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ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITIONS
AND THE DIVISION OF ACTIVITY BY GENDER
OF THE PROTOHISTORIC SENECA

presented by

John Charles Seidel

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Anthropology

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ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITIONS AND THE DIVISION OF ACTIVITY BY GENDER OF THE PROTOHISTORIC SENECA

By

John Charles Seidel

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Anthropology

1994

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ABSTRACT

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITIONS AND THE DIVISION OF ACTIVITY BY GENDER OF THE PROTOHISTORIC SENECA

By

John Charles Seidel

Skeletal research in physical anthropology has demonstrated the ability to reconstruct diet and disease in prehistoric samples. Studies in patterns of dental wear have speculated upon particular types of individual activity. However, an underlying question remains as to the possibility of reconstructing prehistoric lifeways with the evidence present in dental and osseous material. The anthropology literature is without a method designed to address the issue of reconstructing behavior from the dental record. There is currently no corpus of skeletal evidence associated with known patterns of behavior that has been acquired with a standard method suited to comparative analysis. It is the goal of this research to examine the relationship between the activity-induced dental and osseous conditions present in a protohistoric Seneca skeletal sample and the division of activity by gender as documented in the protohistoric and early historic Iroquois ethnographic literature. The examination and identification of the relationship between skeletal conditions and activity by gender is intended to establish a method for the investigation of multiple collections and designed to achieve the reconstruction of past lifeways from the skeletal record.

In order to achieve this goal, the division of labor by sex has been extended to a more inclusive division of activity by gender. The concept of an activity-induced dental pathology has been expanded to one of an activity-induced dental and osseous condition.

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A division of activity by gender categorization has been developed and utilized in a survey of the Iroquois ethnographic literature to describe the protohistoric Seneca with specific identification of activities by gender. An activity-induced dental and osseous condition profile has been developed and applied to each individual of the Seneca sample to identify and score fourteen skeletal signs of activity-induced hard tissue alteration. The activity-induced profiles have been statistically tested to determine the differences between males and females in the activity-induced dental and osseous conditions. The Seneca activity-induced dental and osseous condition profiles have been integrated with the protohistoric Seneca division of activity by gender as identified in the Iroquois ethnographic literature.

The Seneca sample demonstrates a significant difference by sex in the activity-induced dental and osseous conditions of abrasion and attrition with the remaining conditions presenting no difference between males and females. The significant differences in the activity-induced conditions are attributed to the division of activity by gender of the Seneca during the protohistoric period.

The method designed and applied to the Seneca sample establishes the capacity to identify conditions in dental and osseous material which align with social organization. The application of the method to additional skeletal collections enables comparative interpretation of activity-induced conditions with the ultimate expectation of reconstructing patterns of behavior for individuals without substantial ethnographic or archeological records.

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Dedication

This research is dedicated to the members of the community of the Abbey of Regina Laudis, Bethlehem, Connecticut, in support of their persistence to seek a comprehensive vision of humanity.

ACKNOWLEDGEMENTS

The following individuals and institutions provided essential guidance and assistance in the completion of this research:

Dr. Norman J. Sauer, dissertation committee chairperson, who repeatedly provided insight, focus and clarity to the research and dissertation. I am very grateful for his gracious manner, professionalism and expertise.

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The Rochester Museum and Science Center which allowed access to the Seneca skeletal material and particularly Dr. Lorraine Saunders for her dedication to the Seneca collection.

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CHAPTER I

INTRODUCTION

For well over a century in physical anthropology, the dentition has been an important component of the skeletal material available for research. Access to dental material from prehistoric and historic archaeological sites has afforded researchers the opportunity to study the character, size, and form of the teeth and dental arches as well as to identify the patterns and signs associated with modern dental disease (Anderson, 1964; Bentzen, 1929; Dahlberg, 1945; Pedersen, 1938; Sozinskey, 1878; Stewart, 1946). The earliest studies of the dentition focused on individual case reports, metric analysis, and particular trait frequencies (Bentzen, 1929; Campbell, 1939; Leigh, 1923). These initial studies recognized the utility of the dentition as a record of characteristics and patterns of both individuals and populations of antiquity. However, and understandably, as primary research in a developing specialty of physical anthropology, the early dental studies lacked a consistent methodology and unified definition of terms. Therefore, the comparability of research, such as case reports and incidence studies of dental caries, have been difficult to interpret. Yet these works have formed the basis for a more expansive and detailed mid-century exploration of the information present in dental skeletal collections. Along with the continued research in the prehistoric incidence of dental caries (Brothwell, 1961; Hardwick, 1960), other foci such as dental attrition (Hinton, 1981; Lavelle, 1973; Molnar, 1968, 1971), alveolar bone (Davies, 1969; Lavelle, 1969), abrasion (Dahlberg, 1960; Smith, 1962; Turner, 1967), and antemortem tooth loss (Merbs,

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1968; Pederson, 1952) have been included in the analysis of the dentition and associated skeletal structures.

