 44                             | 12                               | 11.27                               | 97                                 | 1.27                                | 0                                  |
| 44                             | 13                               | 32.14                               | 44                                 | 2.87                                | 135                                |
| 44                             | 14                               | 51.57                               | 15                                 | 2.03                                | 90                                 |
| 44                             | 15                               | 35.54                               | 39                                 | 3.66                                | 146                                |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 44                             | 16                               | 22.11                               | 88                                 | 1.77                                | 0                                  |
| 44                             | 17                               | 38.54                               | 174                                | 3.14                                | 75                                 |
| 44                             | 18                               | 22.41                               | 51                                 | 1.62                                | 141                                |
| 44                             | 19                               | 84.27                               | 166                                | 2.61                                | 60                                 |
| 44                             | 20                               | 22.05                               | 61                                 | 1.83                                | 146                                |
| 44                             | 21                               | 12.69                               | 109                                | 2.34                                | 12                                 |
| 44                             | 22                               | 15.66                               | 109                                | 1.29                                | 11                                 |
| 44                             | 23                               | 36.22                               | 71                                 | 2.83                                | 169                                |
| 44                             | 24                               | 38.76                               | 102                                | 3.31                                | 4                                  |
| 44                             | 25                               | 28.05                               | 5                                  | 3.59                                | 81                                 |
| 44                             | 26                               | 17.17                               | 172                                | 2.34                                | 77                                 |
| 44                             | 27                               | 47.42                               | 156                                | 2.39                                | 57                                 |
| 44                             | 28                               | 14.76                               | 3                                  | 2.28                                | 90                                 |
| 44                             | 29                               | 14.1                                | 13                                 | 2.17                                | 110                                |
| 44                             | 30                               | 2.74                                | 56                                 | 1.48                                | 149                                |
| 44                             | 31                               | 2.97                                | 70                                 | 2.34                                | 167                                |
| 44                             | 32                               | 2.74                                | 56                                 | 2.04                                | 150                                |
| 44                             | 33                               | 17.68                               | 122                                | 2.5                                 | 23                                 |
| 44                             | 34                               | 8.63                                | 178                                | 1.54                                | 80                                 |
| 44                             | 35                               | 6.18                                | 160                                | 1.62                                | 51                                 |
| 44                             | 36                               | 18.24                               | 55                                 | 1.36                                | 158                                |
| 44                             | 37                               | 32.4                                | 41                                 | 1.98                                | 129                                |
| 44                             | 38                               | 16.71                               | 70                                 | 2.17                                | 159                                |
| 44                             | 39                               | 5.92                                | 80                                 | 2.03                                | 0                                  |
| 44                             | 40                               | 27.96                               | 177                                | 1.77                                | 90                                 |
| 44                             | 41                               | 22.27                               | 7                                  | 2.03                                | 90                                 |
| 44                             | 42                               | 7.36                                | 0                                  | 1.84                                | 74                                 |
| 44                             | 43                               | 2.65                                | 73                                 | 1.77                                | 0                                  |
| 44                             | 44                               | 12.81                               | 13                                 | 3.09                                | 80                                 |
| 44                             | 45                               | 12.25                               | 5                                  | 1.54                                | 80                                 |
| 44                             | 46                               | 9.7                                 | 6                                  | 2.03                                | 90                                 |
| 44                             | 47                               | 7.47                                | 99                                 | 2.3                                 | 173                                |
| 44                             | 48                               | 10.94                               | 3                                  | 2.3                                 | 83                                 |
| 44                             | 49                               | 14.9                                | 13                                 | 3.04                                | 90                                 |
| 44                             | 50                               | 7.82                                | 54                                 | 1.13                                | 153                                |
| 44                             | 51                               | 17.54                               | 2                                  | 1.79                                | 98                                 |
| 44                             | 52                               | 15.52                               | 176                                | 2.03                                | 90                                 |
| 44                             | 53                               | 15.04                               | 168                                | 2.03                                | 90                                 |
| 44                             | 54                               | 13.48                               | 176                                | 1.52                                | 90                                 |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 44                      | 55                        | 12.21                        | 176                         | 1.52                         | 90                          |
| 44                      | 56                        | 4.1                          | 111                         | 2.79                         | 0                           |
| 44                      | 57                        | 6.28                         | 43                          | 2.15                         | 135                         |
| 44                      | 58                        | 18.7                         | 41                          | 2.87                         | 135                         |
| 44                      | 59                        | 8.65                         | 40                          | 2.83                         | 153                         |
| 44                      | 60                        | 8.72                         | 8                           | 2.03                         | 90                          |
| 44                      | 61                        | 2.04                         | 172                         | 1.52                         | 90                          |
| 44                      | 62                        | 1.52                         | 0                           | 1.27                         | 90                          |
| 44                      | 63                        | 2.55                         | 174                         | 1.27                         | 90                          |
| 44                      | 64                        | 1.54                         | 170                         | 1.54                         | 80                          |
| 44                      | 65                        | 2.03                         | 90                          | 1.79                         | 171                         |
| 44                      | 66                        | 1.77                         | 0                           | 1.52                         | 90                          |
| 44                      | 67                        | 25.51                        | 9                           | 2.28                         | 90                          |
| 44                      | 68                        | 2.54                         | 0                           | 1.52                         | 90                          |
| 44                      | 69                        | 2.03                         | 0                           | 1.84                         | 74                          |
| 44                      | 70                        | 2.03                         | 90                          | 1.84                         | 15                          |
| 44                      | 71                        | 2.3                          | 83                          | 1.77                         | 0                           |
| 44                      | 72                        | 28.1                         | 167                         | 1.27                         | 90                          |
| 44                      | 73                        | 10.58                        | 30                          | 2.18                         | 125                         |
| 44                      | 74                        | 28.56                        | 9                           | 2.04                         | 97                          |
| 44                      | 75                        | 10.63                        | 40                          | 1.98                         | 140                         |
| 44                      | 76                        | 4.57                         | 0                           | 3.38                         | 77                          |
| 44                      | 77                        | 3.38                         | 12                          | 1.6                          | 108                         |
| 44                      | 78                        | 5.59                         | 50                          | 4.44                         | 149                         |
| 44                      | 79                        | 4.38                         | 10                          | 1.79                         | 81                          |
| 44                      | 80                        | 2.04                         | 172                         | 1.84                         | 74                          |
| 44                      | 81                        | 30.18                        | 112                         | 5.48                         | 13                          |
| 44                      | 82                        | 22.13                        | 93                          | 1.52                         | 0                           |
| 44                      | 83                        | 11.5                         | 157                         | 1.79                         | 44                          |
| 44                      | 84                        | 28.61                        | 16                          | 2.54                         | 90                          |
| 44                      | 85                        | 19.3                         | 90                          | 1.79                         | 171                         |
| 44                      | 86                        | 3.59                         | 98                          | 2.04                         | 7                           |
| 44                      | 87                        | 16.25                        | 61                          | 1.93                         | 156                         |
| 44                      | 88                        | 4.63                         | 9                           | 1.27                         | 90                          |
| 44                      | 89                        | 2.09                         | 14                          | 1.79                         | 98                          |
| 44                      | 90                        | 1.79                         | 8                           | 1.52                         | 90                          |
| 44                      | 91                        | 3.21                         | 108                         | 2.83                         | 26                          |
| 44                      | 92                        | 12.15                        | 26                          | 1.43                         | 135                         |
| 44                      | 93                        | 2.28                         | 0                           | 1.79                         | 81                          |



### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 44                      | 94                        | 2.59                         | 78                          | 2.28                         | 0                           |
| 44                      | 95                        | 23.89                        | 87                          | 1.77                         | 0                           |
| 44                      | 96                        | 13.84                        | 42                          | 2.34                         | 139                         |
| 44                      | 97                        | 5.84                         | 0                           | 2.04                         | 82                          |
| 44                      | 98                        | 1.79                         | 8                           | 1.77                         | 90                          |
| 44                      | 99                        | 2.03                         | 0                           | 1.79                         | 81                          |
| 44                      | 100                       | 6.83                         | 41                          | 0.91                         | 146                         |
| 44                      | 101                       | 3.05                         | 4                           | 2.55                         | 84                          |
| 44                      | 102                       | 17.97                        | 23                          | 2.03                         | 90                          |
| 44                      | 103                       | 3.31                         | 175                         | 2.03                         | 90                          |
| 45                      | 1                         | 4.54                         | 63                          | 2.09                         | 165                         |
| 45                      | 2                         | 7.27                         | 60                          | 1.29                         | 168                         |
| 45                      | 3                         | 4.68                         | 77                          | 0.76                         | 0                           |
| 45                      | 4                         | 5.3                          | 73                          | 1.52                         | 0                           |
| 45                      | 5                         | 3.88                         | 78                          | 1.36                         | 158                         |
| 45                      | 6                         | 3.18                         | 61                          | 1.13                         | 153                         |
| 45                      | 7                         | 3.63                         | 12                          | 3.31                         | 85                          |
| 45                      | 8                         | 2.83                         | 100                         | 1.52                         | 0                           |
| 45                      | 9                         | 4.66                         | 67                          | 0.8                          | 18                          |
| 45                      | 10                        | 1.79                         | 81                          | 1.52                         | 0                           |
| 45                      | 11                        | 6.35                         | 0                           | 4.07                         | 93                          |
| 45                      | 12                        | 6.14                         | 82                          | 2.28                         | 0                           |
| 45                      | 13                        | 5.1                          | 5                           | 2.65                         | 106                         |
| 45                      | 14                        | 3.3                          | 67                          | 1.01                         | 0                           |
| 45                      | 15                        | 6.36                         | 61                          | 1.36                         | 158                         |
| 45                      | 16                        | 4.9                          | 68                          | 1.77                         | 0                           |
| 45                      | 17                        | 3.31                         | 94                          | 1.27                         | 0                           |
| 45                      | 18                        | 4.18                         | 75                          | 4.13                         | 169                         |
| 45                      | 19                        | 1.93                         | 66                          | 1.6                          | 161                         |
| 45                      | 20                        | 4.66                         | 60                          | 1.79                         | 171                         |
| 45                      | 21                        | 3.21                         | 71                          | 1.77                         | 0                           |
| 45                      | 22                        | 3.94                         | 165                         | 2.54                         | 53                          |
| 45                      | 23                        | 19.94                        | 173                         | 2.04                         | 97                          |
| 45                      | 24                        | 1.93                         | 23                          | 1.77                         | 90                          |
| 45                      | 25                        | 3.66                         | 56                          | 1.48                         | 149                         |
| 45                      | 26                        | 2.61                         | 60                          | 1.6                          | 161                         |
| 45                      | 27                        | 2.55                         | 84                          | 2.03                         | 0                           |
| 45                      | 28                        | 2.73                         | 68                          | 1.29                         | 168                         |
| 45                      | 29                        | 8.75                         | 60                          | 2.27                         | 153                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 45                      | 30                        | 3.21                         | 71                          | 2.04                         | 172                         |
| 45                      | 31                        | 1.52                         | 90                          | 0.76                         | 0                           |
| 45                      | 32                        | 3.77                         | 70                          | 1.52                         | 0                           |
| 45                      | 33                        | 5.08                         | 90                          | 1.01                         | 0                           |
| 45                      | 34                        | 3.21                         | 71                          | 1.52                         | 0                           |
| 45                      | 35                        | 2.03                         | 90                          | 1.52                         | 0                           |
| 45                      | 36                        | 17.72                        | 62                          | 2.17                         | 159                         |
| 45                      | 37                        | 10.44                        | 94                          | 2.27                         | 26                          |
| 45                      | 38                        | 6.1                          | 92                          | 1.6                          | 18                          |
| 45                      | 39                        | 7.82                         | 76                          | 1.27                         | 0                           |
| 45                      | 40                        | 2.54                         | 90                          | 1.01                         | 0                           |
| 45                      | 41                        | 21.19                        | 103                         | 0.76                         | 0                           |
| 45                      | 42                        | 27.32                        | 106                         | 2.4                          | 18                          |
| 45                      | 43                        | 3.21                         | 18                          | 2.65                         | 106                         |
| 45                      | 44                        | 5.06                         | 72                          | 1.7                          | 153                         |
| 45                      | 45                        | 8.07                         | 77                          | 1.84                         | 15                          |
| 45                      | 46                        | 3.77                         | 70                          | 1.93                         | 156                         |
| 45                      | 47                        | 6.27                         | 68                          | 2.5                          | 156                         |
| 45                      | 48                        | 6.66                         | 49                          | 1.79                         | 135                         |
| 45                      | 49                        | 6.51                         | 69                          | 1.54                         | 170                         |
| 45                      | 50                        | 6.62                         | 94                          | 3.04                         | 0                           |
| 45                      | 51                        | 3.05                         | 175                         | 3.04                         | 90                          |
| 45                      | 52                        | 6.58                         | 62                          | 2.09                         | 165                         |
| 45                      | 53                        | 3.81                         | 176                         | 2.34                         | 77                          |
| 45                      | 54                        | 3.55                         | 90                          | 3.3                          | 0                           |
| 45                      | 55                        | 9.54                         | 61                          | 3.81                         | 176                         |
| 45                      | 56                        | 3.45                         | 53                          | 1.13                         | 153                         |
| 45                      | 57                        | 5.28                         | 54                          | 1.48                         | 149                         |
| 45                      | 58                        | 4.44                         | 59                          | 1.84                         | 164                         |
| 45                      | 59                        | 3.4                          | 63                          | 1.93                         | 156                         |
| 45                      | 60                        | 3.45                         | 72                          | 1.6                          | 161                         |
| 45                      | 61                        | 2.17                         | 69                          | 1.36                         | 158                         |
| 45                      | 62                        | 5.34                         | 64                          | 1.52                         | 0                           |
| 45                      | 63                        | 5.11                         | 63                          | 1.48                         | 149                         |
| 45                      | 64                        | 2.15                         | 44                          | 1.83                         | 146                         |
| 45                      | 65                        | 3.25                         | 51                          | 1.48                         | 149                         |
| 45                      | 66                        | 1.77                         | 90                          | 1.29                         | 11                          |
| 45                      | 67                        | 2.79                         | 90                          | 2.03                         | 0                           |
| 45                      | 68                        | 6.1                          | 73                          | 1.79                         | 171                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 46                      | 1                         | 31.68                        | 77                          | 1.27                         | 0                           |
| 46                      | 2                         | 4.85                         | 83                          | 4.32                         | 176                         |
| 46                      | 3                         | 2.83                         | 169                         | 2.54                         | 90                          |
| 46                      | 4                         | 24.21                        | 74                          | 1.77                         | 0                           |
| 46                      | 5                         | 4.13                         | 79                          | 2.28                         | 0                           |
| 46                      | 6                         | 9.24                         | 74                          | 1.01                         | 0                           |
| 46                      | 7                         | 21.31                        | 74                          | 0.5                          | 0                           |
| 46                      | 8                         | 32.54                        | 82                          | 2.04                         | 172                         |
| 46                      | 9                         | 3.84                         | 82                          | 1.01                         | 0                           |
| 46                      | 10                        | 3.59                         | 81                          | 0.5                          | 0                           |
| 46                      | 11                        | 9.99                         | 117                         | 2.34                         | 40                          |
| 46                      | 12                        | 40.13                        | 96                          | 1.77                         | 0                           |
| 46                      | 13                        | 21.23                        | 53                          | 2.87                         | 135                         |
| 46                      | 14                        | 13.5                         | 48                          | 1.6                          | 108                         |
| 46                      | 15                        | 29.33                        | 60                          | 2.4                          | 161                         |
| 46                      | 16                        | 2.03                         | 90                          | 1.52                         | 0                           |
| 46                      | 17                        | 7.47                         | 170                         | 4.9                          | 68                          |
| 46                      | 18                        | 10.57                        | 144                         | 1.48                         | 59                          |
| 46                      | 19                        | 17.07                        | 59                          | 1.48                         | 149                         |
| 46                      | 20                        | 9.73                         | 74                          | 1.27                         | 0                           |
| 46                      | 21                        | 19.44                        | 107                         | 2.61                         | 29                          |
| 46                      | 22                        | 22.86                        | 167                         | 1.01                         | 90                          |
| 46                      | 23                        | 10.23                        | 133                         | 3.77                         | 42                          |
| 46                      | 24                        | 12.28                        | 172                         | 1.52                         | 90                          |
| 46                      | 25                        | 14.17                        | 126                         | 2.51                         | 44                          |
| 46                      | 26                        | 2.39                         | 57                          | 1.04                         | 165                         |
| 46                      | 27                        | 20.78                        | 54                          | 2.15                         | 135                         |
| 46                      | 28                        | 2.3                          | 83                          | 1.01                         | 0                           |
| 46                      | 29                        | 2.03                         | 90                          | 1.52                         | 0                           |
| 46                      | 30                        | 2.03                         | 90                          | 1.52                         | 0                           |
| 46                      | 31                        | 2.3                          | 96                          | 1.54                         | 9                           |
| 46                      | 32                        | 6.24                         | 63                          | 2.97                         | 70                          |
| 46                      | 33                        | 3.55                         | 90                          | 1.77                         | 0                           |
| 46                      | 34                        | 5.49                         | 123                         | 2.83                         | 10                          |
| 46                      | 35                        | 14.08                        | 115                         | 1.79                         | 44                          |
| 46                      | 36                        | 16.17                        | 67                          | 1.62                         | 51                          |
| 46                      | 37                        | 23.25                        | 83                          | 1.04                         | 165                         |
| 46                      | 38                        | 12.79                        | 96                          | 1.27                         | 0                           |
| 46                      | 39                        | 1.54                         | 80                          | 1.29                         | 11                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 46                             | 40                               | 2.04                                | 7                                  | 1.79                                | 81                                 |
| 46                             | 41                               | 3.05                                | 138                                | 2.34                                | 12                                 |
| 46                             | 42                               | 2.34                                | 40                                 | 1.79                                | 171                                |
| 46                             | 43                               | 23.09                               | 81                                 | 2.3                                 | 83                                 |
| 46                             | 44                               | 23.81                               | 78                                 | 1.27                                | 0                                  |
| 46                             | 45                               | 2.28                                | 0                                  | 1.98                                | 140                                |
| 46                             | 46                               | 7.77                                | 78                                 | 1.52                                | 0                                  |
| 46                             | 47                               | 28.53                               | 85                                 | 1.29                                | 11                                 |
| 47                             | 1                                | 66.07                               | 88                                 | 1.27                                | 0                                  |
| 47                             | 2                                | 29.58                               | 60                                 | 2.15                                | 135                                |
| 47                             | 3                                | 19.44                               | 109                                | 2.17                                | 20                                 |
| 47                             | 4                                | 32.51                               | 90                                 | 1.54                                | 9                                  |
| 47                             | 5                                | 27.95                               | 91                                 | 1.27                                | 0                                  |
| 47                             | 6                                | 45.62                               | 107                                | 1.54                                | 9                                  |
| 47                             | 7                                | 21.14                               | 65                                 | 1.79                                | 171                                |
| 47                             | 8                                | 40.8                                | 54                                 | 1.27                                | 143                                |
| 47                             | 9                                | 11.68                               | 90                                 | 0.76                                | 0                                  |
| 47                             | 10                               | 18.83                               | 93                                 | 1.52                                | 0                                  |
| 47                             | 11                               | 42.27                               | 110                                | 1.48                                | 59                                 |
| 47                             | 12                               | 66.73                               | 120                                | 2.04                                | 29                                 |
| 47                             | 13                               | 6.86                                | 92                                 | 1.79                                | 8                                  |
| 47                             | 14                               | 19.61                               | 85                                 | 1.54                                | 170                                |
| 47                             | 15                               | 47.95                               | 135                                | 1.83                                | 33                                 |
| 47                             | 16                               | 43                                  | 97                                 | 1.04                                | 14                                 |
| 47                             | 17                               | 25.46                               | 141                                | 0.5                                 | 90                                 |
| 47                             | 18                               | 10.51                               | 142                                | 2.17                                | 69                                 |
| 47                             | 19                               | 18.87                               | 95                                 | 1.01                                | 0                                  |
| 47                             | 20                               | 25.2                                | 94                                 | 1.77                                | 0                                  |
| 47                             | 21                               | 30.78                               | 123                                | 1.79                                | 44                                 |
| 47                             | 22                               | 29.34                               | 95                                 | 1.52                                | 0                                  |
| 47                             | 23                               | 83.03                               | 106                                | 2.4                                 | 18                                 |
| 47                             | 24                               | 46.6                                | 155                                | 2.5                                 | 66                                 |
| 47                             | 25                               | 41.36                               | 161                                | 2.17                                | 69                                 |
| 47                             | 26                               | 69.5                                | 105                                | 1.48                                | 30                                 |
| 47                             | 27                               | 98.98                               | 147                                | 1.62                                | 51                                 |
| 47                             | 28                               | 8.29                                | 49                                 | 2.96                                | 120                                |
| 47                             | 29                               | 3.88                                | 11                                 | 3.31                                | 94                                 |
| 47                             | 30                               | 9.65                                | 0                                  | 7.62                                | 91                                 |
| 47                             | 31                               | 36.11                               | 102                                | 1.52                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 47                      | 32                        | 14.75                        | 92                          | 1.52                         | 0                           |
| 47                      | 33                        | 23.68                        | 94                          | 1.01                         | 0                           |
| 47                      | 34                        | 49.75                        | 134                         | 1.84                         | 74                          |
| 47                      | 35                        | 4.18                         | 75                          | 2.34                         | 167                         |
| 47                      | 36                        | 27.47                        | 160                         | 1.7                          | 63                          |
| 47                      | 37                        | 19.34                        | 29                          | 1.98                         | 140                         |
| 47                      | 38                        | 11.65                        | 110                         | 1.79                         | 8                           |
| 47                      | 39                        | 8.97                         | 115                         | 1.62                         | 38                          |
| 47                      | 40                        | 12.85                        | 18                          | 1.54                         | 99                          |
| 47                      | 41                        | 33.85                        | 116                         | 1.6                          | 71                          |
| 47                      | 42                        | 6.64                         | 96                          | 1.52                         | 0                           |
| 47                      | 43                        | 22.24                        | 6                           | 2.34                         | 102                         |
| 47                      | 44                        | 75.02                        | 109                         | 1.27                         | 36                          |
| 47                      | 45                        | 47.1                         | 137                         | 2.04                         | 82                          |
| 47                      | 46                        | 56                           | 8                           | 2.54                         | 90                          |
| 47                      | 47                        | 34.82                        | 2                           | 1.29                         | 101                         |
| 47                      | 48                        | 56.99                        | 132                         | 2.18                         | 35                          |
| 47                      | 49                        | 42.24                        | 86                          | 2.83                         | 169                         |
| 47                      | 50                        | 6.68                         | 81                          | 1.52                         | 0                           |
| 47                      | 51                        | 11.01                        | 64                          | 1.83                         | 146                         |
| 47                      | 52                        | 11.5                         | 83                          | 1.77                         | 0                           |
| 47                      | 53                        | 22.89                        | 130                         | 2.83                         | 63                          |
| 47                      | 54                        | 2.34                         | 102                         | 2.17                         | 159                         |
| 47                      | 55                        | 2.3                          | 96                          | 1.77                         | 0                           |
| 47                      | 56                        | 13.83                        | 82                          | 2.04                         | 172                         |
| 47                      | 57                        | 17.54                        | 92                          | 1.52                         | 0                           |
| 47                      | 58                        | 17.06                        | 85                          | 1.52                         | 0                           |
| 47                      | 59                        | 15.59                        | 127                         | 1.29                         | 78                          |
| 47                      | 60                        | 11.22                        | 95                          | 0.91                         | 146                         |
| 47                      | 61                        | 5.86                         | 85                          | 1.77                         | 0                           |
| 47                      | 62                        | 35.02                        | 161                         | 1.27                         | 90                          |
| 47                      | 63                        | 31.65                        | 162                         | 1.77                         | 90                          |
| 47                      | 64                        | 28.94                        | 100                         | 2.28                         | 0                           |
| 47                      | 65                        | 44.58                        | 101                         | 1.77                         | 0                           |
| 47                      | 66                        | 31.16                        | 109                         | 2.34                         | 12                          |
| 47                      | 67                        | 42.92                        | 98                          | 1.52                         | 0                           |
| 47                      | 68                        | 13.25                        | 12                          | 1.36                         | 111                         |
| 47                      | 69                        | 9.2                          | 96                          | 1.52                         | 0                           |
| 47                      | 70                        | 11.94                        | 156                         | 2.03                         | 90                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 47                             | 71                               | 59.36                               | 108                                | 1.62                                | 38                                 |
| 47                             | 72                               | 5.14                                | 147                                | 1.6                                 | 71                                 |
| 47                             | 73                               | 35.02                               | 113                                | 1.27                                | 36                                 |
| 47                             | 74                               | 88.83                               | 95                                 | 1.27                                | 0                                  |
| 47                             | 75                               | 21.54                               | 52                                 | 2.54                                | 143                                |
| 47                             | 76                               | 9.01                                | 57                                 | 1.6                                 | 161                                |
| 47                             | 77                               | 20.12                               | 94                                 | 1.29                                | 168                                |
| 47                             | 78                               | 20.52                               | 102                                | 1.04                                | 14                                 |
| 47                             | 79                               | 17.79                               | 92                                 | 1.13                                | 26                                 |
| 47                             | 80                               | 17.53                               | 88                                 | 2.03                                | 0                                  |
| 47                             | 81                               | 77.28                               | 105                                | 2.5                                 | 23                                 |
| 47                             | 82                               | 7.87                                | 91                                 | 3.55                                | 0                                  |
| 47                             | 83                               | 4.6                                 | 96                                 | 2.17                                | 20                                 |
| 47                             | 84                               | 10.85                               | 106                                | 1.01                                | 0                                  |
| 47                             | 85                               | 11.89                               | 109                                | 0.91                                | 33                                 |
| 47                             | 86                               | 10.11                               | 78                                 | 1.13                                | 153                                |
| 47                             | 87                               | 19.34                               | 86                                 | 2.03                                | 0                                  |
| 47                             | 88                               | 14.18                               | 134                                | 1.79                                | 44                                 |
| 47                             | 89                               | 19.42                               | 27                                 | 1.79                                | 98                                 |
| 47                             | 90                               | 16.82                               | 28                                 | 2.18                                | 125                                |
| 47                             | 91                               | 23.86                               | 163                                | 3.04                                | 90                                 |
| 47                             | 92                               | 23.68                               | 67                                 | 1.98                                | 140                                |
| 47                             | 93                               | 18.31                               | 93                                 | 3.3                                 | 0                                  |
| 48                             | 1                                | 38.79                               | 5                                  | 1.77                                | 90                                 |
| 48                             | 2                                | 48.87                               | 136                                | 3.31                                | 32                                 |
| 48                             | 3                                | 15.84                               | 131                                | 1.6                                 | 18                                 |
| 48                             | 4                                | 19.67                               | 129                                | 1.27                                | 36                                 |
| 48                             | 5                                | 32.9                                | 132                                | 2.17                                | 20                                 |
| 48                             | 6                                | 53.29                               | 142                                | 3.21                                | 71                                 |
| 48                             | 7                                | 31.88                               | 78                                 | 2.73                                | 158                                |
| 48                             | 8                                | 9                                   | 111                                | 2.79                                | 0                                  |
| 48                             | 9                                | 13.8                                | 102                                | 1.79                                | 8                                  |
| 48                             | 10                               | 23.76                               | 79                                 | 2.59                                | 168                                |
| 48                             | 11                               | 14.88                               | 64                                 | 1.6                                 | 161                                |
| 48                             | 12                               | 5.59                                | 92                                 | 2.54                                | 0                                  |
| 48                             | 13                               | 28.27                               | 98                                 | 5.08                                | 2                                  |
| 48                             | 14                               | 29.94                               | 77                                 | 2.5                                 | 156                                |
| 48                             | 15                               | 6.5                                 | 141                                | 2.54                                | 36                                 |
| 48                             | 16                               | 12.4                                | 112                                | 2.04                                | 29                                 |



### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 48                      | 17                        | 10.28                        | 122                         | 1.43                         | 44                          |
| 48                      | 18                        | 9.7                          | 96                          | 1.27                         | 0                           |
| 48                      | 19                        | 6.87                         | 94                          | 2.04                         | 7                           |
| 48                      | 20                        | 11.9                         | 140                         | 2.18                         | 54                          |
| 48                      | 21                        | 6.68                         | 98                          | 2.04                         | 29                          |
| 48                      | 22                        | 13.48                        | 132                         | 3.23                         | 44                          |
| 48                      | 23                        | 8.53                         | 149                         | 2.34                         | 40                          |
| 48                      | 24                        | 29.89                        | 80                          | 1.01                         | 0                           |
| 48                      | 25                        | 25.62                        | 70                          | 2.54                         | 143                         |
| 48                      | 26                        | 20.09                        | 87                          | 1.01                         | 0                           |
| 48                      | 27                        | 14.86                        | 123                         | 1.84                         | 15                          |
| 48                      | 28                        | 25.92                        | 87                          | 1.27                         | 0                           |
| 48                      | 29                        | 10.47                        | 50                          | 1.6                          | 161                         |
| 48                      | 30                        | 31.32                        | 138                         | 2.34                         | 40                          |
| 48                      | 31                        | 20.32                        | 18                          | 1.01                         | 90                          |
| 48                      | 32                        | 32.8                         | 2                           | 1.29                         | 78                          |
| 48                      | 33                        | 14.15                        | 68                          | 6.71                         | 150                         |
| 48                      | 34                        | 6.35                         | 92                          | 5.84                         | 0                           |
| 48                      | 35                        | 18.83                        | 93                          | 1.84                         | 15                          |
| 48                      | 36                        | 46.7                         | 69                          | 3.86                         | 156                         |
| 48                      | 37                        | 11.65                        | 110                         | 8.07                         | 12                          |
| 48                      | 38                        | 15.56                        | 153                         | 2.27                         | 63                          |
| 48                      | 39                        | 7.11                         | 90                          | 2.59                         | 11                          |
| 48                      | 40                        | 4.66                         | 157                         | 2.8                          | 84                          |
| 48                      | 41                        | 11.06                        | 170                         | 7.27                         | 65                          |
| 48                      | 42                        | 15.04                        | 111                         | 3.53                         | 21                          |
| 48                      | 43                        | 19.97                        | 97                          | 3.14                         | 14                          |
| 48                      | 44                        | 13.43                        | 105                         | 2.28                         | 0                           |
| 48                      | 45                        | 32.17                        | 84                          | 1.79                         | 8                           |
| 48                      | 46                        | 10.25                        | 138                         | 2.7                          | 48                          |
| 48                      | 47                        | 13.29                        | 118                         | 3.4                          | 26                          |
| 48                      | 48                        | 6.18                         | 80                          | 1.01                         | 0                           |
| 48                      | 49                        | 16.13                        | 97                          | 3.05                         | 4                           |
| 51                      | 1                         | 23.82                        | 35                          | 1.62                         | 128                         |
| 51                      | 2                         | 14.79                        | 164                         | 1.83                         | 56                          |
| 51                      | 3                         | 32.81                        | 93                          | 4.83                         | 3                           |
| 51                      | 4                         | 12.85                        | 52                          | 1.48                         | 149                         |
| 51                      | 5                         | 21                           | 75                          | 1.27                         | 0                           |
| 51                      | 6                         | 13.92                        | 75                          | 1.6                          | 161                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 51                      | 7                         | 26.62                        | 74                          | 1.01                         | 0                           |
| 51                      | 8                         | 28.05                        | 73                          | 1.29                         | 11                          |
| 51                      | 9                         | 35.5                         | 17                          | 1.93                         | 113                         |
| 51                      | 10                        | 30.63                        | 168                         | 0.8                          | 71                          |
| 51                      | 11                        | 32.48                        | 15                          | 2.03                         | 90                          |
| 51                      | 12                        | 66.43                        | 93                          | 1.52                         | 0                           |
| 51                      | 13                        | 31.08                        | 22                          | 1.84                         | 105                         |
| 51                      | 14                        | 100.22                       | 44                          | 2.61                         | 119                         |
| 51                      | 15                        | 64.26                        | 53                          | 1.36                         | 158                         |
| 51                      | 16                        | 32.1                         | 30                          | 2.73                         | 111                         |
| 51                      | 17                        | 18.81                        | 2                           | 1.13                         | 63                          |
| 51                      | 18                        | 23.88                        | 91                          | 1.27                         | 0                           |
| 51                      | 19                        | 62.3                         | 35                          | 3.05                         | 131                         |
| 51                      | 20                        | 41.85                        | 72                          | 2.03                         | 0                           |
| 51                      | 21                        | 51.99                        | 94                          | 2.59                         | 168                         |
| 51                      | 22                        | 22.12                        | 92                          | 1.77                         | 0                           |
| 51                      | 23                        | 16.24                        | 116                         | 2.04                         | 29                          |
| 51                      | 24                        | 33.5                         | 63                          | 1.54                         | 170                         |
| 51                      | 25                        | 16.72                        | 59                          | 2.18                         | 144                         |
| 51                      | 26                        | 62.77                        | 146                         | 1.98                         | 39                          |
| 51                      | 27                        | 37.18                        | 71                          | 1.54                         | 170                         |
| 51                      | 28                        | 17.8                         | 93                          | 1.27                         | 0                           |
| 51                      | 29                        | 17.15                        | 64                          | 2.34                         | 139                         |
| 51                      | 30                        | 30.05                        | 22                          | 1.36                         | 111                         |
| 51                      | 31                        | 29.2                         | 76                          | 1.52                         | 0                           |
| 51                      | 32                        | 46.82                        | 71                          | 1.84                         | 164                         |
| 51                      | 33                        | 97.05                        | 156                         | 2.89                         | 52                          |
| 51                      | 34                        | 16.18                        | 137                         | 2.27                         | 26                          |
| 51                      | 35                        | 12.45                        | 50                          | 2.87                         | 135                         |
| 51                      | 36                        | 39.37                        | 99                          | 1.79                         | 8                           |
| 51                      | 37                        | 61.71                        | 78                          | 2.03                         | 0                           |
| 51                      | 38                        | 11.13                        | 34                          | 1.84                         | 105                         |
| 51                      | 39                        | 7.64                         | 74                          | 1.27                         | 0                           |
| 51                      | 40                        | 15.25                        | 92                          | 1.27                         | 0                           |
| 51                      | 41                        | 19.37                        | 79                          | 1.27                         | 0                           |
| 51                      | 42                        | 14.16                        | 57                          | 1.48                         | 149                         |
| 51                      | 43                        | 17.39                        | 83                          | 2.04                         | 7                           |
| 51                      | 44                        | 29.87                        | 142                         | 1.98                         | 50                          |
| 51                      | 45                        | 7.39                         | 15                          | 1.84                         | 105                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 51                      | 46                        | 41.06                        | 16                          | 0.8                          | 108                         |
| 51                      | 47                        | 37.71                        | 164                         | 1.07                         | 44                          |
| 51                      | 48                        | 27.47                        | 103                         | 1.29                         | 168                         |
| 51                      | 49                        | 6.39                         | 173                         | 3.09                         | 80                          |
| 51                      | 50                        | 15.56                        | 151                         | 1.62                         | 51                          |
| 51                      | 51                        | 9.52                         | 43                          | 3.88                         | 101                         |
| 51                      | 52                        | 25.09                        | 58                          | 1.7                          | 153                         |
| 51                      | 53                        | 27.29                        | 95                          | 1.29                         | 11                          |
| 51                      | 54                        | 14.53                        | 84                          | 1.29                         | 11                          |
| 51                      | 55                        | 22.55                        | 97                          | 2.28                         | 0                           |
| 51                      | 56                        | 70.13                        | 68                          | 6.03                         | 165                         |
| 51                      | 57                        | 45.79                        | 17                          | 2.39                         | 122                         |
| 51                      | 58                        | 76.83                        | 68                          | 2.87                         | 135                         |
| 51                      | 59                        | 21.14                        | 35                          | 3.1                          | 124                         |
| 51                      | 60                        | 25.54                        | 131                         | 1.13                         | 26                          |
| 51                      | 61                        | 18.9                         | 59                          | 2.74                         | 146                         |
| 51                      | 62                        | 5.86                         | 85                          | 1.27                         | 0                           |
| 51                      | 63                        | 21.07                        | 74                          | 1.01                         | 0                           |
| 51                      | 64                        | 15.66                        | 19                          | 2.17                         | 110                         |
| 51                      | 65                        | 16.9                         | 147                         | 2.34                         | 49                          |
| 51                      | 66                        | 20.78                        | 141                         | 3.06                         | 65                          |
| 51                      | 67                        | 17.68                        | 35                          | 2.17                         | 110                         |
| 51                      | 68                        | 10.42                        | 55                          | 1.83                         | 146                         |
| 51                      | 69                        | 17.96                        | 98                          | 1.77                         | 0                           |
| 51                      | 70                        | 23.74                        | 63                          | 1.29                         | 168                         |
| 51                      | 71                        | 19.44                        | 19                          | 1.27                         | 90                          |
| 51                      | 72                        | 32.05                        | 65                          | 1.54                         | 170                         |
| 51                      | 73                        | 15.21                        | 75                          | 2.55                         | 174                         |
| 51                      | 74                        | 20.91                        | 65                          | 2.09                         | 165                         |
| 51                      | 75                        | 15.21                        | 75                          | 1.52                         | 0                           |
| 51                      | 76                        | 20.33                        | 177                         | 2.3                          | 96                          |
| 51                      | 77                        | 23.45                        | 72                          | 2.59                         | 168                         |
| 52                      | 1                         | 48.13                        | 54                          | 1.54                         | 170                         |
| 52                      | 2                         | 2.54                         | 0                           | 2.03                         | 90                          |
| 52                      | 3                         | 99.05                        | 158                         | 2.34                         | 77                          |
| 52                      | 4                         | 18.01                        | 21                          | 2.28                         | 90                          |
| 52                      | 5                         | 20.72                        | 11                          | 2.28                         | 90                          |
| 52                      | 6                         | 20.58                        | 128                         | 1.79                         | 8                           |
| 52                      | 7                         | 24.05                        | 158                         | 3.09                         | 80                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 52                             | 8                                | 38.56                               | 160                                | 1.62                                | 51                                 |
| 52                             | 9                                | 18                                  | 163                                | 1.36                                | 68                                 |
| 52                             | 10                               | 72.08                               | 73                                 | 2.28                                | 0                                  |
| 52                             | 11                               | 45.79                               | 67                                 | 2.03                                | 0                                  |
| 52                             | 12                               | 7.82                                | 76                                 | 5.92                                | 170                                |
| 52                             | 13                               | 28.42                               | 114                                | 6.35                                | 0                                  |
| 52                             | 14                               | 15.34                               | 109                                | 2.04                                | 7                                  |
| 52                             | 15                               | 34.63                               | 175                                | 1.79                                | 81                                 |
| 52                             | 16                               | 32.03                               | 165                                | 1.77                                | 90                                 |
| 52                             | 17                               | 19.81                               | 157                                | 1.77                                | 90                                 |
| 52                             | 18                               | 7.15                                | 83                                 | 3.3                                 | 0                                  |
| 52                             | 19                               | 5.84                                | 90                                 | 2.28                                | 0                                  |
| 52                             | 20                               | 7.97                                | 37                                 | 4.32                                | 176                                |
| 52                             | 21                               | 2.3                                 | 6                                  | 1.77                                | 90                                 |
| 52                             | 22                               | 16.69                               | 146                                | 1.79                                | 81                                 |
| 52                             | 23                               | 2.54                                | 0                                  | 1.54                                | 99                                 |
| 52                             | 24                               | 16.76                               | 90                                 | 2.54                                | 0                                  |
| 52                             | 25                               | 15.29                               | 57                                 | 2.04                                | 172                                |
| 52                             | 26                               | 20.72                               | 36                                 | 2.89                                | 127                                |
| 52                             | 27                               | 18.31                               | 56                                 | 2.09                                | 165                                |
| 52                             | 28                               | 78.02                               | 49                                 | 2.17                                | 159                                |
| 52                             | 29                               | 15.02                               | 86                                 | 6.62                                | 175                                |
| 52                             | 30                               | 3.04                                | 0                                  | 2.83                                | 79                                 |
| 52                             | 31                               | 7.08                                | 165                                | 6.27                                | 68                                 |
| 52                             | 32                               | 2.79                                | 90                                 | 2.04                                | 7                                  |
| 52                             | 33                               | 2.7                                 | 131                                | 2.17                                | 20                                 |
| 52                             | 34                               | 5.38                                | 19                                 | 2.28                                | 90                                 |
| 52                             | 35                               | 8.68                                | 20                                 | 2.83                                | 116                                |
| 52                             | 36                               | 4.81                                | 108                                | 2.34                                | 40                                 |
| 52                             | 37                               | 6.5                                 | 141                                | 1.48                                | 59                                 |
| 52                             | 38                               | 8.38                                | 90                                 | 1.77                                | 0                                  |
| 52                             | 39                               | 3.88                                | 101                                | 2.17                                | 20                                 |
| 52                             | 40                               | 5.61                                | 95                                 | 4.1                                 | 21                                 |
| 52                             | 41                               | 2.73                                | 158                                | 1.77                                | 90                                 |
| 53                             | 1                                | 52.61                               |                                    | 1.07                                | 135                                |
| 53                             | 2                                | 86.2                                | 177                                | 1.27                                | 53                                 |
| 53                             | 3                                | 37.9                                | 176                                | 2.09                                | 75                                 |
| 53                             | 4                                | 66.87                               | 177                                | 1.27                                | 90                                 |
| 53                             | 5                                | 20.14                               | 103                                | 1.27                                | 0                                  |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 53                      | 6                         | 25.9                         | 90                          | 1.13                         | 153                         |
| 53                      | 7                         | 31.85                        | 85                          | 2.61                         | 150                         |
| 53                      | 8                         | 22.91                        | 54                          | 3.4                          | 116                         |
| 53                      | 9                         | 49.95                        | 39                          | 3.3                          | 112                         |
| 53                      | 10                        | 32.73                        | 24                          | 3.06                         | 114                         |
| 53                      | 11                        | 25.28                        | 22                          | 1.83                         | 123                         |
| 53                      | 12                        | 30.15                        | 23                          | 2.04                         | 119                         |
| 53                      | 13                        | 15                           | 33                          | 2.27                         | 116                         |
| 53                      | 14                        | 18.03                        | 32                          | 3.31                         | 122                         |
| 53                      | 15                        | 16.45                        | 98                          | 1.01                         | 0                           |
| 53                      | 16                        | 35.6                         | 92                          | 1.54                         | 170                         |
| 53                      | 17                        | 6.98                         | 109                         | 1.48                         | 30                          |
| 53                      | 18                        | 9.49                         | 164                         | 5.67                         | 100                         |
| 53                      | 19                        | 11.43                        | 88                          | 1.79                         | 171                         |
| 53                      | 20                        | 22.15                        | 86                          | 1.54                         | 9                           |
| 53                      | 21                        | 12.45                        | 163                         | 1.6                          | 71                          |
| 53                      | 22                        | 29.62                        | 5                           | 1.04                         | 104                         |
| 53                      | 23                        | 27.26                        | 152                         | 1.04                         | 75                          |
| 53                      | 24                        | 28.19                        | 150                         | 1.07                         | 44                          |
| 53                      | 25                        | 20.32                        | 143                         | 0.91                         | 56                          |
| 53                      | 26                        | 17.96                        | 146                         | 1.27                         | 53                          |
| 53                      | 27                        | 34.34                        | 82                          | 3.66                         | 146                         |
| 53                      | 28                        | 39.76                        | 48                          | 1.27                         | 126                         |
| 53                      | 29                        | 26.37                        | 28                          | 2.27                         | 116                         |
| 53                      | 30                        | 39.37                        | 178                         | 1.29                         | 101                         |
| 53                      | 31                        | 38.1                         | 179                         | 1.01                         | 90                          |
| 53                      | 32                        | 18.54                        | 179                         | 1.01                         | 90                          |
| 53                      | 33                        | 8.07                         | 114                         | 1.77                         | 0                           |
| 53                      | 34                        | 8.44                         | 136                         | 1.07                         | 44                          |
| 53                      | 35                        | 8.37                         | 104                         | 0.76                         | 0                           |
| 53                      | 36                        | 63.71                        | 70                          | 2.27                         | 153                         |
| 53                      | 37                        | 12.07                        | 22                          | 2.09                         | 104                         |
| 53                      | 38                        | 49.43                        | 16                          | 2.04                         | 97                          |
| 53                      | 39                        | 44.47                        | 13                          | 1.77                         | 90                          |
| 53                      | 40                        | 7.97                         | 9                           | 2.5                          | 113                         |
| 53                      | 41                        | 14.9                         | 13                          | 1.6                          | 108                         |
| 53                      | 42                        | 30.49                        | 150                         | 2.74                         | 56                          |
| 53                      | 43                        | 48.27                        | 178                         | 1.77                         | 90                          |
| 53                      | 44                        | 28.95                        | 179                         | 1.29                         | 78                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 53                             | 45                               | 26.45                               | 176                                | 0.91                                | 56                                 |
| 53                             | 46                               | 20.07                               | 38                                 | 3.1                                 | 124                                |
| 53                             | 47                               | 43.23                               | 73                                 | 2.83                                | 153                                |
| 53                             | 48                               | 47.68                               | 104                                | 2.79                                | 0                                  |
| 53                             | 49                               | 15.1                                | 70                                 | 3.87                                | 148                                |
| 53                             | 50                               | 18.47                               | 71                                 | 1.29                                | 168                                |
| 53                             | 51                               | 13.86                               | 76                                 | 1.79                                | 171                                |
| 53                             | 52                               | 47.09                               | 137                                | 1.07                                | 44                                 |
| 53                             | 53                               | 11.56                               | 19                                 | 1.98                                | 140                                |
| 53                             | 54                               | 11.43                               | 36                                 | 1.98                                | 129                                |
| 53                             | 55                               | 4.74                                | 105                                | 2.89                                | 15                                 |
| 53                             | 56                               | 31.99                               | 163                                | 1.13                                | 63                                 |
| 53                             | 57                               | 12.14                               | 37                                 | 1.62                                | 128                                |
| 53                             | 58                               | 14.91                               | 42                                 | 2.4                                 | 161                                |
| 53                             | 59                               | 29.4                                | 148                                | 0.56                                | 63                                 |
| 53                             | 60                               | 10.92                               | 91                                 | 1.27                                | 0                                  |
| 53                             | 61                               | 9.3                                 | 55                                 | 1.62                                | 128                                |
| 53                             | 62                               | 16.85                               | 83                                 | 1.77                                | 0                                  |
| 53                             | 63                               | 16.69                               | 116                                | 1.29                                | 11                                 |
| 53                             | 64                               | 14.72                               | 57                                 | 1.27                                | 143                                |
| 53                             | 65                               | 17.8                                | 137                                | 1.27                                | 36                                 |
| 53                             | 66                               | 24.55                               | 140                                | 0.91                                | 56                                 |
| 53                             | 67                               | 23.74                               | 145                                | 0.8                                 | 71                                 |
| 53                             | 68                               | 18.52                               | 42                                 | 1.98                                | 140                                |
| 53                             | 69                               | 12.61                               | 139                                | 4.01                                | 34                                 |
| 53                             | 70                               | 33.28                               | 38                                 | 3.25                                | 128                                |
| 53                             | 71                               | 30.58                               | 52                                 | 2.89                                | 164                                |
| 53                             | 72                               | 12.61                               | 64                                 | 2.55                                | 174                                |
| 53                             | 73                               | 33.83                               | 41                                 | 2.15                                | 135                                |
| 53                             | 74                               | 20                                  | 81                                 | 1.79                                | 8                                  |
| 53                             | 75                               | 30.48                               | 79                                 | 1.01                                | 0                                  |
| 53                             | 76                               | 12.28                               | 60                                 | 1.84                                | 164                                |
| 53                             | 77                               | 19.03                               | 18                                 | 1.48                                | 120                                |
| 53                             | 78                               | 7.05                                | 30                                 | 1.13                                | 116                                |
| 53                             | 79                               | 4.81                                | 108                                | 1.36                                | 21                                 |
| 53                             | 80                               | 5.18                                | 78                                 | 2.28                                | 0                                  |
| 53                             | 81                               | 14.72                               | 14                                 | 1.84                                | 105                                |
| 53                             | 82                               | 8.59                                | 34                                 | 2.61                                | 119                                |
| 53                             | 83                               | 14.74                               | 1                                  | 2.54                                | 90                                 |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 53                      | 84                        | 15                           | 156                         | 2.04                         | 60                          |
| 53                      | 85                        | 22.06                        | 168                         | 2.55                         | 95                          |
| 53                      | 86                        | 24.19                        | 4                           | 2.65                         | 106                         |
| 53                      | 87                        | 12.78                        | 110                         | 1.04                         | 165                         |
| 53                      | 88                        | 18.24                        | 145                         | 2.54                         | 0                           |
| 53                      | 89                        | 20.87                        | 143                         | 1.04                         | 14                          |
| 53                      | 90                        | 26.8                         | 41                          | 2.15                         | 135                         |
| 53                      | 91                        | 17.17                        | 23                          | 1.27                         | 90                          |
| 53                      | 92                        | 11.24                        | 154                         | 1.04                         | 75                          |
| 53                      | 93                        | 16.76                        | 90                          | 1.01                         | 0                           |
| 53                      | 94                        | 20.76                        | 7                           | 1.48                         | 120                         |
| 53                      | 95                        | 9.14                         | 88                          | 0.76                         | 0                           |
| 54                      | 1                         | 59.57                        | 110                         | 2.4                          | 18                          |
| 54                      | 2                         | 53.71                        | 141                         | 1.83                         | 56                          |
| 54                      | 3                         | 40.85                        | 141                         | 1.6                          | 18                          |
| 54                      | 4                         | 13.17                        | 129                         | 1.27                         | 53                          |
| 54                      | 5                         | 13.25                        | 77                          | 1.52                         | 0                           |
| 54                      | 6                         | 11.2                         | 122                         | 1.79                         | 44                          |
| 54                      | 7                         | 15.94                        | 120                         | 2.34                         | 40                          |
| 54                      | 8                         | 49.44                        | 120                         | 2.04                         | 29                          |
| 54                      | 9                         | 40.64                        | 89                          | 1.04                         | 14                          |
| 54                      | 10                        | 32.12                        | 71                          | 0.91                         | 146                         |
| 54                      | 11                        | 55.68                        | 136                         | 3.52                         | 30                          |
| 54                      | 12                        | 61.06                        | 81                          | 2.28                         | 0                           |
| 54                      | 13                        | 26.11                        | 127                         | 2.89                         | 37                          |
| 54                      | 14                        | 27.6                         | 75                          | 1.84                         | 164                         |
| 54                      | 15                        | 20.55                        | 140                         | 1.62                         | 38                          |
| 54                      | 16                        | 9.33                         | 112                         | 1.77                         | 0                           |
| 54                      | 17                        | 34.15                        | 112                         | 2.34                         | 12                          |
| 54                      | 18                        | 31.79                        | 134                         | 1.98                         | 50                          |
| 54                      | 19                        | 39.7                         | 133                         | 1.62                         | 38                          |
| 54                      | 20                        | 33.04                        | 135                         | 1.43                         | 44                          |
| 54                      | 21                        | 20.67                        | 117                         | 1.93                         | 23                          |
| 54                      | 22                        | 46.94                        | 142                         | 1.27                         | 53                          |
| 54                      | 23                        | 11.87                        | 131                         | 2.51                         | 44                          |
| 54                      | 24                        | 19.06                        | 131                         | 1.79                         | 44                          |
| 54                      | 25                        | 32.71                        | 148                         | 1.7                          | 63                          |
| 54                      | 26                        | 35.46                        | 141                         | 1.48                         | 59                          |
| 54                      | 27                        | 39.54                        | 129                         | 1.62                         | 38                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 54                             | 28                               | 30.54                               | 43                                 | 2.27                                | 153                                |
| 54                             | 29                               | 13.87                               | 113                                | 2.09                                | 14                                 |
| 54                             | 30                               | 14.59                               | 121                                | 4.5                                 | 16                                 |
| 54                             | 31                               | 4.88                                | 98                                 | 2.04                                | 7                                  |
| 54                             | 32                               | 35.46                               | 114                                | 2.74                                | 33                                 |
| 54                             | 33                               | 56.07                               | 97                                 | 1.29                                | 168                                |
| 54                             | 34                               | 23.77                               | 108                                | 2.55                                | 5                                  |
| 54                             | 35                               | 11                                  | 108                                | 1.79                                | 171                                |
| 54                             | 36                               | 21.99                               | 104                                | 1.27                                | 0                                  |
| 54                             | 37                               | 60.02                               | 98                                 | 1.52                                | 0                                  |
| 54                             | 38                               | 65.88                               | 97                                 | 1.52                                | 0                                  |
| 54                             | 39                               | 40.1                                | 141                                | 3.25                                | 51                                 |
| 54                             | 40                               | 32.04                               | 138                                | 3.4                                 | 63                                 |
| 54                             | 41                               | 27.68                               | 132                                | 1.43                                | 44                                 |
| 54                             | 42                               | 15.42                               | 107                                | 1.29                                | 11                                 |
| 54                             | 43                               | 16.44                               | 103                                | 1.29                                | 168                                |
| 54                             | 44                               | 7.62                                | 150                                | 2.04                                | 60                                 |
| 54                             | 45                               | 9.31                                | 107                                | 1.52                                | 0                                  |
| 54                             | 46                               | 12.26                               | 140                                | 2.27                                | 26                                 |
| 54                             | 47                               | 39.02                               | 113                                | 2.5                                 | 23                                 |
| 54                             | 48                               | 33.82                               | 79                                 | 1.84                                | 164                                |
| 54                             | 49                               | 25.6                                | 143                                | 2.15                                | 44                                 |
| 54                             | 50                               | 12.42                               | 139                                | 3.45                                | 53                                 |
| 54                             | 51                               | 14.38                               | 110                                | 2.65                                | 16                                 |
| 54                             | 52                               | 29.78                               | 93                                 | 2.4                                 | 161                                |
| 54                             | 53                               | 23.64                               | 87                                 | 2.8                                 | 5                                  |
| 54                             | 54                               | 4.06                                | 90                                 | 2.3                                 | 173                                |
| 54                             | 55                               | 32.76                               | 142                                | 2.87                                | 44                                 |
| 54                             | 56                               | 10.99                               | 139                                | 1.43                                | 44                                 |
| 54                             | 57                               | 46.02                               | 142                                | 1.79                                | 44                                 |
| 54                             | 58                               | 26.49                               | 145                                | 1.79                                | 44                                 |
| 54                             | 59                               | 3.41                                | 131                                | 1.79                                | 8                                  |
| 54                             | 60                               | 16.32                               | 110                                | 3.04                                | 0                                  |
| 54                             | 61                               | 21.69                               | 115                                | 2.74                                | 33                                 |
| 54                             | 62                               | 22.86                               | 89                                 | 2.03                                | 0                                  |
| 55                             | 1                                | 122.84                              | 148                                | 2.03                                | 90                                 |
| 55                             | 2                                | 45.92                               | 40                                 | 1.07                                | 135                                |
| 55                             | 3                                | 17.04                               | 93                                 | 0.76                                | 0                                  |
| 55                             | 4                                | 26.77                               | 51                                 | 0.71                                | -135                               |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 55                      | 5                         | 27                           | 148                         | 1.07                         | 44                          |
| 55                      | 6                         | 8.26                         | 44                          | 1.62                         | 128                         |
| 55                      | 7                         | 70.09                        | 56                          | 3.45                         | 143                         |
| 55                      | 8                         | 36.28                        | 80                          | 0.5                          | 0                           |
| 55                      | 9                         | 41.05                        | 79                          | 0.5                          | 0                           |
| 55                      | 10                        | 26.7                         | 55                          | 0.56                         | 153                         |
| 55                      | 11                        | 77.36                        | 129                         | 1.27                         | 53                          |
| 55                      | 12                        | 50.86                        | 87                          | 1.13                         | 153                         |
| 55                      | 13                        | 45.52                        | 87                          | 0.76                         | 0                           |
| 55                      | 14                        | 26.74                        | 22                          | 1.13                         | 116                         |
| 55                      | 15                        | 27.96                        | 34                          | 0.91                         | 146                         |
| 55                      | 16                        | 23.56                        | 48                          | 1.62                         | 141                         |
| 55                      | 17                        | 6.47                         | 25                          | 1.27                         | 90                          |
| 55                      | 18                        | 12.61                        | 9                           | 2.18                         | 54                          |
| 55                      | 19                        | 17.03                        | 72                          | 1.36                         | 158                         |
| 55                      | 20                        | 26.1                         | 70                          | 1.6                          | 161                         |
| 55                      | 21                        | 15.04                        | 68                          | 1.54                         | 170                         |
| 55                      | 22                        | 7.27                         | 12                          | 1.77                         | 90                          |
| 55                      | 23                        | 29.94                        | 57                          | 1.79                         | 135                         |
| 55                      | 24                        | 37.92                        | 50                          | 1.13                         | 153                         |
| 55                      | 25                        | 39.27                        | 53                          | 1.27                         | 143                         |
| 55                      | 26                        | 32.61                        | 56                          | 0.8                          | 161                         |
| 55                      | 27                        | 24.22                        | 60                          | 1.6                          | 161                         |
| 55                      | 28                        | 31.28                        | 7                           | 2.3                          | 96                          |
| 55                      | 29                        | 10.63                        | 56                          | 0.5                          | 0                           |
| 55                      | 30                        | 36.06                        | 78                          | 1.27                         | 0                           |
| 55                      | 31                        | 12.54                        | 31                          | 1.98                         | 129                         |
| 55                      | 32                        | 49.99                        | 73                          | 1.27                         | 0                           |
| 55                      | 33                        | 57.59                        | 72                          | 2.09                         | 165                         |
| 55                      | 34                        | 49.41                        | 62                          | 1.27                         | 143                         |
| 55                      | 35                        | 33.28                        | 15                          | 2.03                         | 90                          |
| 55                      | 36                        | 23.65                        | 14                          | 1.79                         | 81                          |
| 55                      | 37                        | 11.85                        | 9                           | 1.29                         | 78                          |
| 55                      | 38                        | 8.38                         | 144                         | 1.48                         | 30                          |
| 55                      | 39                        | 45.66                        | 64                          | 1.48                         | 149                         |
| 55                      | 40                        | 20.93                        | 35                          | 2.04                         | 150                         |
| 55                      | 41                        | 14.97                        | 75                          | 1.04                         | 165                         |
| 55                      | 42                        | 16.48                        | 56                          | 1.7                          | 153                         |
| 55                      | 43                        | 25.62                        | 72                          | 1.52                         | 0                           |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 55                             | 44                               | 55.54                               | 63                                 | 2.04                                | 150                                |
| 55                             | 45                               | 22.54                               | 56                                 | 1.7                                 | 153                                |
| 55                             | 46                               | 60.28                               | 86                                 | 1.77                                | 0                                  |
| 55                             | 47                               | 57.3                                | 40                                 | 2.39                                | 122                                |
| 55                             | 48                               | 30.07                               | 37                                 | 1.79                                | 135                                |
| 55                             | 49                               | 109.86                              | 99                                 | 1.77                                | 0                                  |
| 55                             | 50                               | 45.33                               | 62                                 | 1.52                                | 0                                  |
| 55                             | 51                               | 27.09                               | 38                                 | 1.27                                | 143                                |
| 55                             | 52                               | 64.55                               | 99                                 | 1.27                                | 0                                  |
| 55                             | 53                               | 28.81                               | 99                                 | 1.79                                | 8                                  |
| 55                             | 54                               | 27.84                               | 46                                 | 1.79                                | 135                                |
| 55                             | 55                               | 27.28                               | 151                                | 1.93                                | 66                                 |
| 55                             | 56                               | 44.01                               | 170                                | 1.01                                | 90                                 |
| 55                             | 57                               | 71.29                               | 29                                 | 3.06                                | 114                                |
| 55                             | 58                               | 40.04                               | 68                                 | 1.84                                | 164                                |
| 55                             | 59                               | 29.11                               | 47                                 | 2.51                                | 135                                |
| 55                             | 60                               | 22.52                               | 29                                 | 2.18                                | 125                                |
| 55                             | 61                               | 35.37                               | 57                                 | 2.5                                 | 156                                |
| 55                             | 62                               | 68.91                               | 158                                | 2.34                                | 77                                 |
| 55                             | 63                               | 15.49                               | 90                                 | 1.52                                | 0                                  |
| 55                             | 64                               | 17.43                               | 71                                 | 1.01                                | 0                                  |
| 55                             | 65                               | 17.54                               | 67                                 | 1.84                                | 164                                |
| 55                             | 66                               | 14.88                               | 64                                 | 1.6                                 | 161                                |
| 55                             | 67                               | 20.23                               | 61                                 | 1.01                                | 0                                  |
| 55                             | 68                               | 21.86                               | 59                                 | 1.36                                | 158                                |
| 55                             | 69                               | 2.96                                | 30                                 | 1.83                                | 123                                |
| 55                             | 70                               | 3.81                                | 36                                 | 3.23                                | 135                                |
| 55                             | 71                               | 3.81                                | 0                                  | 3.04                                | 90                                 |
| 55                             | 72                               | 4.43                                | 76                                 | 2.55                                | 174                                |
| 55                             | 73                               | 36.07                               | 88                                 | 0.8                                 | 18                                 |
| 55                             | 74                               | 27.12                               | 67                                 | 1.04                                | 14                                 |
| 55                             | 75                               | 21.3                                | 39                                 | 1.83                                | 123                                |
| 55                             | 76                               | 57.15                               | 97                                 | 1.52                                | 0                                  |
| 55                             | 77                               | 47.39                               | 94                                 | 1.01                                | 0                                  |
| 55                             | 78                               | 4.31                                | 90                                 | 2.34                                | 12                                 |
| 55                             | 79                               | 3.53                                | 21                                 | 3.04                                | 90                                 |
| 55                             | 80                               | 3.3                                 | 90                                 | 2.73                                | 21                                 |
| 55                             | 81                               | 7.47                                | 80                                 | 6.1                                 | 177                                |
| 55                             | 82                               | 14.9                                | 60                                 | 0.76                                | 0                                  |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 55                      | 83                        | 3.04                         | 0                           | 2.3                          | 96                          |
| 56                      | 1                         | 30.68                        | 109                         | 2.61                         | 29                          |
| 56                      | 2                         | 20                           | 110                         | 3.06                         | 24                          |
| 56                      | 3                         | 17.27                        | 107                         | 2.89                         | 15                          |
| 56                      | 4                         | 48.27                        | 88                          | 3.55                         | 0                           |
| 56                      | 5                         | 6.97                         | 56                          | 2.17                         | 159                         |
| 56                      | 6                         | 26.24                        | 104                         | 2.34                         | 12                          |
| 56                      | 7                         | 8.8                          | 146                         | 2.03                         | 90                          |
| 56                      | 8                         | 17.13                        | 78                          | 2.59                         | 168                         |
| 56                      | 9                         | 52.48                        | 99                          | 2.8                          | 5                           |
| 56                      | 10                        | 51.37                        | 104                         | 2.34                         | 12                          |
| 56                      | 11                        | 47.59                        | 69                          | 3.06                         | 155                         |
| 56                      | 12                        | 6.47                         | 154                         | 5.23                         | 67                          |
| 56                      | 13                        | 18                           | 106                         | 1.79                         | 8                           |
| 56                      | 14                        | 16.26                        | 104                         | 1.79                         | 8                           |
| 56                      | 15                        | 3.81                         | 90                          | 3.05                         | 4                           |
| 56                      | 16                        | 16.64                        | 102                         | 2.83                         | 26                          |
| 56                      | 17                        | 10.58                        | 149                         | 2.83                         | 63                          |
| 56                      | 18                        | 17.91                        | 161                         | 4.36                         | 54                          |
| 56                      | 19                        | 10.68                        | 118                         | 1.29                         | 78                          |
| 56                      | 20                        | 10.71                        | 103                         | 1.27                         | 0                           |
| 56                      | 21                        | 3.09                         | 99                          | 2.27                         | 26                          |
| 56                      | 22                        | 4.5                          | 163                         | 3.59                         | 98                          |
| 56                      | 23                        | 3.45                         | 36                          | 2.27                         | 116                         |
| 56                      | 24                        | 13.86                        | 61                          | 3.66                         | 146                         |
| 56                      | 25                        | 23.01                        | 67                          | 2.09                         | 165                         |
| 56                      | 26                        | 12.2                         | 102                         | 3.56                         | 4                           |
| 56                      | 27                        | 12.21                        | 16                          | 2.54                         | 90                          |
| 56                      | 28                        | 17.2                         | 106                         | 2.5                          | 23                          |
| 56                      | 29                        | 21.07                        | 102                         | 1.52                         | 0                           |
| 56                      | 30                        | 15.75                        | 110                         | 2.5                          | 23                          |
| 56                      | 31                        | 24.97                        | 80                          | 2.54                         | 0                           |
| 56                      | 32                        | 19.65                        | 104                         | 2.27                         | 26                          |
| 56                      | 33                        | 5.9                          | 64                          | 2.5                          | 156                         |
| 56                      | 34                        | 12.04                        | 137                         | 1.29                         | 78                          |
| 56                      | 35                        | 19.94                        | 136                         | 2.15                         | 44                          |
| 56                      | 36                        | 19.92                        | 17                          | 10.29                        | 105                         |
| 56                      | 37                        | 3.21                         | 18                          | 2.4                          | 108                         |
| 56                      | 38                        | 4.13                         | 47                          | 1.6                          | 161                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 56                             | 39                               | 5.57                                | 136                                | 1.62                                | 51                                 |
| 56                             | 40                               | 10.91                               | 77                                 | 4.07                                | 176                                |
| 56                             | 41                               | 6.72                                | 79                                 | 1.54                                | 170                                |
| 56                             | 42                               | 15.84                               | 111                                | 2.04                                | 29                                 |
| 56                             | 43                               | 39.77                               | 106                                | 2.89                                | 37                                 |
| 56                             | 44                               | 37.47                               | 105                                | 3.21                                | 18                                 |
| 56                             | 45                               | 2.97                                | 109                                | 2.17                                | 20                                 |
| 56                             | 46                               | 8.68                                | 110                                | 2.61                                | 29                                 |
| 56                             | 47                               | 7.43                                | 97                                 | 1.52                                | 0                                  |
| 56                             | 48                               | 18.5                                | 43                                 | 2.87                                | 135                                |
| 56                             | 49                               | 3.06                                | 114                                | 2.61                                | 29                                 |
| 56                             | 50                               | 5.1                                 | 95                                 | 3.84                                | 7                                  |
| 56                             | 51                               | 9.98                                | 104                                | 2.97                                | 19                                 |
| 56                             | 52                               | 5.94                                | 109                                | 2.27                                | 26                                 |
| 56                             | 53                               | 4.1                                 | 111                                | 1.83                                | 33                                 |
| 56                             | 54                               | 9.24                                | 15                                 | 8.02                                | 100                                |
| 56                             | 55                               | 14.16                               | 104                                | 2.83                                | 26                                 |
| 56                             | 56                               | 12.21                               | 110                                | 1.84                                | 15                                 |
| 56                             | 57                               | 36.91                               | 102                                | 3.69                                | 15                                 |
| 56                             | 58                               | 6.03                                | 75                                 | 1.93                                | 156                                |
| 56                             | 59                               | 20.11                               | 114                                | 4.36                                | 35                                 |
| 56                             | 60                               | 19.03                               | 103                                | 10.61                               | 11                                 |
| 56                             | 61                               | 7.11                                | 90                                 | 5.08                                | 177                                |
| 56                             | 62                               | 3.88                                | 101                                | 3.77                                | 19                                 |
| 56                             | 63                               | 4.07                                | 93                                 | 3.4                                 | 26                                 |
| 56                             | 64                               | 1.84                                | 15                                 | 1.84                                | 105                                |
| 56                             | 65                               | 2.09                                | 14                                 | 2.09                                | 104                                |
| 56                             | 66                               | 4.85                                | 96                                 | 2.04                                | 7                                  |
| 56                             | 67                               | 13.81                               | 36                                 | 4.01                                | 124                                |
| 58                             | 1                                | 8.98                                | 98                                 | 1.04                                | 14                                 |
| 58                             | 2                                | 36.46                               | 31                                 | 1.83                                | 123                                |
| 58                             | 3                                | 27.17                               | 110                                | 1.48                                | 30                                 |
| 58                             | 4                                | 12.23                               | 85                                 | 2.28                                | 0                                  |
| 58                             | 5                                | 28.29                               | 114                                | 3.21                                | 18                                 |
| 58                             | 6                                | 4.34                                | 69                                 | 3.14                                | 165                                |
| 58                             | 7                                | 14.81                               | 112                                | 2.54                                | 0                                  |
| 58                             | 8                                | 111.66                              | 99                                 | 2.03                                | 0                                  |
| 58                             | 9                                | 13.86                               | 118                                | 1.48                                | 30                                 |
| 58                             | 10                               | 19.31                               | 116                                | 1.93                                | 66                                 |



### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 58                             | 11                               | 36.3                                | 107                                | 1.27                                | 0                                  |
| 58                             | 12                               | 21.4                                | 85                                 | 4.88                                | 171                                |
| 58                             | 13                               | 14.29                               | 167                                | 2.5                                 | 66                                 |
| 58                             | 14                               | 12.28                               | 150                                | 2.7                                 | 48                                 |
| 58                             | 15                               | 7.4                                 | 84                                 | 2.03                                | 0                                  |
| 58                             | 16                               | 28.25                               | 93                                 | 1.27                                | 0                                  |
| 58                             | 17                               | 11.95                               | 77                                 | 4.43                                | 166                                |
| 58                             | 18                               | 23.67                               | 123                                | 1.36                                | 21                                 |
| 58                             | 19                               | 9.36                                | 102                                | 0.8                                 | 161                                |
| 58                             | 20                               | 4.13                                | 132                                | 0.8                                 | 18                                 |
| 58                             | 21                               | 10.8                                | 60                                 | 1.43                                | 135                                |
| 58                             | 22                               | 27.25                               | 140                                | 0.71                                | 44                                 |
| 58                             | 23                               | 67.72                               | 105                                | 1.13                                | 26                                 |
| 58                             | 24                               | 3.18                                | 151                                | 2.04                                | 60                                 |
| 58                             | 25                               | 55.54                               | 100                                | 1.27                                | 0                                  |
| 58                             | 26                               | 51.65                               | 101                                | 0.8                                 | 18                                 |
| 58                             | 27                               | 23.18                               | 145                                | 1.36                                | 21                                 |
| 58                             | 28                               | 58.85                               | 83                                 | 1.01                                | 0                                  |
| 58                             | 29                               | 83.7                                | 93                                 | 1.52                                | 0                                  |
| 58                             | 30                               | 11.35                               | 169                                | 2.3                                 | 83                                 |
| 58                             | 31                               | 38.73                               | 106                                | 2.04                                | 7                                  |
| 58                             | 32                               | 12.4                                | 42                                 | 4.66                                | 135                                |
| 58                             | 33                               | 7.27                                | 60                                 | 3.09                                | 170                                |
| 58                             | 34                               | 4.2                                 | 154                                | 3.97                                | 63                                 |
| 58                             | 35                               | 2.89                                | 74                                 | 2.8                                 | 5                                  |
| 58                             | 36                               | 26.94                               | 101                                | 0.76                                | 0                                  |
| 58                             | 37                               | 51.07                               | 122                                | 3.05                                | 48                                 |
| 58                             | 38                               | 54.56                               | 97                                 | 1.77                                | 0                                  |
| 58                             | 39                               | 43.28                               | 85                                 | 0.5                                 | 0                                  |
| 58                             | 40                               | 57.07                               | 94                                 | 1.79                                | 171                                |
| 58                             | 41                               | 53.53                               | 94                                 | 1.77                                | 0                                  |
| 58                             | 42                               | 23.62                               | 116                                | 1.43                                | 44                                 |
| 58                             | 43                               | 34.05                               | 92                                 | 1.01                                | 0                                  |
| 58                             | 44                               | 8.14                                | 86                                 | 1.77                                | 0                                  |
| 58                             | 45                               | 62.53                               | 92                                 | 1.01                                | 0                                  |
| 58                             | 46                               | 26.25                               | 114                                | 1.07                                | 44                                 |
| 58                             | 47                               | 20.33                               | 110                                | 1.36                                | 21                                 |
| 58                             | 48                               | 8.39                                | 176                                | 1.54                                | 80                                 |
| 58                             | 49                               | 12.44                               | 1                                  | 1.52                                | 90                                 |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 58                      | 50                        | 7.62                         | 178                         | 1.27                         | 90                          |
| 58                      | 51                        | 22.77                        | 82                          | 5.49                         | 56                          |
| 58                      | 52                        | 23.88                        | 135                         | 1.98                         | 50                          |
| 58                      | 53                        | 23.11                        | 54                          | 1.27                         | 143                         |
| 58                      | 54                        | 10.27                        | 140                         | 1.27                         | 53                          |
| 58                      | 55                        | 10.42                        | 136                         | 1.13                         | 26                          |
| 58                      | 56                        | 60.68                        | 100                         | 7.63                         | 3                           |
| 58                      | 57                        | 33.51                        | 104                         | 1.13                         | 26                          |
| 58                      | 58                        | 32.09                        | 103                         | 1.04                         | 165                         |
| 58                      | 59                        | 26.25                        | 12                          | 1.29                         | 101                         |
| 58                      | 60                        | 30.71                        | 97                          | 1.77                         | 0                           |
| 58                      | 61                        | 10.23                        | 119                         | 1.7                          | 26                          |
| 58                      | 62                        | 18.69                        | 137                         | 1.79                         | 81                          |
| 59                      | 1                         | 44.85                        | 76                          | 2.03                         | 0                           |
| 59                      | 2                         | 34.68                        | 76                          | 2.4                          | 161                         |
| 59                      | 3                         | 13.2                         | 0                           | 2.28                         | 90                          |
| 59                      | 4                         | 56.45                        | 47                          | 1.48                         | 120                         |
| 59                      | 5                         | 16.32                        | 159                         | 3.06                         | 65                          |
| 59                      | 6                         | 14.19                        | 116                         | 2.27                         | 26                          |
| 59                      | 7                         | 33.8                         | 120                         | 2.3                          | 6                           |
| 59                      | 8                         | 16.78                        | 79                          | 1.54                         | 170                         |
| 59                      | 9                         | 26.71                        | 119                         | 2.18                         | 35                          |
| 59                      | 10                        | 26.26                        | 99                          | 1.27                         | 0                           |
| 59                      | 11                        | 36.79                        | 125                         | 1.79                         | 44                          |
| 59                      | 12                        | 70.6                         | 71                          | 2.73                         | 158                         |
| 59                      | 13                        | 11.74                        | 128                         | 1.79                         | 44                          |
| 59                      | 14                        | 9.42                         | 117                         | 0.56                         | 26                          |
| 59                      | 15                        | 8.89                         | 90                          | 2.34                         | 12                          |
| 59                      | 16                        | 23.88                        | 147                         | 1.93                         | 66                          |
| 59                      | 17                        | 44.01                        | 83                          | 2.55                         | 174                         |
| 59                      | 18                        | 33.52                        | 96                          | 2.03                         | 0                           |
| 59                      | 19                        | 27.27                        | 85                          | 0.5                          | 0                           |
| 59                      | 20                        | 23.53                        | 103                         | 1.79                         | 8                           |
| 59                      | 21                        | 2.28                         | 90                          | 1.52                         | 0                           |
| 59                      | 22                        | 2.54                         | 0                           | 1.79                         | 98                          |
| 59                      | 23                        | 2.55                         | 84                          | 2.04                         | 172                         |
| 59                      | 24                        | 4.18                         | 14                          | 1.7                          | 116                         |
| 59                      | 25                        | 10.78                        | 46                          | 4.87                         | 128                         |
| 59                      | 26                        | 18.24                        | 171                         | 2.04                         | 60                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 59                      | 27                        | 11.1                         | 100                         | 2.34                         | 12                          |
| 59                      | 28                        | 22.17                        | 50                          | 1.98                         | 140                         |
| 59                      | 29                        | 19.44                        | 107                         | 1.93                         | 23                          |
| 59                      | 30                        | 15.02                        | 71                          | 3.84                         | 172                         |
| 59                      | 31                        | 10.92                        | 72                          | 2.59                         | 168                         |
| 59                      | 32                        | 47.65                        | 94                          | 2.8                          | 5                           |
| 59                      | 33                        | 52.06                        | 34                          | 2.96                         | 120                         |
| 59                      | 34                        | 62.73                        | 108                         | 3.66                         | 33                          |
| 59                      | 35                        | 23.41                        | 61                          | 2.17                         | 159                         |
| 59                      | 36                        | 17.52                        | 90                          | 2.03                         | 0                           |
| 59                      | 37                        | 38.67                        | 128                         | 2.34                         | 40                          |
| 59                      | 38                        | 21.39                        | 132                         | 3.1                          | 34                          |
| 59                      | 39                        | 5.38                         | 109                         | 1.83                         | 33                          |
| 59                      | 40                        | 6.81                         | 116                         | 2.54                         | 0                           |
| 59                      | 41                        | 20.92                        | 79                          | 2.89                         | 164                         |
| 59                      | 42                        | 21.62                        | 77                          | 4.85                         | 173                         |
| 59                      | 43                        | 11.24                        | 83                          | 1.52                         | 0                           |
| 59                      | 44                        | 5.84                         | 90                          | 2.54                         | 0                           |
| 59                      | 45                        | 6.9                          | 173                         | 5.63                         | 82                          |
| 59                      | 46                        | 13.34                        | 158                         | 4.52                         | 51                          |
| 59                      | 47                        | 13.52                        | 61                          | 1.48                         | 149                         |
| 59                      | 48                        | 14.72                        | 57                          | 2.15                         | 135                         |
| 59                      | 49                        | 6.66                         | 17                          | 1.77                         | 90                          |
| 59                      | 50                        | 7.97                         | 142                         | 1.83                         | 56                          |
| 59                      | 51                        | 12.31                        | 111                         | 1.07                         | 44                          |
| 59                      | 52                        | 6.53                         | 13                          | 1.04                         | 75                          |
| 59                      | 53                        | 12.75                        | 102                         | 1.52                         | 0                           |
| 59                      | 54                        | 18.99                        | 119                         | 1.7                          | 26                          |
| 59                      | 55                        | 11.47                        | 117                         | 1.98                         | 39                          |
| 59                      | 56                        | 6.43                         | 80                          | 1.77                         | 0                           |
| 59                      | 57                        | 2.3                          | 173                         | 1.54                         | 80                          |
| 59                      | 58                        | 9.42                         | 14                          | 1.79                         | 81                          |
| 59                      | 59                        | 10.28                        | 32                          | 2.51                         | 135                         |
| 59                      | 60                        | 9.99                         | 27                          | 2.39                         | 122                         |
| 59                      | 61                        | 12.5                         | 150                         | 1.98                         | 50                          |
| 59                      | 62                        | 15.42                        | 69                          | 2.73                         | 158                         |
| 59                      | 63                        | 11.76                        | 57                          | 1.7                          | 153                         |
| 59                      | 64                        | 8.98                         | 118                         | 1.79                         | 44                          |
| 59                      | 65                        | 32.37                        | 85                          | 2.28                         | 0                           |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 59                      | 66                        | 35.61                        | 66                          | 3.97                         | 153                         |
| 59                      | 67                        | 18.66                        | 123                         | 2.54                         | 36                          |
| 59                      | 68                        | 19.82                        | 87                          | 2.04                         | 7                           |
| 59                      | 69                        | 16.77                        | 57                          | 1.36                         | 158                         |
| 59                      | 70                        | 7.43                         | 7                           | 2.79                         | 90                          |
| 59                      | 71                        | 14.55                        | 119                         | 1.36                         | 21                          |
| 59                      | 72                        | 20.58                        | 80                          | 2.28                         | 0                           |
| 59                      | 73                        | 11.82                        | 104                         | 1.27                         | 0                           |
| 59                      | 74                        | 6.2                          | 34                          | 2.09                         | 104                         |
| 59                      | 75                        | 4.09                         | 60                          | 1.62                         | 141                         |
| 59                      | 76                        | 11.35                        | 100                         | 1.52                         | 0                           |
| 59                      | 77                        | 10.12                        | 107                         | 2.17                         | 20                          |
| 59                      | 78                        | 23.51                        | 153                         | 1.84                         | 74                          |
| 59                      | 79                        | 15.89                        | 102                         | 2.09                         | 14                          |
| 59                      | 80                        | 6.1                          | 87                          | 3.21                         | 18                          |
| 59                      | 81                        | 1.79                         | 98                          | 1.77                         | 0                           |
| 59                      | 82                        | 10.71                        | 95                          | 9.14                         | 0                           |
| 59                      | 83                        | 8.44                         | 158                         | 1.36                         | 68                          |
| 59                      | 84                        | 7.27                         | 150                         | 1.83                         | 56                          |
| 59                      | 85                        | 8.68                         | 142                         | 1.62                         | 51                          |
| 59                      | 86                        | 12.45                        | 69                          | 1.6                          | 161                         |
| 59                      | 87                        | 13.21                        | 1                           | 2.55                         | 95                          |
| 59                      | 88                        | 11.92                        | 63                          | 3.31                         | 147                         |
| 59                      | 89                        | 6.05                         | 123                         | 2.39                         | 32                          |
| 59                      | 90                        | 10.16                        | 77                          | 2.03                         | 0                           |
| 59                      | 91                        | 2.51                         | 44                          | 1.83                         | 123                         |
| 59                      | 92                        | 2.73                         | 21                          | 2.55                         | 95                          |
| 59                      | 93                        | 25.55                        | 96                          | 2.83                         | 10                          |
| 59                      | 94                        | 7.18                         | 98                          | 3.59                         | 8                           |
| 59                      | 95                        | 11.03                        | 66                          | 1.6                          | 161                         |
| 59                      | 96                        | 12.78                        | 139                         | 1.48                         | 59                          |
| 59                      | 97                        | 17.18                        | 18                          | 1.54                         | 99                          |
| 59                      | 98                        | 35.71                        | 84                          | 2.8                          | 5                           |
| 59                      | 99                        | 12.74                        | 156                         | 2.55                         | 84                          |
| 59                      | 100                       | 3.81                         | 3                           | 3.55                         | 90                          |
| 59                      | 101                       | 2.83                         | 10                          | 2.04                         | 97                          |
| 59                      | 102                       | 11.44                        | 92                          | 2.17                         | 20                          |
| 59                      | 103                       | 5.59                         | 39                          | 2.39                         | 122                         |
| 59                      | 104                       | 38.2                         | 54                          | 2.27                         | 153                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 59                      | 105                       | 15.34                        | 118                         | 1.79                         | 44                          |
| 59                      | 106                       | 7.33                         | 14                          | 2.3                          | 96                          |
| 59                      | 107                       | 11.35                        | 130                         | 1.62                         | 51                          |
| 59                      | 108                       | 13.97                        | 19                          | 1.48                         | 120                         |
| 59                      | 109                       | 27.24                        | 106                         | 1.48                         | 30                          |
| 59                      | 110                       | 1.84                         | 105                         | 1.77                         | 0                           |
| 59                      | 111                       | 5.57                         | 155                         | 3.69                         | 105                         |
| 59                      | 112                       | 15.07                        | 122                         | 2.17                         | 20                          |
| 59                      | 113                       | 56.06                        | 162                         | 1.84                         | 74                          |
| 59                      | 114                       | 10.21                        | 174                         | 3.09                         | 80                          |
| 59                      | 115                       | 38.61                        | 45                          | 2.34                         | 139                         |
| 59                      | 116                       | 21.7                         | 110                         | 3.05                         | 4                           |
| 59                      | 117                       | 29.45                        | 113                         | 1.93                         | 23                          |
| 59                      | 118                       | 19.41                        | 83                          | 2.03                         | 0                           |
| 59                      | 119                       | 18.39                        | 54                          | 1.7                          | 153                         |
| 59                      | 120                       | 23.47                        | 54                          | 3.25                         | 141                         |
| 59                      | 121                       | 22.09                        | 72                          | 2.79                         | 0                           |
| 59                      | 122                       | 26.01                        | 62                          | 2.5                          | 156                         |
| 59                      | 123                       | 4.85                         | 47                          | 2.7                          | 138                         |
| 59                      | 124                       | 5.84                         | 90                          | 3.55                         | 0                           |
| 59                      | 125                       | 12.99                        | 94                          | 3.34                         | 8                           |
| 59                      | 126                       | 30.99                        | 49                          | 2.97                         | 160                         |
| 59                      | 127                       | 9.58                         | 122                         | 1.62                         | 38                          |
| 59                      | 128                       | 9.08                         | 116                         | 2.34                         | 40                          |
| 59                      | 129                       | 10.08                        | 139                         | 4.44                         | 59                          |
| 59                      | 130                       | 25.09                        | 31                          | 2.89                         | 127                         |
| 59                      | 131                       | 13.41                        | 127                         | 2.27                         | 63                          |
| 59                      | 132                       | 21.51                        | 30                          | 1.48                         | 120                         |
| 59                      | 133                       | 23.9                         | 75                          | 1.52                         | 0                           |
| 59                      | 134                       | 16.21                        | 54                          | 2.18                         | 144                         |
| 59                      | 135                       | 39.12                        | 91                          | 4.88                         | 8                           |
| 59                      | 136                       | 39.11                        | 108                         | 2.39                         | 32                          |
| 59                      | 137                       | 13.92                        | 128                         | 3.66                         | 56                          |
| 59                      | 138                       | 7.18                         | 98                          | 2.04                         | 7                           |
| 59                      | 139                       | 20.37                        | 100                         | 2.04                         | 29                          |
| 59                      | 140                       | 18.23                        | 102                         | 1.36                         | 21                          |
| 59                      | 141                       | 40.55                        | 40                          | 3.06                         | 155                         |
| 59                      | 142                       | 15.18                        | 107                         | 3.09                         | 9                           |
| 59                      | 143                       | 5.34                         | 177                         | 3.56                         | 85                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 59                             | 144                              | 31.07                               | 57                                 | 2.27                                | 153                                |
| 59                             | 145                              | 9.7                                 | 132                                | 3.06                                | 24                                 |
| 59                             | 146                              | 23.11                               | 22                                 | 2.73                                | 111                                |
| 59                             | 147                              | 17.47                               | 35                                 | 2.74                                | 123                                |
| 59                             | 148                              | 28.92                               | 20                                 | 4.43                                | 113                                |
| 59                             | 149                              | 13.59                               | 147                                | 4.9                                 | 68                                 |
| 59                             | 150                              | 4.06                                | 90                                 | 2.03                                | 0                                  |
| 59                             | 151                              | 25.52                               | 132                                | 1.48                                | 30                                 |
| 59                             | 152                              | 27.74                               | 78                                 | 2.65                                | 163                                |
| 59                             | 153                              | 5.47                                | 111                                | 2.83                                | 10                                 |
| 59                             | 154                              | 10.44                               | 108                                | 1.6                                 | 18                                 |
| 59                             | 155                              | 7.33                                | 104                                | 1.48                                | 30                                 |
| 59                             | 156                              | 16.54                               | 107                                | 2.04                                | 29                                 |
| 59                             | 157                              | 36.21                               | 84                                 | 2.28                                | 0                                  |
| 59                             | 158                              | 12.79                               | 96                                 | 2.17                                | 20                                 |
| 59                             | 159                              | 8.38                                | 90                                 | 1.29                                | 11                                 |
| 59                             | 160                              | 8.63                                | 1                                  | 4.07                                | 86                                 |
| 59                             | 161                              | 7.18                                | 122                                | 1.27                                | 36                                 |
| 59                             | 162                              | 10.27                               | 81                                 | 2.79                                | 0                                  |
| 59                             | 163                              | 4.6                                 | 173                                | 2.8                                 | 84                                 |
| 59                             | 164                              | 6.6                                 | 112                                | 2.83                                | 10                                 |
| 59                             | 165                              | 16.54                               | 86                                 | 1.29                                | 168                                |
| 59                             | 166                              | 3.77                                | 109                                | 2.04                                | 29                                 |
| 61                             | 1                                | 49.31                               | 56                                 | 1.43                                | 135                                |
| 61                             | 2                                | 22.61                               | 91                                 | 1.01                                | 0                                  |
| 61                             | 3                                | 45.59                               | 77                                 | 1.01                                | 0                                  |
| 61                             | 4                                | 24.67                               | 81                                 | 1.27                                | 0                                  |
| 61                             | 5                                | 44.45                               | 90                                 | 1.52                                | 0                                  |
| 61                             | 6                                | 43.69                               | 77                                 | 1.01                                | 0                                  |
| 61                             | 7                                | 18.4                                | 39                                 | 2.27                                | 116                                |
| 61                             | 8                                | 41.55                               | 138                                | 1.48                                | 30                                 |
| 61                             | 9                                | 36.2                                | 49                                 | 1.93                                | 113                                |
| 61                             | 10                               | 36.36                               | 61                                 | 1.6                                 | 161                                |
| 61                             | 11                               | 49.3                                | 27                                 | 1.48                                | 120                                |
| 61                             | 12                               | 32.17                               | 174                                | 1.62                                | 51                                 |
| 61                             | 13                               | 46.76                               | 17                                 | 1.93                                | 113                                |
| 61                             | 14                               | 77.69                               | 97                                 | 1.77                                | 0                                  |
| 61                             | 15                               | 27.6                                | 63                                 | 1.29                                | 168                                |
| 61                             | 16                               | 32.12                               | 34                                 | 1.6                                 | 108                                |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 61                      | 17                        | 4.25                         | 72                          | 1.52                         | 0                           |
| 61                      | 18                        | 72.56                        | 20                          | 1.84                         | 105                         |
| 61                      | 19                        | 64.36                        | 168                         | 1.48                         | 59                          |
| 61                      | 20                        | 4.09                         | 97                          | 3.38                         | 12                          |
| 61                      | 21                        | 53.26                        | 17                          | 2.04                         | 119                         |
| 61                      | 22                        | 73.4                         | 140                         | 1.52                         | 90                          |
| 61                      | 23                        | 32                           | 89                          | 0.56                         | 26                          |
| 61                      | 24                        | 37.27                        | 84                          | 2.04                         | 150                         |
| 61                      | 25                        | 24.35                        | 78                          | 2.4                          | 161                         |
| 61                      | 26                        | 28.95                        | 76                          | 2.3                          | 173                         |
| 61                      | 27                        | 29.62                        | 59                          | 1.83                         | 146                         |
| 61                      | 28                        | 13.97                        | 92                          | 1.01                         | 0                           |
| 61                      | 29                        | 30.8                         | 86                          | 1.36                         | 158                         |
| 61                      | 30                        | 15.35                        | 55                          | 1.27                         | 126                         |
| 61                      | 31                        | 22.45                        | 44                          | 2.7                          | 131                         |
| 61                      | 32                        | 13.18                        | 74                          | 1.01                         | 0                           |
| 61                      | 33                        | 16.39                        | 139                         | 1.07                         | 44                          |
| 61                      | 34                        | 31.82                        | 171                         | 4.07                         | 93                          |
| 61                      | 35                        | 12.56                        | 104                         | 1.77                         | 0                           |
| 61                      | 36                        | 28.06                        | 99                          | 1.27                         | 0                           |
| 61                      | 37                        | 27.6                         | 96                          | 2.65                         | 163                         |
| 61                      | 38                        | 17.47                        | 32                          | 1.83                         | 123                         |
| 61                      | 39                        | 40.23                        | 28                          | 2.34                         | 130                         |
| 61                      | 40                        | 36.84                        | 13                          | 2.09                         | 104                         |
| 61                      | 41                        | 45.11                        | 54                          | 2.83                         | 153                         |
| 61                      | 42                        | 39.13                        | 6                           | 1.6                          | 71                          |
| 61                      | 43                        | 17.04                        | 28                          | 2.34                         | 130                         |
| 61                      | 44                        | 16.79                        | 93                          | 3.81                         | 3                           |
| 61                      | 45                        | 23.41                        | 167                         | 2.34                         | 49                          |
| 61                      | 46                        | 27.6                         | 165                         | 1.27                         | 53                          |
| 61                      | 47                        | 9.53                         | 48                          | 2.09                         | 165                         |
| 61                      | 48                        | 17.04                        | 65                          | 2.17                         | 159                         |
| 61                      | 49                        | 38.74                        | 104                         | 1.54                         | 9                           |
| 61                      | 50                        | 32.14                        | 45                          | 1.62                         | 141                         |
| 61                      | 51                        | 6.02                         | 27                          | 3.88                         | 101                         |
| 61                      | 52                        | 5.8                          | 156                         | 4.13                         | 79                          |
| 61                      | 53                        | 16.75                        | 104                         | 0.8                          | 18                          |
| 61                      | 54                        | 47.07                        | 17                          | 3.05                         | 94                          |
| 61                      | 55                        | 41.23                        | 154                         | 1.62                         | 51                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 61                             | 56                               | 25.15                               | 133                                | 2.34                                | 49                                 |
| 61                             | 57                               | 5.06                                | 72                                 | 1.54                                | 170                                |
| 61                             | 58                               | 30.1                                | 84                                 | 1.84                                | 164                                |
| 61                             | 59                               | 41.4                                | 90                                 | 1.79                                | 171                                |
| 61                             | 60                               | 43.09                               | 78                                 | 2.83                                | 169                                |
| 61                             | 61                               | 18.95                               | 72                                 | 1.01                                | 0                                  |
| 61                             | 62                               | 24.87                               | 57                                 | 2.5                                 | 156                                |
| 61                             | 63                               | 3.53                                | 21                                 | 2.83                                | 100                                |
| 61                             | 64                               | 5.1                                 | 5                                  | 4.38                                | 100                                |
| 61                             | 65                               | 6.09                                | 90                                 | 4.57                                | 0                                  |
| 61                             | 66                               | 5.84                                | 0                                  | 4.13                                | 79                                 |
| 61                             | 67                               | 13.81                               | 57                                 | 2.34                                | 139                                |
| 61                             | 68                               | 3.59                                | 81                                 | 2.55                                | 174                                |
| 61                             | 69                               | 14.99                               | 51                                 | 1.83                                | 146                                |
| 61                             | 70                               | 21.92                               | 43                                 | 2.4                                 | 161                                |
| 61                             | 71                               | 43.39                               | 112                                | 1.54                                | 9                                  |
| 61                             | 72                               | 20.82                               | 52                                 | 1.54                                | 170                                |
| 61                             | 73                               | 23.81                               | 56                                 | 2.04                                | 150                                |
| 61                             | 74                               | 38.61                               | 179                                | 1.29                                | 101                                |
| 61                             | 75                               | 18.54                               | 76                                 | 1.52                                | 0                                  |
| 61                             | 76                               | 19.47                               | 77                                 | 1.77                                | 0                                  |
| 61                             | 77                               | 16.34                               | 57                                 | 1.13                                | 153                                |
| 61                             | 78                               | 12.68                               | 57                                 | 1.84                                | 164                                |
| 61                             | 79                               | 10.63                               | 56                                 | 2.04                                | 150                                |
| 61                             | 80                               | 14.55                               | 42                                 | 2.73                                | 158                                |
| 61                             | 81                               | 33.11                               | 85                                 | 2.03                                | 0                                  |
| 61                             | 82                               | 5.92                                | 80                                 | 1.04                                | 165                                |
| 61                             | 83                               | 14.55                               | 137                                | 2.34                                | 49                                 |
| 61                             | 84                               | 31.51                               | 40                                 | 1.62                                | 128                                |
| 61                             | 85                               | 31.81                               | 160                                | 2.18                                | 54                                 |
| 61                             | 86                               | 23.69                               | 30                                 | 1.62                                | 141                                |
| 61                             | 87                               | 51.83                               | 28                                 | 1.7                                 | 116                                |
| 62                             | 1                                | 7.27                                | 167                                | 6.37                                | 85                                 |
| 62                             | 2                                | 132.08                              | 148                                | 2.18                                | 54                                 |
| 62                             | 3                                | 55.18                               | 109                                | 1.27                                | 0                                  |
| 62                             | 4                                | 46.61                               | 94                                 | 1.01                                | 0                                  |
| 62                             | 5                                | 63.02                               | 178                                | 1.77                                | 90                                 |
| 62                             | 6                                | 97.97                               | 93                                 | 1.77                                | 0                                  |
| 62                             | 7                                | 5.63                                | 97                                 | 1.27                                | 0                                  |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 62                      | 8                         | 91.23                        | 91                          | 2.04                         | 7                           |
| 62                      | 9                         | 24.54                        | 61                          | 2.54                         | 143                         |
| 62                      | 10                        | 51.1                         | 52                          | 3.4                          | 153                         |
| 62                      | 11                        | 8.03                         | 161                         | 1.7                          | 63                          |
| 62                      | 12                        | 36.21                        | 55                          | 1.62                         | 128                         |
| 62                      | 13                        | 9.9                          | 0                           | 1.52                         | 90                          |
| 62                      | 14                        | 6.76                         | 145                         | 1.43                         | 44                          |
| 62                      | 15                        | 34.23                        | 123                         | 1.6                          | 18                          |
| 62                      | 16                        | 12.19                        | 125                         | 1.13                         | 26                          |
| 62                      | 17                        | 8.86                         | 117                         | 1.27                         | 36                          |
| 62                      | 18                        | 25.65                        | 121                         | 2.34                         | 49                          |
| 62                      | 19                        | 26.15                        | 82                          | 0.56                         | 153                         |
| 62                      | 20                        | 39.66                        | 32                          | 2.17                         | 110                         |
| 62                      | 21                        | 15.47                        | 156                         | 1.83                         | 56                          |
| 62                      | 22                        | 9.15                         | 160                         | 2.5                          | 66                          |
| 62                      | 23                        | 47.35                        | 3                           | 1.79                         | 81                          |
| 62                      | 24                        | 47.75                        | 0                           | 3.04                         | 90                          |
| 62                      | 25                        | 42.61                        | 61                          | 1.7                          | 153                         |
| 62                      | 26                        | 36.12                        | 64                          | 1.84                         | 164                         |
| 62                      | 27                        | 10.68                        | 151                         | 2.04                         | 60                          |
| 62                      | 28                        | 30.15                        | 34                          | 1.84                         | 105                         |
| 62                      | 29                        | 53.61                        | 41                          | 3.1                          | 124                         |
| 62                      | 30                        | 20.32                        | 71                          | 1.27                         | 0                           |
| 62                      | 31                        | 39.87                        | 55                          | 2.34                         | 139                         |
| 62                      | 32                        | 14.51                        | 147                         | 3.87                         | 31                          |
| 62                      | 33                        | 29.89                        | 24                          | 2.89                         | 127                         |
| 62                      | 34                        | 120.25                       | 174                         | 2.79                         | 90                          |
| 62                      | 35                        | 25.54                        | 41                          | 2.74                         | 146                         |
| 62                      | 36                        | 71.23                        | 101                         | 1.01                         | 0                           |
| 62                      | 37                        | 71.7                         | 95                          | 1.01                         | 0                           |
| 62                      | 38                        | 39.98                        | 126                         | 1.93                         | 23                          |
| 62                      | 39                        | 12.7                         | 91                          | 1.04                         | 14                          |
| 62                      | 40                        | 14.23                        | 87                          | 1.04                         | 14                          |
| 62                      | 41                        | 8.94                         | 145                         | 3.69                         | 15                          |
| 62                      | 42                        | 51.61                        | 47                          | 1.62                         | 128                         |
| 62                      | 43                        | 14.02                        | 137                         | 1.93                         | 23                          |
| 62                      | 44                        | 15.26                        | 161                         | 2.04                         | 60                          |
| 62                      | 45                        | 33.76                        | 148                         | 1.43                         | 44                          |
| 62                      | 46                        | 41.14                        | 89                          | 2.65                         | 163                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 62                      | 47                        | 22.65                        | 107                         | 2.17                         | 20                          |
| 62                      | 48                        | 23.69                        | 107                         | 1.01                         | 0                           |
| 62                      | 49                        | 18.14                        | 136                         | 1.48                         | 30                          |
| 62                      | 50                        | 30.98                        | 89                          | 2.55                         | 174                         |
| 62                      | 51                        | 17.82                        | 122                         | 2.04                         | 7                           |
| 62                      | 52                        | 9.23                         | 7                           | 1.01                         | 90                          |
| 62                      | 53                        | 29.44                        | 34                          | 2.04                         | 119                         |
| 62                      | 54                        | 29.26                        | 13                          | 2.97                         | 109                         |
| 62                      | 55                        | 17.2                         | 163                         | 3.18                         | 61                          |
| 62                      | 56                        | 9.6                          | 142                         | 1.84                         | 15                          |
| 62                      | 57                        | 19.59                        | 76                          | 1.01                         | 0                           |
| 62                      | 58                        | 40.7                         | 119                         | 2.79                         | 0                           |
| 62                      | 59                        | 39.39                        | 35                          | 2.74                         | 123                         |
| 62                      | 60                        | 53.83                        | 38                          | 2.34                         | 139                         |
| 62                      | 61                        | 22.5                         | 69                          | 2.04                         | 172                         |
| 62                      | 62                        | 15.54                        | 78                          | 2.28                         | 0                           |
| 62                      | 63                        | 11.95                        | 102                         | 1.6                          | 18                          |
| 62                      | 64                        | 26.97                        | 37                          | 4.49                         | 132                         |
| 62                      | 65                        | 13.94                        | 123                         | 1.29                         | 11                          |
| 62                      | 66                        | 44.68                        | 49                          | 2.96                         | 149                         |
| 62                      | 67                        | 21.93                        | 47                          | 2.17                         | 159                         |
| 62                      | 68                        | 44.76                        | 173                         | 1.77                         | 90                          |
| 62                      | 69                        | 53.45                        | 69                          | 1.04                         | 165                         |
| 62                      | 70                        | 31.1                         | 141                         | 2.89                         | 37                          |
| 62                      | 71                        | 58.19                        | 44                          | 2.5                          | 113                         |
| 62                      | 72                        | 72.92                        | 68                          | 3.31                         | 175                         |
| 62                      | 73                        | 96.66                        | 96                          | 1.77                         | 0                           |
| 62                      | 74                        | 73.8                         | 93                          | 1.52                         | 0                           |
| 62                      | 75                        | 46.07                        | 75                          | 1.13                         | 153                         |
| 62                      | 76                        | 41.43                        | 83                          | 1.01                         | 0                           |
| 62                      | 77                        | 50.77                        | 99                          | 1.6                          | 18                          |
| 62                      | 78                        | 23.18                        | 42                          | 1.98                         | 129                         |
| 62                      | 79                        | 2.79                         | 90                          | 2.28                         | 0                           |
| 62                      | 80                        | 20.01                        | 23                          | 1.48                         | 149                         |
| 62                      | 81                        | 41.25                        | 9                           | 1.01                         | 90                          |
| 62                      | 82                        | 22.74                        | 159                         | 1.79                         | 44                          |
| 62                      | 83                        | 20                           | 20                          | 2.09                         | 104                         |
| 62                      | 84                        | 13.54                        | 149                         | 2.03                         | 90                          |
| 62                      | 85                        | 16.07                        | 148                         | 1.7                          | 63                          |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 62                      | 86                        | 13.2                         | 149                         | 2.15                         | 44                          |
| 62                      | 87                        | 27.85                        | 77                          | 1.52                         | 0                           |
| 62                      | 88                        | 6.42                         | 71                          | 0.8                          | 161                         |
| 62                      | 89                        | 7.18                         | 81                          | 1.01                         | 0                           |
| 62                      | 90                        | 28.51                        | 152                         | 2.87                         | 44                          |
| 62                      | 91                        | 17.78                        | 21                          | 5.79                         | 105                         |
| 62                      | 92                        | 12.09                        | 39                          | 1.79                         | 135                         |
| 62                      | 93                        | 16.94                        | 19                          | 1.98                         | 129                         |
| 62                      | 94                        | 7.72                         | 117                         | 1.43                         | 44                          |
| 62                      | 95                        | 46.28                        | 87                          | 1.01                         | 0                           |
| 62                      | 96                        | 8.59                         | 161                         | 3.77                         | 70                          |
| 62                      | 97                        | 3.4                          | 153                         | 3.14                         | 75                          |
| 62                      | 98                        | 18.9                         | 131                         | 1.27                         | 36                          |
| 62                      | 99                        | 17.26                        | 122                         | 1.54                         | 9                           |
| 62                      | 100                       | 37.67                        | 86                          | 1.54                         | 9                           |
| 62                      | 101                       | 12.85                        | 119                         | 1.6                          | 18                          |
| 62                      | 102                       | 26.15                        | 78                          | 2.04                         | 7                           |
| 62                      | 103                       | 19.94                        | 83                          | 2.03                         | 0                           |
| 62                      | 104                       | 35.62                        | 38                          | 4.2                          | 154                         |
| 62                      | 105                       | 18.14                        | 43                          | 1.93                         | 156                         |
| 62                      | 106                       | 7.89                         | 56                          | 1.79                         | 135                         |
| 62                      | 107                       | 3.41                         | 41                          | 1.98                         | 129                         |
| 62                      | 108                       | 56.64                        | 90                          | 1.84                         | 15                          |
| 62                      | 109                       | 30.86                        | 129                         | 1.13                         | 63                          |
| 62                      | 110                       | 27.48                        | 136                         | 1.98                         | 50                          |
| 62                      | 111                       | 74.73                        | 92                          | 1.52                         | 0                           |
| 63                      | 1                         | 4.13                         | 100                         | 3.14                         | 14                          |
| 63                      | 2                         | 54.9                         | 20                          | 2.65                         | 106                         |
| 63                      | 3                         | 42.46                        | 53                          | 2.39                         | 147                         |
| 63                      | 4                         | 34.23                        | 56                          | 1.62                         | 141                         |
| 63                      | 5                         | 27.4                         | 55                          | 1.6                          | 161                         |
| 63                      | 6                         | 3.38                         | 77                          | 2.17                         | 159                         |
| 63                      | 7                         | 71.26                        | 30                          | 2.34                         | 130                         |
| 63                      | 8                         | 4.34                         | 83                          | 2.54                         | 0                           |
| 63                      | 9                         | 13.34                        | 68                          | 2.17                         | 159                         |
| 63                      | 10                        | 44.58                        | 108                         | 1.43                         | 44                          |
| 63                      | 11                        | 2.5                          | 23                          | 2.34                         | 102                         |
| 63                      | 12                        | 83.84                        | 6                           | 1.77                         | 90                          |
| 63                      | 13                        | 125.86                       | 62                          | 3.31                         | 147                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 63                      | 14                        | 123.86                       | 65                          | 3.45                         | 162                         |
| 63                      | 15                        | 28.11                        | 67                          | 3.77                         | 160                         |
| 63                      | 16                        | 36.03                        | 99                          | 3.56                         | 175                         |
| 63                      | 17                        | 15.9                         | 26                          | 1.93                         | 113                         |
| 63                      | 18                        | 29.19                        | 27                          | 1.62                         | 141                         |
| 63                      | 19                        | 10.92                        | 54                          | 2.03                         | 0                           |
| 63                      | 20                        | 2.27                         | 63                          | 1.54                         | 170                         |
| 63                      | 21                        | 5.23                         | 67                          | 3.69                         | 164                         |
| 63                      | 22                        | 89.23                        | 108                         | 1.79                         | 8                           |
| 63                      | 23                        | 28.91                        | 51                          | 1.79                         | 135                         |
| 63                      | 24                        | 84.37                        | 60                          | 1.36                         | 158                         |
| 63                      | 25                        | 26.49                        | 145                         | 3.18                         | 61                          |
| 63                      | 26                        | 52.88                        | 143                         | 4.16                         | 52                          |
| 63                      | 27                        | 127.08                       | 61                          | 3.31                         | 147                         |
| 63                      | 28                        | 58.38                        | 78                          | 1.04                         | 165                         |
| 63                      | 29                        | 65.85                        | 78                          | 1.27                         | 0                           |
| 63                      | 30                        | 23.42                        | 99                          | 1.04                         | 14                          |
| 63                      | 31                        | 18.85                        | 104                         | 1.36                         | 21                          |
| 63                      | 32                        | 34.48                        | 44                          | 1.48                         | 120                         |
| 63                      | 33                        | 30.39                        | 41                          | 1.7                          | 116                         |
| 63                      | 34                        | 31.11                        | 47                          | 1.43                         | 135                         |
| 63                      | 35                        | 39.85                        | 67                          | 2.18                         | 144                         |
| 63                      | 36                        | 2.3                          | 83                          | 1.52                         | 0                           |
| 63                      | 37                        | 3.05                         | 4                           | 2.04                         | 82                          |
| 63                      | 38                        | 3.63                         | 65                          | 3.38                         | 167                         |
| 63                      | 39                        | 4.34                         | 159                         | 2.39                         | 57                          |
| 63                      | 40                        | 64.11                        | 52                          | 3.61                         | 140                         |
| 63                      | 41                        | 31.7                         | 33                          | 1.6                          | 108                         |
| 63                      | 42                        | 9.17                         | 48                          | 2.83                         | 169                         |
| 63                      | 43                        | 43.87                        | 69                          | 2.28                         | 0                           |
| 63                      | 44                        | 60.61                        | 125                         | 2.04                         | 60                          |
| 63                      | 45                        | 34.81                        | 54                          | 1.79                         | 135                         |
| 63                      | 46                        | 27.78                        | 53                          | 1.36                         | 158                         |
| 63                      | 47                        | 35.88                        | 97                          | 1.07                         | 44                          |
| 63                      | 48                        | 28.53                        | 110                         | 1.62                         | 51                          |
| 63                      | 49                        | 12.13                        | 109                         | 2.96                         | 30                          |
| 63                      | 50                        | 31.63                        | 60                          | 1.77                         | 0                           |
| 63                      | 51                        | 18.31                        | 66                          | 2.03                         | 0                           |
| 63                      | 52                        | 16.88                        | 68                          | 1.29                         | 11                          |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 63                      | 53                        | 75.68                        | 54                          | 1.93                         | 156                         |
| 63                      | 54                        | 33.69                        | 5                           | 2.3                          | 83                          |
| 63                      | 55                        | 25.95                        | 73                          | 0.8                          | 161                         |
| 63                      | 56                        | 54.57                        | 61                          | 1.7                          | 153                         |
| 63                      | 57                        | 22.76                        | 79                          | 1.27                         | 0                           |
| 63                      | 58                        | 49.27                        | 37                          | 2.04                         | 150                         |
| 63                      | 59                        | 53.34                        | 68                          | 2.03                         | 0                           |
| 63                      | 60                        | 60.94                        | 59                          | 3.04                         | 0                           |
| 63                      | 61                        | 52.11                        | 79                          | 3.55                         | 0                           |
| 63                      | 62                        | 4.43                         | 76                          | 2.54                         | 0                           |
| 63                      | 63                        | 37.63                        | 87                          | 1.29                         | 11                          |
| 63                      | 64                        | 37.08                        | 90                          | 1.77                         | 0                           |
| 63                      | 65                        | 36.05                        | 66                          | 2.17                         | 159                         |
| 63                      | 66                        | 40.09                        | 63                          | 3.18                         | 151                         |
| 63                      | 67                        | 34.57                        | 77                          | 1.04                         | 165                         |
| 63                      | 68                        | 50                           | 69                          | 1.54                         | 170                         |
| 63                      | 69                        | 4.85                         | 47                          | 2.61                         | 119                         |
| 63                      | 70                        | 3.59                         | 44                          | 2.5                          | 113                         |
| 63                      | 71                        | 44.56                        | 65                          | 2.09                         | 165                         |
| 63                      | 72                        | 3.84                         | 7                           | 1.77                         | 90                          |
| 63                      | 73                        | 3.25                         | 38                          | 2.51                         | 135                         |
| 63                      | 74                        | 40.99                        | 120                         | 2.04                         | 29                          |
| 63                      | 75                        | 40.55                        | 115                         | 1.62                         | 38                          |
| 63                      | 76                        | 13.17                        | 56                          | 1.98                         | 140                         |
| 63                      | 77                        | 36.46                        | 63                          | 2.83                         | 153                         |
| 63                      | 78                        | 2.73                         | 68                          | 2.27                         | 153                         |
| 63                      | 79                        | 2.34                         | 167                         | 2.04                         | 60                          |
| 63                      | 80                        | 35.37                        | 60                          | 1.54                         | 170                         |
| 63                      | 81                        | 19.31                        | 114                         | 1.62                         | 51                          |
| 63                      | 82                        | 10.63                        | 49                          | 1.27                         | 143                         |
| 63                      | 83                        | 8.07                         | 65                          | 1.79                         | 171                         |
| 63                      | 84                        | 30.9                         | 38                          | 2.34                         | 139                         |
| 63                      | 85                        | 14.99                        | 51                          | 2.54                         | 143                         |
| 63                      | 86                        | 36.54                        | 72                          | 3.04                         | 0                           |
| 63                      | 87                        | 3.06                         | 65                          | 1.01                         | 0                           |
| 63                      | 88                        | 29.53                        | 64                          | 1.04                         | 165                         |
| 63                      | 89                        | 26.67                        | 88                          | 1.54                         | 170                         |
| 63                      | 90                        | 7.39                         | 74                          | 1.13                         | 153                         |
| 63                      | 91                        | 70.65                        | 63                          | 1.29                         | 168                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 63                      | 92                        | 36.65                        | 50                          | 2.51                         | 135                         |
| 63                      | 93                        | 32.04                        | 64                          | 3.77                         | 160                         |
| 63                      | 94                        | 22.86                        | 49                          | 1.62                         | 128                         |
| 63                      | 95                        | 2.8                          | 5                           | 2.3                          | 83                          |
| 63                      | 96                        | 2.55                         | 95                          | 2.34                         | 12                          |
| 63                      | 97                        | 7.41                         | 51                          | 3.04                         | 0                           |
| 63                      | 98                        | 1.54                         | 80                          | 1.27                         | 0                           |
| 63                      | 99                        | 4.07                         | 3                           | 3.09                         | 99                          |
| 63                      | 100                       | 4.1                          | 21                          | 2.17                         | 110                         |