During the last twenty years, the dental component of the physical anthropology literature has explored various means for recognizing and reconstructing aspects in the lifeways of ancestral populations. Along with expansion in previous areas of study, additional research in enamel hypoplasia and environmental stress have led to the capability through dental analysis of evaluating and reconstructing subsistence (Goodman, et al., 1980; Goodman and Armelagos 1985; Goodman and Rose 1991; Patterson 1984; Turner 1978). Patterns of dental wear, including occlusal attrition, interproximal attrition and abrasion have been utilized to study diet and interpret task activities (Hinton, 1981; Larsen, 1985; Lukacs, 1992; Molnar, 1972, 1983; Schulz, 1977; Smith, 1983; Wallace, 1974).

Stephen Molnar has repeatedly asserted that human tooth wear provides evidence for the interpretation of cultural patterns and lifeways of the group under study, presumably by considering the dental changes to be a result of performing tasks other than mastication (Molnar, 1968, 1970, 1971, 1972). However, since Molnar's initial assertion, there has been little in the way of research to pursue this theoretical direction. Part of the difficulty is the broad scope of the underlying hypothesis; lifeways and ultimately social organization can be reconstructed from the analysis of skeletal material, in particular dental wear. An additional difficulty is the lack of a consistent and comparable method of dental analysis which integrates patterns of skeletal findings with a general framework of social organization. There has been a number of studies which identify activity-induced dental patterns; however, the interpretation of the research has been focused on the association of a specific task with the dental wear in evidence (Berryman et al., 1979; Eckhardt, and Piermarini, 1988; Formicola, 1988; Hinton, 1981; Larson, 1985; Lous, 1970; Lukacs and Pastor, 1988; Peuch and Cianfarami, 1988; Schulz, 1977; Stewart, 1968; Turner and Cadien,

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1970, 1988; Ubelaker and Phenice, 1969; Willey and Ubelaker, 1976). In these limited investigations, there has been a recurrent and consistent relationship between observed dental wear patterns and the probable association with a known division of labor by sex in prehistoric society (Hinton, 1981, 1982; Larsen, 1985; Lukacs and Pastor, 1988; Merbs, 1983; Molnar, 1971b; Schulz, 1977; Turner and Cadien, 1970).

Skeletal research in general is problematic for many reasons; sample size, geographic distribution, temporal distribution and physical condition of material are only some of the potential difficulties necessary to consider in sample selections. The dentition and surrounding osseous structures provide an excellent opportunity to overcome the inherent difficulties in skeletal research. Dental material is frequently available in satisfactory volume and condition for the examination of groups of individuals. The dentition has been established in the recent literature as a material which reflects both masticatory and non-masticatory function (Addington, 1975; Campbell, 1939; Hinton, 1981, 1982; Larsen, 1985; Lukacs, 1989, 1992; Lukacs and pastor, 1988; Molnar, 1968, 1970, 1971, 1972; Schulz, 1977; Smith, 1983, 1984; Smith, 1982; Smith, 1972; Turner and Cadien, 1970; Turner, 1988). In this light, dental and osseous activity-induced investigations may be pursued relative to the accepted social theory of a division of labor by sex in prehistoric societies (Brown, 1970, 1975; Burton and White, 1984; Dahlberg, 1981; Durkheim, 1893; Gochim, 1988; Lee, 1966; Leibowitz, 1986; Murdock and Provost, 1972; Slocum, 1975; White and Burton, 1977; Willoughby, 1963). It is the integration of an accepted social construct, the division of labor by sex and an acknowledged physical relationship between dental form and function which create the context for this research to develop the theoretical and methodological focus previously lacking in the interpretation of skeletal analysis and behavioral reconstruction.

Dental and osseous wear patterns result from masticatory and non-masticatory activities. The division of labor by sex identifies different tasks strictly performed according to sex. It is theorized in this research that a profile of dental wear patterns reflect a division of labor by sex. Ultimately, this theoretical approach recognizes that skeletal samples of unknown social organization contain the potential for reconstructing the division of labor by sex based on the analysis and interpretation of activity-induced dental and osseous conditions. However, prior to attempting the description of the social organization of a skeletal sample lacking an ethnographic history it is necessary to build a corpus of research in which activity-induced skeletal findings are aligned with known patterns of individual behavior. It is only after considerable familiarity with varied skeletal collections and associated ethnographies that a comparative interpretation of an unknown ethnographic sample would be possible.

In order to initiate the collection of the vast body of information required for comparative interpretation, it is the goal of this research to examine the relationship between the activity-induced dental and osseous conditions present in a protohistoric Seneca skeletal sample and the Seneca division of activity by gender as documented in the protohistoric and early historic Iroquois ethnographic literature.