| 63                      | 101                       | 35.96                        | 53                          | 1.07                         | 135                         |
| 63                      | 102                       | 2.65                         | 73                          | 1.27                         | 0                           |
| 63                      | 103                       | 3.87                         | 58                          | 2.89                         | 142                         |
| 63                      | 104                       | 24.92                        | 29                          | 2.18                         | 125                         |
| 63                      | 105                       | 23.03                        | 55                          | 1.84                         | 164                         |
| 63                      | 106                       | 14.02                        | 58                          | 2.04                         | 172                         |
| 63                      | 107                       | 16.77                        | 35                          | 2.34                         | 139                         |
| 63                      | 108                       | 30.08                        | 49                          | 1.62                         | 141                         |
| 63                      | 109                       | 58.41                        | 73                          | 3.56                         | 175                         |
| 64                      | 1                         | 59.07                        | 13                          | 2.17                         | 110                         |
| 64                      | 2                         | 17.1                         | 40                          | 6.55                         | 144                         |
| 64                      | 3                         | 47.52                        | 98                          | 1.54                         | 170                         |
| 64                      | 4                         | 64.09                        | 118                         | 3.61                         | 39                          |
| 64                      | 5                         | 25.78                        | 72                          | 4.43                         | 156                         |
| 64                      | 6                         | 24.53                        | 143                         | 1.83                         | 33                          |
| 64                      | 7                         | 31.35                        | 40                          | 2.34                         | 139                         |
| 64                      | 8                         | 23.53                        | 96                          | 2.28                         | 0                           |
| 64                      | 9                         | 5.57                         | 24                          | 2.73                         | 111                         |
| 64                      | 10                        | 14.15                        | 99                          | 2.28                         | 0                           |
| 64                      | 11                        | 15.98                        | 45                          | 1.98                         | 129                         |
| 64                      | 12                        | 70.44                        | 97                          | 2.28                         | 0                           |
| 64                      | 13                        | 30.27                        | 93                          | 1.52                         | 0                           |
| 64                      | 14                        | 15.09                        | 6                           | 2.09                         | 104                         |
| 64                      | 15                        | 23.86                        | 11                          | 2.09                         | 104                         |
| 64                      | 16                        | 17.17                        | 156                         | 2.7                          | 48                          |
| 64                      | 17                        | 13.03                        | 33                          | 3.87                         | 121                         |
| 64                      | 18                        | 75.77                        | 113                         | 15.52                        | 15                          |
| 64                      | 19                        | 69.65                        | 97                          | 1.77                         | 0                           |
| 64                      | 20                        | 61.09                        | 96                          | 0.76                         | 0                           |
| 64                      | 21                        | 18.64                        | 52                          | 4.09                         | 150                         |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 64                             | 22                               | 20.58                               | 144                                | 3.86                                | 66                                 |
| 64                             | 23                               | 33.94                               | 174                                | 1.36                                | 68                                 |
| 64                             | 24                               | 16.39                               | 73                                 | 2.54                                | 0                                  |
| 64                             | 25                               | 18.23                               | 71                                 | 1.79                                | 8                                  |
| 64                             | 26                               | 15.52                               | 74                                 | 1.27                                | 0                                  |
| 64                             | 27                               | 35.91                               | 107                                | 2.59                                | 168                                |
| 64                             | 28                               | 30.02                               | 93                                 | 1.54                                | 9                                  |
| 64                             | 29                               | 16.03                               | 93                                 | 1.01                                | 0                                  |
| 64                             | 30                               | 30.81                               | 119                                | 2.61                                | 29                                 |
| 64                             | 31                               | 5.75                                | 41                                 | 1.27                                | 126                                |
| 64                             | 32                               | 19.61                               | 131                                | 2.04                                | 60                                 |
| 64                             | 33                               | 31.54                               | 3                                  | 1.79                                | 81                                 |
| 64                             | 34                               | 27.58                               | 126                                | 2.79                                | 0                                  |
| 64                             | 35                               | 24.87                               | 122                                | 1.98                                | 39                                 |
| 64                             | 36                               | 9.24                                | 20                                 | 2.09                                | 104                                |
| 64                             | 37                               | 8.94                                | 173                                | 2.28                                | 90                                 |
| 64                             | 38                               | 24.14                               | 1                                  | 4.85                                | 83                                 |
| 64                             | 39                               | 2.28                                | 90                                 | 2.17                                | 20                                 |
| 64                             | 40                               | 6.41                                | 33                                 | 1.43                                | 135                                |
| 64                             | 41                               | 4.2                                 | 154                                | 2.97                                | 19                                 |
| 64                             | 42                               | 12                                  | 96                                 | 1.13                                | 26                                 |
| 64                             | 43                               | 10.44                               | 85                                 | 1.54                                | 9                                  |
| 64                             | 44                               | 15.24                               | 169                                | 2.34                                | 40                                 |
| 64                             | 45                               | 15.91                               | 28                                 | 1.83                                | 123                                |
| 64                             | 46                               | 9.58                                | 122                                | 1.48                                | 30                                 |
| 64                             | 47                               | 15.24                               | 179                                | 2.34                                | 77                                 |
| 64                             | 48                               | 10.16                               | 90                                 | 2.8                                 | 5                                  |
| 66                             | 1                                | 32.15                               | 13                                 | 1.7                                 | 116                                |
| 66                             | 2                                | 16.64                               | 12                                 | 1.52                                | 90                                 |
| 66                             | 3                                | 20.61                               | 67                                 | 1.29                                | 168                                |
| 66                             | 4                                | 67.22                               | 71                                 | 1.27                                | 0                                  |
| 66                             | 5                                | 15.71                               | 55                                 | 1.83                                | 146                                |
| 66                             | 6                                | 94.74                               | 69                                 | 2.61                                | 150                                |
| 66                             | 7                                | 85.97                               | 69                                 | 1.13                                | 153                                |
| 66                             | 8                                | 7.18                                | 171                                | 2.3                                 | 83                                 |
| 66                             | 9                                | 16.39                               | 40                                 | 2.04                                | 119                                |
| 66                             | 10                               | 13.66                               | 41                                 | 1.79                                | 98                                 |
| 66                             | 11                               | 22.05                               | 104                                | 1.01                                | 0                                  |
| 66                             | 12                               | 38.63                               | 107                                | 2.28                                | 0                                  |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 66                      | 13                        | 32.14                        | 58                          | 1.48                         | 149                         |
| 66                      | 14                        | 33.49                        | 58                          | 1.54                         | 170                         |
| 66                      | 15                        | 37.05                        | 96                          | 1.01                         | 0                           |
| 66                      | 16                        | 51                           | 84                          | 1.01                         | 0                           |
| 66                      | 17                        | 8.81                         | 41                          | 2.34                         | 130                         |
| 66                      | 18                        | 36.32                        | 90                          | 1.01                         | 0                           |
| 66                      | 19                        | 33.65                        | 98                          | 3.94                         | 14                          |
| 66                      | 20                        | 46.72                        | 61                          | 1.79                         | 135                         |
| 66                      | 21                        | 46.62                        | 113                         | 3.94                         | 14                          |
| 66                      | 22                        | 56.66                        | 88                          | 1.54                         | 170                         |
| 66                      | 23                        | 25.52                        | 174                         | 2.59                         | 78                          |
| 66                      | 24                        | 31.25                        | 97                          | 1.79                         | 171                         |
| 66                      | 25                        | 22.1                         | 42                          | 1.83                         | 146                         |
| 66                      | 26                        | 38.67                        | 86                          | 1.54                         | 9                           |
| 66                      | 27                        | 29.45                        | 77                          | 1.04                         | 14                          |
| 66                      | 28                        | 32.38                        | 73                          | 2.4                          | 161                         |
| 66                      | 29                        | 20.32                        | 179                         | 3.45                         | 72                          |
| 66                      | 30                        | 71.57                        | 107                         | 2.03                         | 0                           |
| 66                      | 31                        | 28.77                        | 137                         | 2.4                          | 18                          |
| 66                      | 32                        | 33.26                        | 110                         | 2.73                         | 21                          |
| 66                      | 33                        | 10.71                        | 31                          | 4.77                         | 115                         |
| 66                      | 34                        | 20.78                        | 35                          | 3.61                         | 129                         |
| 66                      | 35                        | 24.35                        | 78                          | 1.04                         | 14                          |
| 66                      | 36                        | 26.74                        | 85                          | 1.04                         | 14                          |
| 66                      | 37                        | 23.36                        | 89                          | 0.76                         | 0                           |
| 66                      | 38                        | 26.91                        | 107                         | 0.5                          | 0                           |
| 66                      | 39                        | 17.83                        | 100                         | 1.52                         | 0                           |
| 66                      | 40                        | 10.77                        | 55                          | 1.98                         | 129                         |
| 66                      | 41                        | 27.84                        | 54                          | 4.2                          | 115                         |
| 66                      | 42                        | 43.14                        | 84                          | 2.3                          | 6                           |
| 66                      | 43                        | 38.47                        | 70                          | 5.38                         | 160                         |
| 66                      | 44                        | 5.63                         | 7                           | 3.59                         | 81                          |
| 66                      | 45                        | 14.94                        | 107                         | 1.54                         | 9                           |
| 66                      | 46                        | 36.5                         | 68                          | 1.93                         | 156                         |
| 66                      | 47                        | 36.59                        | 91                          | 1.27                         | 0                           |
| 66                      | 48                        | 21.21                        | 16                          | 11.7                         | 102                         |
| 66                      | 49                        | 18.44                        | 51                          | 6.03                         | 165                         |
| 66                      | 50                        | 20.89                        | 110                         | 1.29                         | 168                         |
| 66                      | 51                        | 32.33                        | 175                         | 2.55                         | 84                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 66                      | 52                        | 14.33                        | 119                         | 1.27                         | 36                          |
| 66                      | 53                        | 17.57                        | 94                          | 2.54                         | 0                           |
| 66                      | 54                        | 34.38                        | 147                         | 1.27                         | 0                           |
| 66                      | 55                        | 55.29                        | 11                          | 3.04                         | 90                          |
| 66                      | 56                        | 36.22                        | 77                          | 2.8                          | 5                           |
| 66                      | 57                        | 12.1                         | 80                          | 1.52                         | 0                           |
| 66                      | 58                        | 10.23                        | 113                         | 1.62                         | 38                          |
| 66                      | 59                        | 21.64                        | 58                          | 1.36                         | 158                         |
| 66                      | 60                        | 29.45                        | 104                         | 2.03                         | 0                           |
| 66                      | 61                        | 16.27                        | 124                         | 1.62                         | 51                          |
| 66                      | 62                        | 51.38                        | 96                          | 1.79                         | 8                           |
| 66                      | 63                        | 28.97                        | 87                          | 1.29                         | 168                         |
| 66                      | 64                        | 14.24                        | 121                         | 1.84                         | 15                          |
| 66                      | 65                        | 38.01                        | 84                          | 1.7                          | 153                         |
| 66                      | 66                        | 47                           | 76                          | 2.4                          | 161                         |
| 66                      | 67                        | 56.06                        | 76                          | 1.43                         | 135                         |
| 66                      | 68                        | 42.01                        | 107                         | 2.34                         | 12                          |
| 66                      | 69                        | 79.62                        | 19                          | 3.63                         | 114                         |
| 66                      | 70                        | 19.68                        | 107                         | 1.79                         | 171                         |
| 66                      | 71                        | 11.85                        | 135                         | 3.88                         | 11                          |
| 66                      | 72                        | 8.32                         | 12                          | 4.57                         | 90                          |
| 66                      | 73                        | 11.43                        | 0                           | 7.82                         | 76                          |
| 66                      | 74                        | 12.5                         | 60                          | 1.27                         | 0                           |
| 66                      | 75                        | 9.48                         | 7                           | 1.77                         | 90                          |
| 66                      | 76                        | 12.74                        | 23                          | 2.51                         | 135                         |
| 66                      | 77                        | 10.6                         | 16                          | 2.73                         | 111                         |
| 66                      | 78                        | 16.64                        | 58                          | 1.48                         | 149                         |
| 66                      | 79                        | 44.66                        | 107                         | 1.54                         | 9                           |
| 66                      | 80                        | 23.81                        | 101                         | 1.77                         | 0                           |
| 66                      | 81                        | 46.15                        | 164                         | 2.04                         | 60                          |
| 66                      | 82                        | 13.71                        | 88                          | 2.54                         | 0                           |
| 67                      | 1                         | 111.77                       | 89                          | 1.01                         | 0                           |
| 67                      | 2                         | 81.66                        | 57                          | 2.27                         | 116                         |
| 67                      | 3                         | 77.43                        | 55                          | 1.48                         | 149                         |
| 67                      | 4                         | 20.65                        | 58                          | 2.54                         | 143                         |
| 67                      | 5                         | 54.41                        | 92                          | 1.04                         | 14                          |
| 67                      | 6                         | 50.3                         | 91                          | 1.27                         | 0                           |
| 67                      | 7                         | 46.71                        | 136                         | 1.93                         | 66                          |
| 67                      | 8                         | 100.72                       | 130                         | 1.27                         | 53                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 67                      | 9                         | 23.71                        | 99                          | 1.52                         | 0                           |
| 67                      | 10                        | 39.98                        | 116                         | 1.7                          | 26                          |
| 67                      | 11                        | 35.57                        | 46                          | 2.04                         | 119                         |
| 67                      | 12                        | 17.85                        | 129                         | 1.79                         | 44                          |
| 67                      | 13                        | 11.9                         | 50                          | 2.04                         | 150                         |
| 67                      | 14                        | 9.72                         | 33                          | 1.83                         | 146                         |
| 67                      | 15                        | 23.78                        | 59                          | 1.7                          | 153                         |
| 67                      | 16                        | 15.58                        | 160                         | 0.91                         | 33                          |
| 67                      | 17                        | 11.2                         | 3                           | 2.09                         | 104                         |
| 67                      | 18                        | 7.17                         | 67                          | 1.52                         | 0                           |
| 67                      | 19                        | 67.76                        | 132                         | 1.36                         | 68                          |
| 67                      | 20                        | 25.24                        | 23                          | 1.6                          | 108                         |
| 67                      | 21                        | 54.28                        | 170                         | 1.27                         | 90                          |
| 67                      | 22                        | 6.35                         | 73                          | 1.84                         | 164                         |
| 67                      | 23                        | 29.42                        | 63                          | 1.13                         | 153                         |
| 67                      | 24                        | 23.98                        | 84                          | 1.79                         | 8                           |
| 67                      | 25                        | 11.51                        | 75                          | 1.27                         | 0                           |
| 67                      | 26                        | 14.33                        | 7                           | 2.28                         | 90                          |
| 67                      | 27                        | 3.66                         | 56                          | 1.62                         | 141                         |
| 67                      | 28                        | 4.07                         | 93                          | 2.09                         | 14                          |
| 67                      | 29                        | 37.93                        | 110                         | 1.04                         | 14                          |
| 67                      | 30                        | 57.32                        | 136                         | 1.62                         | 51                          |
| 67                      | 31                        | 44.85                        | 126                         | 1.83                         | 56                          |
| 67                      | 32                        | 32.05                        | 114                         | 2.28                         | 0                           |
| 67                      | 33                        | 7.22                         | 10                          | 3.3                          | 90                          |
| 67                      | 34                        | 4.43                         | 166                         | 2.54                         | 90                          |
| 67                      | 35                        | 10.42                        | 46                          | 1.27                         | 143                         |
| 67                      | 36                        | 19.83                        | 99                          | 2.28                         | 0                           |
| 67                      | 37                        | 21.57                        | 12                          | 1.93                         | 113                         |
| 67                      | 38                        | 9.77                         | 114                         | 1.07                         | 44                          |
| 67                      | 39                        | 8.65                         | 49                          | 2.18                         | 144                         |
| 67                      | 40                        | 3.84                         | 82                          | 1.52                         | 0                           |
| 67                      | 41                        | 6.68                         | 171                         | 1.01                         | 90                          |
| 67                      | 42                        | 3.77                         | 132                         | 0.71                         | 44                          |
| 67                      | 43                        | 4.43                         | 76                          | 3.14                         | 165                         |
| 67                      | 44                        | 19.67                        | 23                          | 1.83                         | 123                         |
| 67                      | 45                        | 30.98                        | 157                         | 1.48                         | 30                          |
| 67                      | 46                        | 26.98                        | 157                         | 1.04                         | 14                          |
| 67                      | 47                        | 10.77                        | 55                          | 1.52                         | 0                           |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 67                      | 48                        | 26.84                        | 150                         | 2.04                         | 60                          |
| 67                      | 49                        | 26.93                        | 105                         | 4.34                         | 6                           |
| 67                      | 50                        | 6.14                         | 51                          | 1.04                         | 165                         |
| 67                      | 51                        | 2.04                         | 29                          | 1.84                         | 105                         |
| 67                      | 52                        | 7.97                         | 30                          | 1.54                         | 99                          |
| 67                      | 53                        | 7.41                         | 51                          | 0.56                         | 116                         |
| 67                      | 54                        | 17.37                        | 52                          | 2.7                          | 131                         |
| 67                      | 55                        | 2.65                         | 163                         | 2.4                          | 71                          |
| 67                      | 56                        | 84.19                        | 122                         | 3.81                         | 36                          |
| 67                      | 57                        | 40.99                        | 120                         | 1.62                         | 38                          |
| 67                      | 58                        | 24.96                        | 121                         | 1.83                         | 56                          |
| 67                      | 59                        | 4.81                         | 18                          | 2.4                          | 108                         |
| 67                      | 60                        | 8.86                         | 62                          | 0.76                         | 0                           |
| 67                      | 61                        | 3.77                         | 47                          | 1.7                          | 153                         |
| 67                      | 62                        | 5.35                         | 31                          | 1.93                         | 113                         |
| 67                      | 63                        | 9.86                         | 78                          | 1.54                         | 170                         |
| 67                      | 64                        | 12.49                        | 127                         | 0.8                          | 18                          |
| 67                      | 65                        | 1.52                         | 0                           | 1.52                         | 90                          |
| 67                      | 66                        | 2.28                         | 0                           | 1.27                         | 90                          |
| 67                      | 67                        | 5.58                         | 0                           | 1.54                         | 80                          |
| 67                      | 68                        | 4.13                         | 42                          | 1.13                         | 116                         |
| 67                      | 69                        | 6.36                         | 151                         | 1.13                         | 63                          |
| 67                      | 70                        | 4.01                         | 71                          | 1.52                         | 0                           |
| 67                      | 71                        | 8.53                         | 67                          | 3.05                         | 138                         |
| 67                      | 72                        | 2.28                         | 90                          | 2.03                         | 0                           |
| 67                      | 73                        | 31.01                        | 19                          | 2.17                         | 110                         |
| 67                      | 74                        | 26.79                        | 21                          | 1.62                         | 128                         |
| 67                      | 75                        | 5.59                         | 2                           | 1.27                         | 90                          |
| 67                      | 76                        | 27.16                        | 118                         | 1.83                         | 33                          |
| 67                      | 77                        | 16.25                        | 61                          | 2.04                         | 172                         |
| 67                      | 78                        | 8.89                         | 90                          | 1.77                         | 0                           |
| 67                      | 79                        | 3.59                         | 44                          | 2.18                         | 125                         |
| 67                      | 80                        | 12.19                        | 88                          | 1.52                         | 0                           |
| 67                      | 81                        | 18.54                        | 88                          | 1.52                         | 0                           |
| 67                      | 82                        | 46                           | 173                         | 2.03                         | 90                          |
| 67                      | 83                        | 34.96                        | 168                         | 1.36                         | 68                          |
| 67                      | 84                        | 4.57                         | 176                         | 3.84                         | 82                          |
| 67                      | 85                        | 22.97                        | 108                         | 1.29                         | 168                         |
| 67                      | 86                        | 30.7                         | 128                         | 1.48                         | 59                          |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 67                      | 87                        | 25.46                        | 128                         | 1.01                         | 0                           |
| 67                      | 88                        | 4.34                         | 83                          | 3.56                         | 4                           |
| 67                      | 89                        | 7.18                         | 44                          | 1.62                         | 141                         |
| 68                      | 1                         | 24.13                        | 81                          | 1.27                         | 0                           |
| 68                      | 2                         | 13.67                        | 54                          | 1.27                         | 0                           |
| 68                      | 3                         | 16.79                        | 3                           | 1.13                         | 63                          |
| 68                      | 4                         | 22.83                        | 152                         | 2.18                         | 54                          |
| 68                      | 5                         | 15.26                        | 161                         | 1.43                         | 44                          |
| 68                      | 6                         | 28.76                        | 29                          | 2.59                         | 101                         |
| 68                      | 7                         | 9.2                          | 65                          | 1.04                         | 165                         |
| 68                      | 8                         | 15.24                        | 1                           | 1.27                         | 90                          |
| 68                      | 9                         | 26.02                        | 114                         | 1.52                         | 0                           |
| 68                      | 10                        | 20.33                        | 25                          | 1.27                         | 126                         |
| 68                      | 11                        | 9                            | 163                         | 2.18                         | 35                          |
| 68                      | 12                        | 1.04                         | 165                         | 1.04                         | 75                          |
| 68                      | 13                        | 18.14                        | 6                           | 1.27                         | 90                          |
| 68                      | 14                        | 18.17                        | 7                           | 1.04                         | 104                         |
| 68                      | 15                        | 13.99                        | 3                           | 1.01                         | 90                          |
| 68                      | 16                        | 26.76                        | 136                         | 1.13                         | 63                          |
| 68                      | 17                        | 34.11                        | 3                           | 1.29                         | 101                         |
| 68                      | 18                        | 45.59                        | 118                         | 1.52                         | 0                           |
| 68                      | 19                        | 6.62                         | 147                         | 1.07                         | 44                          |
| 68                      | 20                        | 24.09                        | 161                         | 1.27                         | 53                          |
| 68                      | 21                        | 16.99                        | 170                         | 0.91                         | 56                          |
| 68                      | 22                        | 32.65                        | 174                         | 1.36                         | 68                          |
| 68                      | 23                        | 14.61                        | 7                           | 1.27                         | 90                          |
| 68                      | 24                        | 26                           | 121                         | 0.76                         | 0                           |
| 68                      | 25                        | 35.88                        | 97                          | 1.36                         | 158                         |
| 68                      | 26                        | 14.95                        | 20                          | 1.36                         | 111                         |
| 68                      | 27                        | 41.43                        | 124                         | 1.43                         | 44                          |
| 68                      | 28                        | 12.9                         | 36                          | 2.34                         | 130                         |
| 68                      | 29                        | 41.25                        | 9                           | 2.03                         | 90                          |
| 68                      | 30                        | 6.98                         | 160                         | 1.04                         | 75                          |
| 68                      | 31                        | 8.07                         | 155                         | 1.04                         | 75                          |
| 68                      | 32                        | 64.01                        | 0                           | 1.29                         | 78                          |
| 68                      | 33                        | 9.45                         | 120                         | 1.27                         | 0                           |
| 68                      | 34                        | 9.1                          | 59                          | 1.77                         | 0                           |
| 68                      | 35                        | 8.41                         | 174                         | 0.8                          | 71                          |