To attain this goal it is first necessary to expand the theoretical concept of an activity-induced dental pathology to one of an activity-induced dental and osseous condition. It is also necessary to redefine the division of labor by sex to the more inclusive division of activity by gender.

Methodologically, the research requires the development of an activity-induced dental and osseous condition profile which is applicable to the individuals of the Seneca sample and other skeletal collections. This research also requires the development of a division of activity by gender categorization which is to be applied to the ethnographies of the Seneca and other ethnographic histories of the Iroquois.

The relationship between the activity-induced dental and osseous conditions and the division of activity by gender is examined by testing the hypothesis that there is a signifi

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significant difference in the activity-induced dental and osseous conditions between the males and females of the Seneca sample.

In order to integrate the skeletal analysis and social reconstruction, the Seneca activity-induced dental and osseous condition profiles are aligned with the Seneca division of activity by gender as documented in the ethnographic literature.

CHAPTER II

BACKGROUND LITERATURE AND THEORETICAL PREMISE

North American Dental Paleopathology

The dental paleopathology literature reflects a heavy emphasis in dental caries research as the primary focus of study for prehistoric oral disease(Anderson, 1964; Brothwell, 1963; Costa, 1980; Fisher et al., 1931, Hall et al., 1986; Kennedy, 1960; Leigh, 1923; Lukacs, 1992; Nieburger, 1975, 1976). Dental caries, a disease which is easily recognizable in skeletal material, provides an excellent record of structural alteration for paleopathologic surveys of prehistoric and historic skeletal collections (Andrews, 1935; Beattie, 1980; Corbett and Moore, 1976; Elzay et al., 1977; Herrala, 1962; Moore and Corbett, 1971, 1973, 1975; Pedersen, 1938; Turner, 1978, 1979; Whittaker et al., 1981). Visual identification of dental caries, although straightforward macroscopically, has been difficult to standardize. The result is a series of studies of prehistoric skeletal samples with limited or no direct comparability.

One method of caries research is to report the percentage of carious teeth present in the sample. This method includes reporting percentages of loose teeth as well as those teeth articulating with a mandible, maxilla or present in an individual burial (Anderson, 1964; Hall et al., 1986; Herrala, 1962; Larsen et al., 1991; Schneider, 1986; Turner, 1979). Controlling for age, sex and antemortem tooth loss is not possible in the generation of percent values for each sample and, therefore, the usefulness of this method in paleopathologic assessment is limited. A similar method reporting percentages of carious teeth further breaks down the caries distribution by too

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A different method of reporting caries as a paleopathologic process is the percentage of individuals in the sample with one or more carious lesions (Keene, 1986; Lukacs, 1992; Moore and Corbett, 1973; Turner, 1979). In such a descriptive presentation of dental caries, controlling for age in the sample becomes an important factor. Caries is generally accepted to correlate positively with age. Reporting or comparing two sample caries frequencies by the percentage of individuals in each group will only have meaning if there are similar age curves for the samples or they have been appropriately adjusted for age in the comparison.

A third method of reporting a caries frequency is by identifying the percentages of tooth surface involved per individual in the sample. This technique affords the opportunity to control for age, sex and antemortem tooth loss but requires access to a sample of individuals rather than a sample comprised of a collection of teeth (Littleton and Frohlich, 1993).

Aside from simply describing the presence of dental caries as a paleopathologic process, recent research has focused on the relationship between dental caries incidence and patterns of subsistence. Change in prehistoric diet from one which is based on a hunter-gatherer pattern of subsistence to a horticulturally based subsistence has provided the comparative context within which to analyze change in caries frequency (Campbell, 1939; Hardwick, 1960; Larsen, 1991; Lukacs, 1992; Patterson, 1984; Turner, 1979; Turner and Machado, 1983).

Other areas of caries research in prehistoric samples consider the environment as a factor contributing to caries susceptibility. Trace element studies have yielded

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variation in caries frequencies associated with varying environmental factors such as fluoride which has been considered as a contributor to the altered caries patterns (Hildebolt et al., 1988; Molnar and Molnar, 1985; St. Hoyme and Koritzer, 1976).

Until recently, this body of research identifying and recording dental caries as a paleopathologic process has generally recorded the condition but greatly misrepresented the process. Dental caries is not a process of bacterial invasion into tooth structure as the literature so often states but rather a process of demineralization of tooth structure by the highly acidic environment of the adhering bacterial plaque (Levine, 1977: 342). The concept of the process of dental caries as a disease, the signs of which are preserved in prehistoric skeletal material, is succinctly and accurately presented by C.S. Larsen et al. in a paper discussing the changing pattern of dental caries in a diachronic study of skeletal material in the North American prehistoric Southeast (Larsen et al., 1991). Larsen's study and the work of Hall, Morrow and Clarke concerning subsistence patterns and dental caries in the Pacific Northwest are cornerstones in the literature of North American dental paleopathology in both method and interpretation. Both of these excellent studies, however, identified the percent of caries for tooth location or the percent of individuals with one or more carious lesions in the sample (Hall et al., 1986; Larsen et al., 1991).

The literature describing periodontal disease as a dental paleopathology in North America is more sparse than dental caries and much more problematic (Beagrie et al., 1970; Davies et al., 1974; Larato, 1970; Manson, 1974; Manson and Nicholson, 1976; Saari et al., 1968). The processes of periodontal disease produce signs and symptoms in the soft tissue and bone of living individuals (Homan, 1977; Loe et al., 1978). The identification of periodontal disease as a paleopathology rests solely on the appearance of alveolar bone. The relative and subjective method of recording the alveolar findings in descriptive terms such as slight, moderate and severe is often without statistical support in the paleopathology literature (Alexandersen, 1967; Barker, 1975;

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Clarke and Hirsch, 1986, 1991; Leigh, 1925). The skeletal studies which recognize dental paleopathology as the evaluation of a complex of structures by including periodontal disease, lack a standardized, objective assessment of alveolar bone (Davies et al., 1969; Goldberg et al., 1976; Hildebolt and Molnar, 1991; Lavelle, 1973; Linn et al., 1987; Ramford, 1959; Stoner, 1972; Whittaker et al., 1985). Periodontal disease, as a pathologic process of living individuals, correlates positively with increasing age (Loe et al., 1978; 610). The interpretation of periodontal disease as a paleopathology in skeletal analysis requires that the results be placed in the context of the age distribution of the sample. Intersample comparisons of periodontal disease require a standard objective recording method for individuals in each sample and a control for age. A further consideration, argued separately by Nigel Clarke and Haim Tal, and necessary to identify in determining the periodontal disease process, is whether the change present in alveolar bone is a sign of disease or an acceptable physiologic response to function (Clarke and Hirsch, 1991; Levers and Darling, 1983; Tal, 1983). It is possible that recognizing alveolar degeneration as the sole marker in skeletal material of the periodontal disease process may be inaccurate.

Antemortem tooth loss has recently been recognized as a finding of dental paleopathology necessary for consideration in the interpretation of dental caries and dental wear (Alexandersen, 1967; Kelly et al., 1991; Koritzer, 1968; Merbs, 1968; Whittaker et al. , 1981). The initial discussions in the literature were concerned with antemortem tooth loss as a form of ritual ablation (Hrdlicka, 1940; Merbs, 1968). However, particularly in North American studies, antemortem tooth loss is currently associated with dental periapical necrosis secondary to caries, wear or trauma, either chronic or acute (Clarke and Hirsch, 1991; Hall et al., 1986; Hartnady and Rose, 1991; Larsen et al., 1991; Merbs, 1983). Antemortem tooth loss has not been addressed in studies which evaluated loose teeth or groups of teeth (Anderson, 1964; Patterson, 1984). Antemortem tooth loss assessment requires an intact maxilla and an intact mand

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mandible. Often this requirement limits the skeletal samples available and the sample size of material for analysis. As result of these difficulties and their effect upon sample selection, antemortem tooth loss is frequently not included in the dental paleopathology studies of dental caries and dental wear.

Dental wear is a collective term persistently present throughout the paleopathology literature (Bartlett, 1972; Brodie, 1969; Butler, 1972; Cybulski, 1974; Hinton, 1981; Molnar, 1968, 1970, 1971a, 1972; Powers and Koran, 1973; Scott, 1979b; Smith, 1984; Smith, 1976; Taylor, 1963; Whittaker et al., 1985). Dental wear is often divided into dental attrition (tooth-to-tooth wear in association with food) and into dental abrasion (wear as a result of contact with a material other than food) (Ackerman, 1963; Akpata, 1975; Barker, 1975; Barrett, 1977; Bily, 1975; Butler, 1969; Eccles, 1982; Hall, 1976; Hinton, 1982; Lavelle, 1970; Milner, 1984; Murphy, 1959, 1959b, 1959c, 1964a, 1964b, 1964c; Richards and Brown, 1981; Romero, 1970; Ryan, 1980; Smith, 1972; Stewart, 1946; Taylor, 1963, 1975, 1984; Turner, 1988; Willey and Ubelaker, 1976). Some authors, particularly when the dental pulp chamber is involved, regard dental attrition as a pathologic process (Clarke and Hirsch, 1986; Lavelle, 1973; Philippas, 1952; Smith, 1975). Dental abrasion is more ambiguous in its classification as a pathology but has received considerable emphasis when associated with tool use and task activity (Barrett, 1977; Berryman et al., 1979; Blakely and Beck, 1984; Brace 1975; Davies, 1963; Eckhardt and Piermarini, 1988; Frayer and Russell, 1987; Hinton, 1981; Larsen, 1985; Lous, 1970; Schulz, 1977; Smith, 1976; Turner, 1967; Turner and Cadiem, 1970; Wallace, 1974).