| 68                      | 36                        | 6.02                         | 117                         | 1.04                         | 14                          |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 68                      | 37                        | 34.92                        | 10                          | 1.6                          | 108                         |
| 68                      | 38                        | 45.98                        | 8                           | 2.17                         | 110                         |
| 68                      | 39                        | 7.87                         | 0                           | 3.09                         | 80                          |
| 68                      | 40                        | 22.96                        | 51                          | 2.34                         | 139                         |
| 68                      | 41                        | 12.19                        | 54                          | 1.62                         | 141                         |
| 68                      | 42                        | 10.94                        | 111                         | 1.27                         | 0                           |
| 68                      | 43                        | 13.46                        | 0                           | 1.79                         | 81                          |
| 68                      | 44                        | 29.99                        | 2                           | 1.01                         | 90                          |
| 68                      | 45                        | 11.82                        | 75                          | 1.54                         | 170                         |
| 68                      | 46                        | 12.4                         | 67                          | 1.27                         | 0                           |
| 68                      | 47                        | 11.63                        | 36                          | 0.91                         | 123                         |
| 68                      | 48                        | 9.4                          | 178                         | 1.6                          | 71                          |
| 68                      | 49                        | 9.42                         | 85                          | 1.01                         | 0                           |
| 68                      | 50                        | 17.26                        | 153                         | 2.28                         | 0                           |
| 68                      | 51                        | 16.15                        | 36                          | 1.43                         | 135                         |
| 68                      | 52                        | 10.85                        | 110                         | 0.91                         | 56                          |
| 68                      | 53                        | 5.75                         | 138                         | 1.04                         | 14                          |
| 68                      | 54                        | 6.09                         | 0                           | 1.01                         | 90                          |
| 68                      | 55                        | 12.89                        | 147                         | 1.6                          | 18                          |
| 68                      | 56                        | 15.02                        | 108                         | 0.76                         | 0                           |
| 68                      | 57                        | 12.59                        | 138                         | 1.29                         | 11                          |
| 68                      | 58                        | 6.24                         | 63                          | 1.04                         | 165                         |
| 68                      | 59                        | 3.31                         | 94                          | 1.13                         | 26                          |
| 68                      | 60                        | 2.54                         | 90                          | 1.77                         | 0                           |
| 68                      | 61                        | 3.88                         | 101                         | 2.59                         | 11                          |
| 68                      | 62                        | 3.04                         | 0                           | 2.28                         | 90                          |
| 68                      | 63                        | 2.83                         | 79                          | 2.09                         | 165                         |
| 68                      | 64                        | 1.27                         | 0                           | 0.76                         | 90                          |
| 68                      | 65                        | 3.31                         | 4                           | 1.29                         | 78                          |
| 68                      | 66                        | 4.09                         | 119                         | 1.27                         | 53                          |
| 68                      | 67                        | 11.07                        | 126                         | 1.01                         | 0                           |
| 68                      | 68                        | 3.53                         | 68                          | 1.52                         | 0                           |
| 68                      | 69                        | 15.75                        | 20                          | 2.55                         | 95                          |
| 68                      | 70                        | 15.03                        | 74                          | 0.25                         | n/a                         |
| 68                      | 71                        | 10.63                        | 146                         | 1.43                         | 44                          |
| 68                      | 72                        | 13.47                        | 135                         | 0.91                         | 33                          |
| 68                      | 73                        | 13.94                        | 33                          | 1.27                         | 126                         |
| 68                      | 74                        | 16.97                        | 128                         | 2.79                         | 0                           |
| 68                      | 75                        | 9.1                          | 157                         | 1.13                         | 63                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 68                             | 76                               | 20.87                               | 53                                 | 1.62                                | 141                                |
| 68                             | 77                               | 53.19                               | 118                                | 1.13                                | 26                                 |
| 68                             | 78                               | 18.31                               | 19                                 | 1.07                                | 135                                |
| 68                             | 79                               | 12.28                               | 29                                 | 1.93                                | 113                                |
| 68                             | 80                               | 6.51                                | 69                                 | 1.27                                | 0                                  |
| 68                             | 81                               | 8.17                                | 53                                 | 1.43                                | 135                                |
| 68                             | 82                               | 3.87                                | 58                                 | 1.43                                | 135                                |
| 68                             | 83                               | 22.62                               | 2                                  | 1.01                                | 90                                 |
| 68                             | 84                               | 21.13                               | 13                                 | 1.52                                | 90                                 |
| 68                             | 85                               | 23.55                               | 73                                 | 1.01                                | 0                                  |
| 68                             | 86                               | 11.92                               | 153                                | 1.27                                | 36                                 |
| 68                             | 87                               | 6.35                                | 36                                 | 1.93                                | 113                                |
| 68                             | 88                               | 4.57                                | 176                                | 1.84                                | 74                                 |
| 68                             | 89                               | 24.15                               | 22                                 | 3.1                                 | 124                                |
| 68                             | 90                               | 18.38                               | 101                                | 0.8                                 | 18                                 |
| 68                             | 91                               | 16.98                               | 111                                | 2.18                                | 35                                 |
| 68                             | 92                               | 3.52                                | 30                                 | 2.39                                | 122                                |
| 68                             | 93                               | 4.85                                | 132                                | 3.06                                | 24                                 |
| 68                             | 94                               | 5.63                                | 35                                 | 4.13                                | 132                                |
| 68                             | 95                               | 6.14                                | 38                                 | 2.54                                | 126                                |
| 68                             | 96                               | 25.68                               | 177                                | 1.79                                | 81                                 |
| 69                             | 1                                | 12.96                               | 2                                  | 1.48                                | 120                                |
| 69                             | 2                                | 21.13                               | 159                                | 1.84                                | 74                                 |
| 69                             | 3                                | 16.58                               | 154                                | 1.62                                | 38                                 |
| 69                             | 4                                | 5.57                                | 59                                 | .76                                 | 0                                  |
| 69                             | 5                                | 16.13                               | 61                                 | 2.89                                | 164                                |
| 69                             | 6                                | 22.36                               | 105                                | 1.07                                | 44                                 |
| 69                             | 7                                | 22.81                               | 134                                | 1.70                                | 63                                 |
| 69                             | 8                                | 10.23                               | 82                                 | 9.15                                | 176                                |
| 69                             | 9                                | 7.31                                | 159                                | 6.62                                | 85                                 |
| 69                             | 10                               | 6.68                                | 81                                 | 1.79                                | 171                                |
| 69                             | 11                               | 13.06                               | 116                                | 1.13                                | 26                                 |
| 69                             | 12                               | 13.89                               | 59                                 | 1.43                                | 135                                |
| 69                             | 13                               | 10.42                               | 46                                 | 1.13                                | 116                                |
| 69                             | 14                               | 8.08                                | 46                                 | 1.07                                | 135                                |
| 69                             | 15                               | 19.61                               | 85                                 | 9.52                                | 170                                |
| 69                             | 16                               | 2.79                                | 90                                 | 2.28                                | 0                                  |
| 69                             | 17                               | 58.20                               | 87                                 | 45.73                               | 178                                |
| 69                             | 18                               | 36.74                               | 98                                 | 1.29                                | 168                                |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 69                             | 19                               | 17.92                               | 110                                | 1.07                                | 44                                 |
| 69                             | 20                               | 4.74                                | 74                                 | 3.05                                | 4                                  |
| 69                             | 21                               | 2.03                                | 90                                 | 1.60                                | 18                                 |
| 69                             | 22                               | 6.11                                | 94                                 | 2.80                                | 174                                |
| 69                             | 23                               | 3.04                                | 0                                  | 2.34                                | 77                                 |
| 69                             | 24                               | 4.18                                | 75                                 | 2.17                                | 20                                 |
| 69                             | 25                               | 2.55                                | 5                                  | 2.09                                | 75                                 |
| 69                             | 26                               | 2.79                                | 90                                 | 2.28                                | 0                                  |
| 69                             | 27                               | 2.03                                | 90                                 | 1.01                                | 0                                  |
| 69                             | 28                               | 3.04                                | 90                                 | 1.27                                | 0                                  |
| 69                             | 29                               | 2.80                                | 5                                  | 1.79                                | 98                                 |
| 69                             | 30                               | 2.59                                | 101                                | .80                                 | 18                                 |
| 69                             | 31                               | 2.54                                | 90                                 | .76                                 | 0                                  |
| 69                             | 32                               | 3.34                                | 81                                 | 2.80                                | 5                                  |
| 70                             | 1                                | 102.68                              | 92                                 | 2.04                                | 7                                  |
| 70                             | 2                                | 54.78                               | 99                                 | 1.62                                | 38                                 |
| 70                             | 3                                | 39.33                               | 44                                 | 1.62                                | 128                                |
| 70                             | 4                                | 40.91                               | 49                                 | 1.43                                | 135                                |
| 70                             | 5                                | 74.16                               | 80                                 | 1.60                                | 161                                |
| 70                             | 6                                | 98.15                               | 55                                 | 2.17                                | 110                                |
| 70                             | 7                                | 31.01                               | 109                                | 2.34                                | 12                                 |
| 70                             | 8                                | 42.73                               | 109                                | 1.62                                | 38                                 |
| 70                             | 9                                | 47.52                               | 41                                 | 1.60                                | 108                                |
| 70                             | 10                               | 41.97                               | 105                                | .80                                 | 18                                 |
| 70                             | 11                               | 39.88                               | 173                                | 1.27                                | 90                                 |
| 70                             | 12                               | 17.95                               | 115                                | 2.04                                | 7                                  |
| 70                             | 13                               | 13.15                               | 79                                 | 1.01                                | 0                                  |
| 70                             | 14                               | 31.92                               | 84                                 | 2.30                                | 173                                |
| 70                             | 15                               | 57.92                               | 72                                 | 2.30                                | 173                                |
| 70                             | 16                               | 83.89                               | 92                                 | 1.13                                | 26                                 |
| 70                             | 17                               | 47.09                               | 50                                 | 1.27                                | 143                                |
| 70                             | 18                               | 39.87                               | 46                                 | 1.13                                | 116                                |
| 70                             | 19                               | 55.58                               | 85                                 | 1.54                                | 9                                  |
| 70                             | 20                               | 27.53                               | 60                                 | 1.29                                | 168                                |
| 70                             | 21                               | 44.46                               | 66                                 | 2.27                                | 153                                |
| 70                             | 22                               | 38.78                               | 150                                | 2.34                                | 49                                 |
| 70                             | 23                               | 55.26                               | 166                                | 1.84                                | 74                                 |
| 70                             | 24                               | 12.98                               | 59                                 | 1.54                                | 170                                |
| 70                             | 25                               | 30.10                               | 116                                | 2.70                                | 41                                 |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 70                             | 26                               | 26.93                               | 69                                 | 1.27                                | 0                                  |
| 70                             | 27                               | 25.56                               | 76                                 | 1.54                                | 170                                |
| 70                             | 28                               | 12.76                               | 148                                | 1.27                                | 53                                 |
| 70                             | 29                               | 27.94                               | 97                                 | 1.60                                | 18                                 |
| 70                             | 30                               | 33.04                               | 73                                 | 2.28                                | 0                                  |
| 70                             | 31                               | 32.82                               | 79                                 | 1.54                                | 9                                  |
| 70                             | 32                               | 29.94                               | 79                                 | 2.55                                | 5                                  |
| 70                             | 33                               | 20.64                               | 55                                 | 2.18                                | 144                                |
| 70                             | 34                               | 55.16                               | 53                                 | 3.06                                | 155                                |
| 70                             | 35                               | 21.87                               | 74                                 | 2.30                                | 6                                  |
| 70                             | 36                               | 18.56                               | 73                                 | 1.52                                | 0                                  |
| 70                             | 37                               | 17.78                               | 126                                | 1.98                                | 50                                 |
| 70                             | 38                               | 18.87                               | 151                                | 2.79                                | 90                                 |
| 70                             | 39                               | 10.80                               | 138                                | 2.39                                | 32                                 |
| 70                             | 40                               | 19.42                               | 64                                 | 1.27                                | 0                                  |
| 70                             | 41                               | 18.87                               | 107                                | 2.04                                | 7                                  |
| 70                             | 42                               | 8.13                                | 91                                 | 2.83                                | 10                                 |
| 70                             | 43                               | 22.26                               | 62                                 | 1.36                                | 158                                |
| 70                             | 44                               | 20.47                               | 60                                 | 1.36                                | 158                                |
| 70                             | 45                               | 12.04                               | 117                                | 1.27                                | 53                                 |
| 70                             | 46                               | 11.22                               | 84                                 | .76                                 | 0                                  |
| 70                             | 47                               | 32.00                               | 172                                | 2.28                                | 90                                 |
| 70                             | 48                               | 27.47                               | 176                                | 1.54                                | 99                                 |
| 71                             | 1                                | 171.45                              | 21                                 | 1.27                                | 126                                |
| 71                             | 2                                | 90.91                               | 114                                | 1.70                                | 26                                 |
| 71                             | 3                                | 123.56                              | 19                                 | 1.70                                | 116                                |
| 71                             | 4                                | 78.48                               | 90                                 | 1.01                                | 0                                  |
| 71                             | 5                                | 27.25                               | 4                                  | 1.27                                | 90                                 |
| 71                             | 6                                | 56.14                               | 1                                  | 1.60                                | 71                                 |
| 71                             | 7                                | 53.61                               | 63                                 | 2.27                                | 153                                |
| 71                             | 8                                | 7.53                                | 32                                 | 4.54                                | 116                                |
| 71                             | 9                                | 7.18                                | 147                                | 4.68                                | 49                                 |
| 71                             | 10                               | 80.34                               | 166                                | 2.04                                | 82                                 |
|                                | 11                               | 62.93                               | 8                                  | 2.34                                | 102                                |
| 71                             | 12                               | 66.63                               | 60                                 | 1.48                                | 149                                |
| 71                             | 13                               | 56.50                               | 65                                 | 1.36                                | 158                                |
| 71                             | 14                               | 36.95                               | 70                                 | 1.36                                | 158                                |
| 71                             | 15                               | 13.97                               | 152                                | 2.03                                | 90                                 |
| 71                             | 16                               | 8.75                                | 16                                 | 1.04                                | 104                                |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 71                      | 17                        | 6.11                         | 131                         | 1.13                         | 26                          |
| 71                      | 18                        | 2.89                         | 127                         | .56                          | 26                          |
| 71                      | 19                        | 5.23                         | 29                          | 1.48                         | 120                         |
| 71                      | 20                        | 53.37                        | 92                          | 1.29                         | 11                          |
| 71                      | 21                        | 53.50                        | 49                          | 1.04                         | 104                         |
| 71                      | 22                        | 37.77                        | 102                         | 1.13                         | 26                          |
| 71                      | 23                        | 6.35                         | 0                           | 1.29                         | 101                         |
| 71                      | 24                        | 74.32                        | 127                         | 1.62                         | 38                          |
| 71                      | 25                        | 136.83                       | 13                          | 1.93                         | 113                         |
| 71                      | 26                        | 33.94                        | 95                          | 1.54                         | 170                         |
| 71                      | 27                        | 22.46                        | 100                         | 1.36                         | 21                          |
| 71                      | 28                        | 38.86                        | 68                          | 1.93                         | 156                         |
| 71                      | 29                        | 27.16                        | 103                         | 1.77                         | 0                           |
| 71                      | 30                        | 13.77                        | 22                          | 1.60                         | 108                         |
| 71                      | 31                        | 20.59                        | 92                          | 1.27                         | 0                           |
| 71                      | 32                        | 21.74                        | 112                         | 1.27                         | 36                          |
| 71                      | 33                        | 31.50                        | 82                          | 2.30                         | 173                         |
| 71                      | 34                        | 30.80                        | 139                         | 1.62                         | 51                          |
| 71                      | 35                        | 43.32                        | 60                          | 1.79                         | 135                         |
| 71                      | 36                        | 32.40                        | 138                         | 1.43                         | 44                          |
| 71                      | 37                        | 31.36                        | 95                          | 1.70                         | 26                          |
| 71                      | 38                        | 35.56                        | 90                          | 2.04                         | 7                           |
| 71                      | 39                        | 33.27                        | 90                          | 1.01                         | 0                           |
| 71                      | 40                        | 28.83                        | 121                         | 1.79                         | 44                          |
| 71                      | 41                        | 23.36                        | 90                          | 1.29                         | 11                          |
| 71                      | 42                        | 110.23                       | 22                          | 1.36                         | 111                         |
| 71                      | 43                        | 19.31                        | 87                          | 1.04                         | 14                          |
| 71                      | 44                        | 34.96                        | 168                         | 1.54                         | 80                          |
| 71                      | 45                        | 22.83                        | 20                          | 1.48                         | 120                         |
| 71                      | 46                        | 30.95                        | 113                         | 2.27                         | 26                          |
| 71                      | 47                        | 122.46                       | 13                          | .80                          | 108                         |
| 71                      | 48                        | 23.92                        | 93                          | 1.27                         | 36                          |
| 71                      | 49                        | 24.95                        | 94                          | 1.54                         | 9                           |
| 71                      | 50                        | 160.50                       | 20                          | 1.93                         | 113                         |
| 71                      | 51                        | 159.20                       | 21                          | 1.43                         | 135                         |
| 71                      | 52                        | 14.90                        | 13                          | 1.27                         | 90                          |
| 71                      | 53                        | 29.42                        | 117                         | 1.07                         | 44                          |
| 71                      | 54                        | 14.69                        | 99                          | 1.04                         | 14                          |
| 71                      | 55                        | 28.79                        | 120                         | .56                          | 26                          |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 71                             | 56                               | 20.00                               | 69                                 | 1.04                                | 165                                |
| 71                             | 57                               | 23.62                               | 143                                | 1.29                                | 78                                 |
| 71                             | 58                               | 11.46                               | 12                                 | 1.43                                | 135                                |
| 71                             | 59                               | 10.27                               | 98                                 | 1.93                                | 23                                 |
| 71                             | 60                               | 11.56                               | 109                                | 2.15                                | 44                                 |
| 71                             | 61                               | 22.69                               | 174                                | 2.03                                | 90                                 |
| 71                             | 62                               | 27.94                               | 89                                 | 1.27                                | 0                                  |
| 71                             | 63                               | 12.04                               | 132                                | 1.29                                | 78                                 |
| 71                             | 64                               | 12.21                               | 159                                | 1.13                                | 63                                 |
| 71                             | 65                               | 18.31                               | 109                                | 1.13                                | 26                                 |
| 71                             | 66                               | 4.44                                | 149                                | 1.62                                | 51                                 |
| 71                             | 67                               | 3.61                                | 140                                | 1.79                                | 81                                 |
| 71                             | 68                               | 9.91                                | 39                                 | 4.54                                | 153                                |
| 71                             | 69                               | 12.17                               | 23                                 | 6.76                                | 124                                |
| 71                             | 70                               | 5.57                                | 133                                | 1.27                                | 53                                 |
| 71                             | 71                               | 1.27                                | 0                                  | 1.27                                | 90                                 |
| 71                             | 72                               | 1.52                                | 90                                 | 1.29                                | 11                                 |
| 71                             | 73                               | 16.49                               | 9                                  | 1.77                                | 90                                 |
| 71                             | 74                               | 20.03                               | 140                                | 1.48                                | 59                                 |
| 71                             | 75                               | 5.63                                | 172                                | 3.94                                | 75                                 |
| 71                             | 76                               | 15.75                               | 90                                 | 2.03                                | 0                                  |
| 71                             | 77                               | 3.05                                | 4                                  | 3.04                                | 90                                 |
| 71                             | 78                               | 5.49                                | 56                                 | 5.10                                | 174                                |
| 71                             | 79                               | 5.89                                | 97                                 | 4.60                                | 6                                  |
| 71                             | 80                               | 4.31                                | 118                                | 2.89                                | 37                                 |
| 71                             | 81                               | 13.54                               | 66                                 | 1.27                                | 143                                |
| 71                             | 82                               | 5.08                                | 2                                  | 2.28                                | 90                                 |
| 71                             | 83                               | 2.28                                | 90                                 | 1.84                                | 15                                 |
| 71                             | 84                               | 31.29                               | 3                                  | 1.52                                | 90                                 |
| 71                             | 85                               | 18.58                               | 3                                  | 1.52                                | 90                                 |
| 71                             | 86                               | 25.99                               | 33                                 | 1.43                                | 135                                |
| 71                             | 87                               | 4.83                                | 176                                | 2.28                                | 90                                 |
| 72                             | 1                                | 132.57                              | 58                                 | 2.39                                | 147                                |
| 72                             | 2                                | 21.84                               | 54                                 | 4.66                                | 157                                |
| 72                             | 3                                | 28.75                               | 54                                 | 1.27                                | 143                                |
| 72                             | 4                                | 19.67                               | 113                                | 1.13                                | 26                                 |
| 72                             | 5                                | 18.64                               | 70                                 | 1.60                                | 161                                |
| 72                             | 6                                | 7.02                                | 167                                | 1.83                                | 56                                 |
| 72                             | 7                                | 56.39                               | 0                                  | 1.29                                | 101                                |



### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 72                      | 8                         | 102.49                       | 22                          | 1.27                         | 90                          |
| 72                      | 9                         | 4.83                         | 93                          | 1.79                         | 8                           |
| 72                      | 10                        | 28.22                        | 120                         | 1.27                         | 36                          |
| 72                      | 11                        | 86.44                        | 2                           | 1.27                         | 90                          |
| 72                      | 12                        | 27.35                        | 79                          | 2.28                         | 0                           |
| 72                      | 13                        | 50.82                        | 1                           | 1.93                         | 66                          |
| 72                      | 14                        | 11.51                        | 104                         | 1.48                         | 30                          |
| 72                      | 15                        | 29.72                        | 1                           | 2.04                         | 82                          |
| 72                      | 16                        | 47.16                        | 82                          | .76                          | 0                           |
| 72                      | 17                        | 47.73                        | 61                          | 1.84                         | 164                         |
| 72                      | 18                        | 117.96                       | 111                         | 1.60                         | 18                          |
| 72                      | 19                        | 5.38                         | 81                          | 3.69                         | 15                          |
| 72                      | 20                        | 56.00                        | 33                          | 1.70                         | 116                         |
| 72                      | 21                        | 65.45                        | 38                          | 1.93                         | 156                         |
| 72                      | 22                        | 79.42                        | 171                         | 2.73                         | 68                          |
| 72                      | 23                        | 57.29                        | 75                          | 2.28                         | 0                           |
| 72                      | 24                        | 57.83                        | 78                          | 1.27                         | 0                           |
| 72                      | 25                        | 30.31                        | 171                         | 3.09                         | 80                          |
| 72                      | 26                        | 32.54                        | 177                         | 1.36                         | 68                          |
| 72                      | 27                        | 45.04                        | 15                          | .80                          | 108                         |
| 72                      | 28                        | 3.05                         | 4                           | 2.34                         | 77                          |
| 72                      | 29                        | 2.27                         | 63                          | 1.84                         | 15                          |
| 72                      | 30                        | 33.89                        | 60                          | 3.21                         | 161                         |
| 72                      | 31                        | 43.50                        | 64                          | 1.84                         | 164                         |
| 72                      | 32                        | 15.95                        | 170                         | .80                          | 71                          |
| 72                      | 33                        | 15.45                        | 62                          | 1.36                         | 158                         |
| 72                      | 34                        | 9.14                         | 1                           | 1.27                         | 90                          |
| 72                      | 35                        | 21.39                        | 137                         | 1.43                         | 44                          |
| 72                      | 36                        | 39.30                        | 165                         | 1.54                         | 80                          |
| 72                      | 37                        | 72.45                        | 165                         | 1.04                         | 75                          |
| 72                      | 38                        | 32.53                        | 169                         | 1.36                         | 68                          |
| 72                      | 39                        | 55.86                        | 23                          | 2.70                         | 131                         |
| 72                      | 40                        | 29.88                        | 121                         | 1.27                         | 36                          |
| 72                      | 41                        | 57.73                        | 41                          | .91                          | 146                         |
| 72                      | 42                        | 10.18                        | 94                          | 1.36                         | 21                          |
| 72                      | 43                        | 48.49                        | 164                         | 1.04                         | 75                          |
| 72                      | 44                        | 9.31                         | 17                          | 1.01                         | 90                          |
| 72                      | 45                        | 64.46                        | 36                          | 1.70                         | 116                         |
| 72                      | 46                        | 77.85                        | 72                          | 2.04                         | 172                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 72                      | 47                        | 58.25                        | 68                          | 1.01                         | 0                           |
| 72                      | 48                        | 23.53                        | 46                          | .91                          | 146                         |
| 72                      | 49                        | 14.83                        | 38                          | 1.04                         | 104                         |
| 72                      | 50                        | 15.78                        | 56                          | 1.36                         | 158                         |
| 72                      | 51                        | 14.08                        | 146                         | 1.79                         | 44                          |
| 72                      | 52                        | 24.43                        | 43                          | 1.79                         | 135                         |
| 72                      | 53                        | 31.25                        | 172                         | 1.01                         | 90                          |
| 72                      | 54                        | 30.36                        | 55                          | 1.27                         | 0                           |
| 72                      | 55                        | 35.65                        | 139                         | 1.62                         | 51                          |
| 72                      | 56                        | 41.25                        | 36                          | 1.27                         | 126                         |
| 72                      | 57                        | 30.58                        | 122                         | 1.13                         | 26                          |
| 72                      | 58                        | 47.55                        | 55                          | 1.79                         | 171                         |
| 72                      | 59                        | 39.22                        | 65                          | 1.36                         | 158                         |
| 72                      | 60                        | 27.95                        | 151                         | 1.48                         | 59                          |
| 72                      | 61                        | 16.98                        | 148                         | 1.70                         | 63                          |
| 72                      | 62                        | 11.70                        | 24                          | 1.36                         | 111                         |
| 72                      | 63                        | 28.30                        | 158                         | 1.29                         | 78                          |
| 72                      | 64                        | 52.85                        | 17                          | 1.84                         | 105                         |
| 72                      | 65                        | 52.82                        | 62                          | 2.34                         | 167                         |
| 72                      | 66                        | 12.21                        | 93                          | 1.36                         | 21                          |
| 72                      | 67                        | 14.06                        | 110                         | 1.62                         | 38                          |
| 72                      | 68                        | 21.85                        | 1                           | 1.52                         | 90                          |
| 72                      | 69                        | 39.51                        | 44                          | 1.29                         | 168                         |
| 72                      | 70                        | 80.40                        | 19                          | 1.48                         | 120                         |
| 72                      | 71                        | 69.37                        | 40                          | .80                          | 161                         |
| 72                      | 72                        | 67.57                        | 7                           | 1.29                         | 101                         |
| 72                      | 73                        | 24.44                        | 122                         | 1.62                         | 51                          |
| 72                      | 74                        | 15.19                        | 128                         | 1.48                         | 30                          |
| 72                      | 75                        | 63.13                        | 160                         | 1.62                         | 51                          |
| 72                      | 76                        | 10.16                        | 1                           | 2.03                         | 90                          |
| 72                      | 77                        | 23.01                        | 127                         | 2.30                         | 6                           |
| 72                      | 78                        | 57.90                        | 47                          | 1.43                         | 135                         |
| 72                      | 79                        | 30.44                        | 102                         | 2.73                         | 21                          |
| 72                      | 80                        | 45.66                        | 62                          | 1.84                         | 164                         |
| 72                      | 81                        | 28.40                        | 121                         | 1.70                         | 63                          |
| 72                      | 82                        | 39.77                        | 20                          | 2.17                         | 110                         |
| 72                      | 83                        | 25.75                        | 36                          | 1.62                         | 128                         |
| 72                      | 84                        | 14.65                        | 25                          | 1.29                         | 101                         |
| 72                      | 85                        | 63.32                        | 48                          | 2.40                         | 161                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 72                      | 86                        | 45.79                        | 33                          | 1.98                         | 140                         |
| 72                      | 87                        | 48.43                        | 77                          | 1.04                         | 14                          |
| 72                      | 88                        | 5.84                         | 87                          | 5.84                         | 0                           |
| 72                      | 89                        | 6.62                         | 4                           | 3.84                         | 97                          |
| 72                      | 90                        | 3.14                         | 104                         | 2.17                         | 20                          |
| 72                      | 91                        | 7.62                         | 143                         | 1.93                         | 66                          |
| 72                      | 92                        | 7.93                         | 7                           | 2.03                         | 90                          |
| 72                      | 93                        | 29.32                        | 4                           | 1.77                         | 90                          |
| 72                      | 94                        | 24.42                        | 115                         | 1.36                         | 21                          |
| 72                      | 95                        | 25.41                        | 178                         | 1.79                         | 81                          |
| 72                      | 96                        | 9.40                         | 178                         | 1.93                         | 66                          |
| 72                      | 97                        | 36.80                        | 27                          | 2.96                         | 120                         |
| 72                      | 98                        | 7.72                         | 99                          | 1.36                         | 21                          |
| 72                      | 99                        | 4.57                         | 0                           | 3.81                         | 90                          |
| 72                      | 100                       | 6.60                         | 92                          | 6.37                         | 175                         |
| 72                      | 101                       | 3.31                         | 175                         | 2.30                         | 83                          |
| 72                      | 102                       | 8.88                         | 120                         | 1.36                         | 21                          |
| 72                      | 103                       | 24.99                        | 64                          | 1.04                         | 165                         |
| 72                      | 104                       | 63.52                        | 10                          | .50                          | 90                          |
| 72                      | 105                       | 11.18                        | 92                          | .80                          | 18                          |
| 72                      | 106                       | 11.81                        | 98                          | 1.07                         | 44                          |
| 72                      | 107                       | 14.94                        | 17                          | 1.13                         | 116                         |
| 72                      | 108                       | 36.06                        | 11                          | 4.07                         | 93                          |
| 73                      | 1                         | 117.11                       | 71                          | 1.27                         | 0                           |
| 73                      | 2                         | 137.92                       | 54                          | 1.70                         | 153                         |
| 73                      | 3                         | 90.76                        | 35                          | 1.29                         | 101                         |
| 73                      | 4                         | 172.25                       | 158                         | 2.04                         | 82                          |
| 73                      | 5                         | 87.01                        | 156                         | 2.09                         | 75                          |
| 73                      | 6                         | 91.45                        | 78                          | 1.52                         | 0                           |
| 73                      | 7                         | 43.87                        | 110                         | 1.04                         | 14                          |
| 73                      | 8                         | 43.30                        | 72                          | 1.04                         | 165                         |
| 73                      | 9                         | 27.19                        | 145                         | 1.27                         | 53                          |
| 73                      | 10                        | 35.10                        | 72                          | .50                          | 0                           |
| 73                      | 11                        | 118.56                       | 109                         | 1.29                         | 11                          |
| 73                      | 12                        | 43.99                        | 37                          | 1.48                         | 120                         |
| 73                      | 13                        | 7.33                         | 75                          | 1.01                         | 0                           |
| 73                      | 14                        | 116.38                       | 71                          | 1.52                         | 0                           |
| 73                      | 15                        | 54.36                        | 174                         | 1.01                         | 90                          |
| 73                      | 16                        | 9.48                         | 82                          | 8.12                         | 0                           |