Included in the substantial amount of literature on dental wear are two articles, Stephen Molnar's "Human Tooth Wear, Tooth Function and Cultural Variability" and B. Holly Smith's "Patterns of Molar Wear in Hunter-Gatherers and Agriculturists," which stand as both methodological and interpretive standards. Each of these studies develops and utilizes methods of assessment applicable to other samples and applies diachro

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diachronic sample analysis to known changes in subsistence patterns (Molnar, 1971; Smith, 1984). These studies establish the ability to recognize changes in patterns of behavior with evidence present in the dental record other than dental caries.

Three landmark articles by Larsen, Schultz and Turner, et al. clearly separate and establish the concept of abrasion as a dental pattern different from attrition and yet still classify the abrasive alteration of tooth structure under the general heading of dental wear. Their various research areas associate abrasive patterns with particular task activities (Larsen, 1985; Schultz, 1977; Turner and Cadien, 1970). However, a difficulty in specialized activity and abrasion studies is that the sample is often small and the ethnographic record sparse. The interpretations of particular actions necessary to yield unique abrasive dental patterns have limited skeletal and documentary support. Ultimately, the behavioral reconstruction is presented from a small number of individuals in a sample and a speculative task performed (Larsen, 1985; Schultz, 1977; Turner and Cadien, 1970).

Another aspect of paleopathology which occupies a considerable portion of the North American dental literature is the research devoted to enamel hypoplasia and dietary stress. Because the multiple etiologies of enamel hypoplasia do not include those directly related activity-induced patterns of dental paleopathology, enamel hypoplasia and dietary stress have been excluded from this research (Goodman et al., 1980; Goodman and Armelogos, 1985; Rose 1977).

Iroquois Dental Paleopathology

Much of the Iroquois paleopathology literature centers around the ossuary sites in the northern and western regions surrounding Lake Ontario. The two most notable works are Anderson's "People of the Fairty" and Kidd's study of the probable ossuary site of Ossossané (Anderson, 1964; Kidd, 1953). The skeletal material of ossuary collections is voluminous when compared to individual burial sites. These collections often represent one thousand or more individuals. However, the ossuary sites are collec

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collections of teeth and bones, not of individual human skeletons, distinct and identifiable by sex and age. In this regard, ossuary skeletal analysis is limited to identifying percentages of various pathologies in relation to the total number of the specimens examined. Therefore, expressing percentages of pathologies for various teeth does not allow the control of factors such as age, sex and antemortem tooth loss. The comparability of dental pathologies present in ossuary collections is most suited to other ossuary collections.

A diachronic study by David K. Patterson addresses the changes in dental paleopathologies and attrition in three Iroquois skeletal samples from the Archaic, Late Woodland and Early Historic periods (Pattersen, 1984). The primary focus of the research assesses the caries frequencies and attrition patterns with the progression from a hunter-gatherer subsistence pattern to one of sedentary horticulture. Because two of the sites are ossuary sites, all three of the samples are considered as collections of teeth and bone and are not compared as collections of individuals. Despite this circumstance, Patterson demonstrates a strong diachronic profile of increased dental caries that accompanies the change to a horticultural subsistence base.

The archeology of the Tram and Cameron sites of the protohistoric Seneca in the southwestern region of Lake Ontario are reported in detail by Wray, Samposki and Saunders. The dental paleopathology of both sites includes juveniles and is presented as a percentage of individuals identified with dental caries and periapical dental abscesses. Attrition and periodontal disease are described in the sample relative to both severity and frequency in groups by age (Wray et al., 1991).

Attrition is also evaluated by Fishman for an Iroquois sample which included specimens from the Seneca, Dutch Hollow site. The attrition analysis emphasized the relationship between tooth structure depletion and occlusal arch length alteration. This arch length approach to attrition assessment makes comparisons with other

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Iroquois attrition studies concerned with occlusal surfaces difficult and inconclusive (Fishman 1976:62).

The dental paleopathology of the Iroquois presented for the early historic Ontario sites by Patterson, and the Tram and Cameron sites by Saunders, although contemporary, horticultural and Iroquois are very difficult to compare. The studies address a consistent set of dental paleopathologies; however, one presents the percent of pathologies in teeth and bones while the other presents the percent of individuals with pathologies (Wray et al., 1991). Despite the similarities of Iroquois dental paleopathologies analyzed in the literature, intersample comparisons remain an arduous and inconclusive task.

The research in paleopathology, specifically Native North Americans, is diffuse and without a comprehensive approach. The absence of the integration of multiple variables in dental and osseous analysis repeatedly alters the interpretation of results. An objective and standard method of examination which encompasses a broad range of skeletal conditions is lacking throughout the literature. It is the aim of this research to develop a method of dental and osseous analysis which integrates multiple skeletal conditions and which is applicable to collections of material from varied patterns of subsistence.

Activity-Induced Paleopathology

An activity-induced pathology in living individuals is a degenerative change in tissues as a result of the individual's actions. The destructive change may occur from an immediate action such as acute trauma or from habitual repetitive actions which result in chronic and cumulative tissue disintegration. Throughout an individual's life, the pathologic change resulting from activity may or may not present with clinical symptoms. The identification of an activity-induced pathology is therefore a culturally mediated process associated with the perception of illness. If the activityinduc

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induced pathology affects hard tissue, the signs of the process, regardless of symptoms and the perception of illness, will be evident on radiographic images.

The skeletal material of the archeological record demonstrates the destructive changes in bone as a result of individual activity. Activity-induced paleopathology is the destructive change present in the dental and osseous skeletal material of a deceased individual which occurred as the result of performing a particular task unique to human behavior. In this sense, as pointed out by Charles Merbs, some activity-induced paleopathologies are common to all humans, such as those related to bipedal locomotion and others are specific to particular groups as well defined culturally mediated activities.

Merbs identified and assessed a range of activity-induced paleopathologies in his study of the Sadlermuit skeletal sample, an isolated Inuit group in the Hudson Bay area of North America (Merbs, 1983:147). The Sadlermuit sample provided an excellent opportunity for the investigation of the concept of activity-induced pathology. The community existed as an isolated island group physically separated from the general Inuit population of the mainland. The ethnographic record of subsistence activities is fairly well documented for the Sadlermuit and has been supplemented by known patterns of Inuit subsistence. According to Merbs, the skeletal sample is of individuals who died during an epidemic in 1902-1903 and additional burial sites of the Sadlermuit from within five hundred years. The individuals studied were sexed and aged from post-cranial material and the sample provided reasonable distribution by sex and age.

Merbs identified and assessed the pathologies of osteroarthritis, vertebral osteophytosis, spondylolysis, fracture, vertebral compression and anterior tooth loss in the Sadlermuit sample. The paleopathologic findings were then related to twenty categories of activity which according to Merbs had probable or possible relevance to the pathologies of the Sadlerminuit. These activities included some common to all humans, some common to Inuits only, and some specific for the Sadlermuit. The results of Merbs' assessment and interpretation of the relationship between skeletal pathology and activity indicated a difference by sex in the pathologies present. The assessment also resulted in an interpretative association by Merbs with the recorded ethnographic differences in the activities of men and women. For example, men displayed a pattern of various pathologies associated with hunting, kayaking and harpoon throwing, while women displayed a pattern of pathologies associated with preparing skins and fabricating clothing (Merbs, 1983:154).

Merbs did not attempt to create a direct cause and effect relationship between a particular task and a well defined pathology. However, the relationship between holding and softening skins by women with their anterior teeth and a higher incidence of anterior tooth loss in women than men was presented as a probable correlation.

With the association of softening skins by women in their teeth and a higher incidence of anterior tooth loss in women, Merbs introduced antemortem tooth loss as an activity-induced pathology. The Sadlermuit task which resulted in anterior tooth loss was an activity-induced pathology distinct from Hrdlicka's position which identified tooth loss in the Inuit as a form of ritual ablation (Hrdlicka, 1940; Merbs, 1968). The strong argument developed by Merbs, within the concept of activity-induced pathology, presented a sound alternative to Hrdlicka's etiology for the high incidence of anterior tooth loss in northern aboriginal samples. The theoretical emphasis established by Merbs in the Sadlermuit study is the assessment of a pathology which resulted from the activity of using teeth as a tool. Dental ablation, as a ritualistic activity, implies the intent of altering tissue with tooth loss the desired result. This is a particular activity which may be repeated and follow a discernible pattern. However, without clear documentation of a specific practice or a recognizable pattern, similar findings of tooth loss are possible with other activities or disc

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or disease processes. Without case specific ethnographic histories, the concept of ritual ablation as an activity-induced pathology is possible but weak.

Ritual dental mutilation, however, is an activity-induced pathology. Stewart demonstrated in skeletal samples from the Americas, particular and repeated dental alterations which are well documented (Stewart, 1946; Stewart and Titterington, 1944). An activity such as ritual mutilation has a particular dental alteration as its objective. The activity manifests a direct destructive change in hard tissue establishing a record of individual behavior.

Dental caries, on the other hand, are an indirect result of individual behavior. As a disease process of living individuals, the demineralization of tooth structure is associated most notably with bacterial organisms. However, the disease process is also related to diet as a metabolic substrate for the bacterial colonies. If diet selection is identified as a particularized activity in human behavior, the pattern of that activity will reflect particular and associated patterns of dental pathology. This has proven to be the case in a number of studies in which the incidence of dental caries was associated with food selection, food production and processing technologies (Campbell, 1939; Hardwick, 1960; Larsen et al., 1991; Lukacs, 1992; Patterson, 1984; Turner, 1979; Turner and Machado, 1983).