### ***Raw Data by Tooth***

| <i><b>Tooth<br/>Number</b></i> | <i><b>Feature<br/>Number</b></i> | <i><b>Major Axis<br/>Length</b></i> | <i><b>Major Axis<br/>Slope</b></i> | <i><b>Minor Axis<br/>Length</b></i> | <i><b>Minor Axis<br/>Slope</b></i> |
|--------------------------------|----------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 73                             | 17                               | 3.05                                | 85                                 | 2.79                                | 0                                  |
| 73                             | 18                               | 13.46                               | 178                                | 5.92                                | 80                                 |
| 73                             | 19                               | 97.44                               | 107                                | 1.01                                | 0                                  |
| 73                             | 20                               | 17.44                               | 106                                | .76                                 | 0                                  |
| 73                             | 21                               | 10.01                               | 59                                 | 1.07                                | 135                                |
| 73                             | 22                               | 19.39                               | 135                                | .80                                 | 71                                 |
| 73                             | 23                               | 10.93                               | 120                                | .56                                 | 26                                 |
| 73                             | 24                               | 34.15                               | 51                                 | 3.95                                | 135                                |
| 73                             | 25                               | 16.98                               | 55                                 | 1.62                                | 141                                |
| 73                             | 26                               | 18.16                               | 69                                 | 1.79                                | 135                                |
| 73                             | 27                               | 48.56                               | 113                                | 1.29                                | 11                                 |
| 73                             | 28                               | 18.60                               | 57                                 | 1.36                                | 158                                |
| 73                             | 29                               | 62.37                               | 40                                 | 1.13                                | 116                                |
| 73                             | 30                               | 35.29                               | 103                                | 1.13                                | 26                                 |
| 73                             | 31                               | 61.62                               | 17                                 | 2.89                                | 105                                |
| 73                             | 32                               | 87.87                               | 108                                | 1.62                                | 38                                 |
| 73                             | 33                               | 117.60                              | 14                                 | 1.60                                | 108                                |
| 73                             | 34                               | 45.92                               | 101                                | 1.13                                | 26                                 |
| 73                             | 35                               | 31.23                               | 104                                | 1.54                                | 9                                  |
| 73                             | 36                               | 40.02                               | 106                                | 1.13                                | 63                                 |
| 73                             | 37                               | 50.56                               | 88                                 | .50                                 | 0                                  |
| 73                             | 38                               | 27.39                               | 72                                 | 1.01                                | 0                                  |
| 73                             | 39                               | 38.68                               | 119                                | .91                                 | 33                                 |
| 73                             | 40                               | 18.97                               | 116                                | .91                                 | 33                                 |
| 73                             | 41                               | 29.49                               | 132                                | .91                                 | 33                                 |
| 73                             | 42                               | 25.55                               | 116                                | 1.04                                | 75                                 |
| 73                             | 43                               | 11.10                               | 79                                 | 4.06                                | 0                                  |
| 73                             | 44                               | 2.04                                | 172                                | 2.04                                | 82                                 |
| 73                             | 45                               | 2.03                                | 90                                 | .80                                 | 18                                 |
| 73                             | 46                               | 3.56                                | 4                                  | 2.55                                | 95                                 |
| 73                             | 47                               | 4.85                                | 173                                | 2.30                                | 83                                 |
| 73                             | 48                               | 16.00                               | 54                                 | 1.13                                | 153                                |
| 73                             | 49                               | 48.27                               | 71                                 | 1.36                                | 158                                |
| 73                             | 50                               | 19.54                               | 152                                | 1.62                                | 51                                 |
| 73                             | 51                               | 3.04                                | 90                                 | 1.54                                | 9                                  |
| 73                             | 52                               | 2.54                                | 0                                  | 2.28                                | 90                                 |
| 73                             | 53                               | 47.48                               | 98                                 | 1.79                                | 8                                  |
| 73                             | 54                               | 38.88                               | 109                                | 1.79                                | 81                                 |
| 73                             | 55                               | 29.99                               | 46                                 | 1.13                                | 116                                |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 73                      | 56                        | 27.76                        | 81                          | .80                          | 161                         |
| 73                      | 57                        | 30.37                        | 60                          | .80                          | 161                         |
| 73                      | 58                        | 28.66                        | 60                          | 1.27                         | 0                           |
| 73                      | 59                        | 33.28                        | 38                          | 1.27                         | 126                         |
| 73                      | 60                        | 9.80                         | 121                         | 1.04                         | 14                          |
| 73                      | 61                        | 45.14                        | 70                          | 1.84                         | 164                         |
| 73                      | 62                        | 14.48                        | 52                          | 1.48                         | 149                         |
| 73                      | 63                        | 25.86                        | 107                         | 1.70                         | 26                          |
| 73                      | 64                        | 2.04                         | 7                           | 2.03                         | 90                          |
| 73                      | 65                        | 1.77                         | 0                           | 1.52                         | 90                          |
| 73                      | 66                        | 14.55                        | 150                         | 1.79                         | 81                          |
| 73                      | 67                        | 31.77                        | 55                          | 2.83                         | 153                         |
| 73                      | 68                        | 30.54                        | 93                          | 1.60                         | 18                          |
| 73                      | 69                        | 59.82                        | 103                         | 1.29                         | 11                          |
| 73                      | 70                        | 29.29                        | 168                         | 1.54                         | 80                          |
| 73                      | 71                        | 44.98                        | 18                          | 1.60                         | 108                         |
| 73                      | 72                        | 67.71                        | 93                          | 1.01                         | 0                           |
| 73                      | 73                        | 39.37                        | 89                          | 1.13                         | 26                          |
| 73                      | 74                        | 21.33                        | 81                          | 2.54                         | 0                           |
| 73                      | 75                        | 42.83                        | 69                          | 1.84                         | 164                         |
| 73                      | 76                        | 37.82                        | 63                          | 3.31                         | 175                         |
| 73                      | 77                        | 6.72                         | 79                          | 3.30                         | 0                           |
| 73                      | 78                        | 3.31                         | 94                          | 3.30                         | 0                           |
| 73                      | 79                        | 3.84                         | 7                           | 3.56                         | 94                          |
| 73                      | 80                        | 4.07                         | 176                         | 2.54                         | 90                          |
| 73                      | 81                        | 19.19                        | 64                          | 1.79                         | 171                         |
| 73                      | 82                        | 22.73                        | 71                          | .76                          | 0                           |
| 73                      | 83                        | 37.60                        | 91                          | 1.27                         | 0                           |
| 73                      | 84                        | 37.29                        | 58                          | 3.77                         | 160                         |
| 73                      | 85                        | 31.56                        | 56                          | 2.18                         | 144                         |
| 73                      | 86                        | 28.91                        | 51                          | 1.60                         | 108                         |
| 73                      | 87                        | 38.34                        | 73                          | 1.29                         | 168                         |
| 73                      | 88                        | 21.36                        | 61                          | 1.04                         | 165                         |
| 73                      | 89                        | 7.91                         | 95                          | 1.04                         | 14                          |
| 73                      | 90                        | 19.53                        | 116                         | 1.98                         | 39                          |
| 73                      | 91                        | 10.79                        | 63                          | 1.62                         | 128                         |
| 73                      | 92                        | 33.81                        | 92                          | .80                          | 18                          |
| 73                      | 93                        | 38.16                        | 93                          | 1.13                         | 26                          |
| 73                      | 94                        | 45.55                        | 64                          | 1.36                         | 158                         |

### ***Raw Data by Tooth***

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 73                      | 95                        | 33.04                        | 87                          | 1.13                         | 26                          |
| 73                      | 96                        | 42.62                        | 52                          | 1.70                         | 153                         |
| 73                      | 97                        | 50.47                        | 82                          | 1.54                         | 170                         |
| 73                      | 98                        | 12.00                        | 173                         | 1.54                         | 80                          |
| 73                      | 99                        | 12.68                        | 32                          | 2.61                         | 119                         |
| 73                      | 100                       | 25.26                        | 170                         | 1.79                         | 81                          |
| 73                      | 101                       | 9.81                         | 111                         | 1.04                         | 75                          |
| 73                      | 102                       | 24.57                        | 18                          | 2.27                         | 116                         |
| 73                      | 103                       | 24.31                        | 62                          | 3.05                         | 175                         |
| 73                      | 104                       | 35.65                        | 85                          | 2.04                         | 7                           |
| 73                      | 105                       | 23.62                        | 88                          | 1.79                         | 8                           |
| 73                      | 106                       | 16.48                        | 61                          | 1.04                         | 165                         |
| 73                      | 107                       | 22.43                        | 74                          | 4.57                         | 160                         |
| 73                      | 108                       | 26.51                        | 53                          | 1.29                         | 168                         |
| 73                      | 109                       | 18.60                        | 57                          | 1.62                         | 141                         |
| 73                      | 110                       | 28.62                        | 41                          | 1.07                         | 135                         |
| 73                      | 111                       | 7.84                         | 155                         | 1.29                         | 78                          |
| 73                      | 112                       | 18.31                        | 66                          | 1.54                         | 170                         |
| 73                      | 113                       | 8.59                         | 108                         | 1.01                         | 0                           |
| 73                      | 114                       | 21.01                        | 172                         | 1.27                         | 90                          |
| 73                      | 115                       | 11.10                        | 169                         | 1.04                         | 75                          |
| 73                      | 116                       | 9.17                         | 41                          | 1.27                         | 126                         |
| 73                      | 117                       | 12.04                        | 145                         | 1.04                         | 75                          |
| 73                      | 118                       | 28.40                        | 117                         | 1.27                         | 36                          |
| 73                      | 119                       | 11.98                        | 85                          | 1.79                         | 171                         |
| 73                      | 120                       | 8.84                         | 129                         | .80                          | 71                          |
| 73                      | 121                       | 17.83                        | 70                          | 2.83                         | 153                         |
| 73                      | 122                       | 8.02                         | 100                         | 2.54                         | 0                           |
| 73                      | 123                       | 38.99                        | 129                         | 1.27                         | 53                          |
| 73                      | 124                       | 10.80                        | 60                          | 1.62                         | 141                         |
| 73                      | 125                       | 11.84                        | 54                          | .80                          | 161                         |
| 73                      | 126                       | 20.64                        | 71                          | 1.36                         | 158                         |
| 73                      | 127                       | 2.09                         | 165                         | 1.84                         | 74                          |
| 73                      | 128                       | 3.05                         | 175                         | 1.54                         | 99                          |
| 73                      | 129                       | 2.34                         | 167                         | 1.52                         | 90                          |
| 73                      | 130                       | 2.65                         | 163                         | 1.60                         | 71                          |
| 73                      | 131                       | 9.20                         | 62                          | 1.83                         | 146                         |
| 73                      | 132                       | 20.45                        | 75                          | .76                          | 0                           |
| 73                      | 133                       | 13.17                        | 56                          | 1.43                         | 135                         |

### *Raw Data by Tooth*

| <i>Tooth<br/>Number</i> | <i>Feature<br/>Number</i> | <i>Major Axis<br/>Length</i> | <i>Major Axis<br/>Slope</i> | <i>Minor Axis<br/>Length</i> | <i>Minor Axis<br/>Slope</i> |
|-------------------------|---------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 73                      | 134                       | 19.47                        | 59                          | 1.04                         | 165                         |
| 73                      | 135                       | 23.22                        | 5                           | 1.27                         | 90                          |
| 73                      | 136                       | 18.39                        | 35                          | 2.04                         | 119                         |
| 73                      | 137                       | 3.81                         | 0                           | 2.03                         | 90                          |
| 73                      | 138                       | 3.81                         | 3                           | 1.77                         | 90                          |
| 73                      | 139                       | 22.86                        | 88                          | .76                          | 0                           |
| 73                      | 140                       | 21.59                        | 88                          | 1.27                         | 0                           |
| 73                      | 141                       | 16.13                        | 123                         | 1.79                         | 81                          |
| 73                      | 142                       | 23.97                        | 105                         | .91                          | 33                          |
| 73                      | 143                       | 2.03                         | 90                          | 1.54                         | 170                         |
| 73                      | 144                       | 10.11                        | 78                          | 1.04                         | 14                          |
| 73                      | 145                       | 6.71                         | 60                          | 1.48                         | 149                         |
| 73                      | 146                       | 8.97                         | 115                         | 2.18                         | 35                          |
| 73                      | 147                       | 26.16                        | 88                          | 1.13                         | 153                         |
| 73                      | 148                       | 5.14                         | 159                         | 1.27                         | 36                          |
| 73                      | 149                       | 8.91                         | 160                         | 1.79                         | 81                          |
| 73                      | 150                       | 13.00                        | 77                          | 1.83                         | 146                         |
| 73                      | 151                       | 61.02                        | 48                          | 1.07                         | 135                         |
| 73                      | 152                       | 12.61                        | 130                         | .91                          | 56                          |
| 73                      | 153                       | 19.34                        | 76                          | .80                          | 161                         |
| 73                      | 154                       | 39.06                        | 69                          | 2.34                         | 167                         |



**VITA**

## VITA

Melissa Grace Muendel was born at All Souls Hospital in Morristown, New Jersey on March 31, 1951. She was raised in Basking Ridge, New Jersey and educated at Bernards Township Public Schools and graduated from Saint John Baptist School, Mendham, New Jersey (1969). She graduated from Green Mountain College for Women in Poultney, Vermont (1971) with an A. A. in Liberal Arts. She received her B. A. in History from Lehigh University, Bethlehem, Pennsylvania (1973) and was one of the first ten women to receive a bachelor's degree from Lehigh.

After a three year vocation as a registered representative in an investment banking firm on Wall Street, Missy toured Europe, and after returning started graduate school at Drew University in Madison, New Jersey, where she earned her Master's degree in Near Eastern Archaeology (1981). She dug at Caesarea Maritima (1978) and Tell el-Hesi (1979, 1981) in Israel and after receiving her master's spent the next four years doing contract prehistoric and historic archaeology in Delaware, District of Columbia, Kentucky, New Jersey, New York City, and Virginia for Louis Berger and Associates, New Jersey Department of Transportation; New York City Historical Commission; Department of Parks and Recreation, Washington, D. C.; Engineering Sciences; and other companies. She started her Ph. D. in Syro - Palestinian Archaeology in the Department of Oriental Studies, at the University of Pennsylvania but left to concentrate her studies on physical anthropology at the University of Tennessee, where she began the Ph. D. program in 1991.

She moved to Knoxville in 1985 and worked at the Greater Knoxville Chamber of Commerce where she started the Research Department and was Director of Research for ten years. After becoming President of the American Chamber of Commerce Researcher's Association, she served on the board of directors of the American Chamber of Commerce Executives and the American Economic Development Council. In February 1997, she left the Chamber of Commerce and has been working on her dissertation full-time.

She is a member of Archaeological Institute of America and has recently joined the American Association of Physical Anthropology and will present a paper in Salt Lake City about this research project in April 1998.