There are areas of research which expand Merbs's concept of anterior tooth loss as an activity-induced pathology and include patterns of dental wear associated with specific tasks as activity-induced dental pathologies. Christy Turner studied patterns of dental chipping and related tasks performed by Eskimo men and women (Turner and Cadien, 1970:307). Clark Spencer Larson identified grooves on the occlusal and incisal surfaces of teeth in Native American samples of the Great Basin (Larsen, 1985:396). The grooves were attributed to the production of cordage for the manufacturing of baskets and netting. The origin of interproximal grooves has stimulated considerable debate in the literature. The most recently accepted expl

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explanation is that the grooves are the result of interdental probing with an implement of either bone or wood (Berryman et al., 1979; Eckhardt and Piermarini, 1988; Formicola, 1988; Frayer and Russell, 1987; Peuch and Cianfarani, 1988; Turner, 1988; Wallace, 1974). John Lukacs has identified patterns of anterior tooth surface wear believed to be associated with skin debriement and preparation (Lukacs, and Pastor, 1988: 397). Varied patterns of dental wear support the concept of the use of teeth as a tool and dental alteration as an activity-induced pathology.

The dental alteration, as hard tissue evidence of activity, is not relative to the intent of the performer. The activity may have a direct effect on the dentition or be a secondary consequence. It is also not relevant whether the activity is acute and singular or chronic and repetitive. The evidence of the destructive change in hard tissue establishes a permanent record of the individual's behavior. It is this permanent dental record which affords the opportunity to study activity-induced pathologies.

An additional study relating occupational activities and specific skeletal pathologies is Ann Stirland's analysis of the remains from a British flagship sunk in 1545, the Mary Rose (Stirland, 1988). Skeletal material recovered from the wreck consisted of 179 individuals, 91 of which were fairly complete specimens. The material provided an apparently excellent opportunity for paleopathologic analysis in that the time of death, age and occupation of the individuals on board the ship were recorded in marine archives. However, a disadvantage of the sample is that the skeletal material was commingled. Unlike Merbs's Sadlermuit study in which the sample was a collection of individuals, the Mary Rose sample provided a collection of bones. For this reason, pathologies have been assessed by particular bone rather than the description of pathology present in an individual. The result is an attempt to draw a specific relationship between a known occupation and osseous pathologies. For example, Stirland associated the changes in the thoracic spine of three individuals fou

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found on the main gun deck and the probable occupation of loading and firing very heavy bronze cannons (Stirland, 1988: 43).

The Mary Rose study is the paleopathologic interpretation of a specific skeletal finding associated with a known individual activity. Thus far, the apparent direction of activity-induced paleopathology in the literature is to attempt to associate an identified pathology with a particular known or reconstructed activity. However, this requires skeletal collections which must conform to rigid criteria for paleopathologic assessment and an equally specific ethnographic record. These two understandable and yet limiting requirements have established a strict and focused field for activity-induced paleopathologic research. It is the intention of this study, rather than narrowing the field of activity-induced pathology, to expand the concept by aligning general profiles of activity-induced conditions with the description of the social organization of the material under study. Specifically, this research is designed to establish the relationship between protohistoric Seneca subsistence and the profiles of the activity-induced dental and osseous conditions present in the Seneca skeletal sample.

Activity-Induced Dental and Osseous Conditions.

The activity-induced pathology study of Merbs and the occupationally induced pathology study of Stirland relate skeletal pathology to activity (Merbs, 1983; Stirland, 1988). This relationship is based upon the premise that activities result in a pathologic change which alters hard tissue and is identifiable in postmortem skeletal material. A pathology is generally accepted as the functional or structural manifestation of disease. A disease, generally defined in the context of Western medical practice, is

> "any deviation from or interruption of the normal structure or function of any part, organ or system of the body that is manifested by a characteristic set of symptoms and signs of which the etiology may be known or unknown" (Dorland, 1988: 481).

The ambiguity of a pathology lies in whether a structural or functional manifestation is a deviation or interruption of a normal human process. The identification and labeling of a pathologic process is sometimes difficult in living individuals and may ultimately be a culturally mediated decision based on symptoms and the perception of illness. In skeletal material the interpretation of a pathological process is even more difficult, in that the signs are present in hard tissue, but the subjective interpretation of normalcy for the sample is not possible.

Therefore, excluding the interpretation of whether or not a pathologic process is present, it is the position of this research that human activity results in physical change which is manifested in hard tissue and that skeletal analysis affords the opportunity to identify the conditions present which are the result of individual activity. In this sense, the changes evident in bone and dentition of a skeletal sample are not identified in order to reconstruct a pathologic process as the manifestation of disease, but rather, they are identified as conditions present in osseous and dental material as the manifestation of a pattern of activity. For example, throughout the course of an individual's life the surfaces of the dentition wear. The wear may be the result of attrition, abrasion or both (Eccles 1982: 373, 374). The process of dental wear may or may not be the manifestation of disease. However, it is a condition present, in varying degrees, at the time of death of the individual. The condition of dental wear manifests structural change resulting from activity. It is for this reason that the concept of activity-induced pathology has been expanded in this research to the more inclusive framework of activity-induced dental and osseous conditions.

Identifying activity-induced dental and osseous conditions and constructing a general profile of skeletal conditions for skeletal samples with ethnographic histories affords the opportunity to align skeletal conditions with social organization. In order to generate such an alignment it is necessary to:

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1) select a skeletal sample which conforms to the criteria of: a) allowing individual identification by sex, b) having known temporal interment boundaries and c) having a reliable ethnohistorical record,

2) identify and analyze the activity-induced dental and osseous conditions to produce a hard tissue profile of each individual and of the sample, and

3) describe selected aspects of the social organization of the sample.

The description of the social organization of the sample identifies the activities of the men and women. An individual's activities result in individual skeletal change. As the activities of men and women of a particular society are identified, it is possible to test the hypothesis that there is a significant difference between males and females in the activity-induced dental and osseous condition profiles. It is also possible to align the general profile of the sample's dental and osseous activity-induced conditions with the particular description of the sample's social organization. Through such an alignment, it is the intention of this research to describe the Seneca skeletal material in relation to protohistoric Seneca social organization.

Division of Labor by Sex in Horticultural Society

A recurrent theoretical premise that exists throughout the anthropological literature in the description of the social organization of horticultural societies is the universality of the division of labor by sex (Applebaum, 1984; Brown, 1970; Friedl, 1975; Gyer, 1988; Leacock, 1978; Leibowitz, 1986; Levine, 1966; McElroy and Mathiasson, 1979; Sahlins, 1974; Wallman, 1979; Whyte, 1978). Cross-cultural studies of social organization and ethnographies of horticulturists are consistent in the observation of a division of labor by sex (Barry, 1982; Baumann, 1928; Burton et al., 1981; Burton and White, 1984; Gonzalez, 1981; Keegan, 1986; Murdock and Provost, 1972; White and Burton, 1981). A major cross-cultural division of labor study to analyze cultural variations in labor by sex was undertaken by George Murdock. This research identified fifty tasks associated with horticultural practices

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and recorded the performer by sex for each task (Murdock and Provost, 1972: 207). Murdock's research highlighted cross-cultural differences and similarities in the division of labor and sex. Based upon these studies, it is presumed for this research that some form of the division of labor by sex is universal in horticultural societies.

Associated with the identification and description of a division of labor by sex, there have been a number of theories proposed as to why the division of labor by sex exists in horticultural societies. Murdock, in the context of his era, explained that men performed tasks in horticultural societies such as clearing trees and hunting because such tasks required periods of high physical demand and allowed for rest and recovery. Women, according to Murdock, were better suited to consistent, less physically demanding activities such as tending crops and performing tasks consistent with child rearing (Murdock and Provost, 1972). Keegan applied the optimal foraging model to the Peruvian Machiguenga horticultural practices and implied that labor distribution was allocated based on greatest yield (Keegan 1986). A different perspective, addressing why a clearly identifiable division of labor exists in horticultural societies, is presented by Judith Brown in the relationship between subsistence demands and child care responsibilities. In such circumstances, it is necessary that the labor of subsistence for women is more removed from danger, does not require extensive concentration, and is easily resumed after interruption. Brown predicts that a woman's contribution within a particular pattern of horticultural subsistence will be related to the compatibility of the labors of production and the above requirements (Brown, 1970, 1975).

For the purposes of this research, in the description of protohistoric Seneca as a horticultural society, it is assumed that if a social organization is based on a pattern primarily of horticultural production, the structure of production must be compatible with social and biological reproduction and that the demands of childbearing, nursing and childbearing, are necessary to integrate with the structure of the division of labor

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by sex. It is not the intention of this research to explain why a division of labor existed in the protohistoric Seneca but rather to describe the activities of Seneca men and women during the period.

Division of Activity by Gender

The division of labor by sex dichotomizes the tasks performed by men and women in the context of production. The categories of labor recognized by Murdock, White and Brown are all tasks identified with production (Brown, 1975; Murdock and Provost, 1972; White and Burton, 1981). Other activities undertaken by individuals in an extended social and ceremonial framework are not recognized in theoretical division of labor by sex. Merbs, in his model for activity-induced pathologies, modified the division of labor by sex tasks associated with production and identified twenty categories of activity which were determined by observation and analogy as having probable relevance to pathology. These categories excluded childcare but did contain other activities which were not solely related to production. As previously mentioned, some of the activities were common to all humans, such as bipedal locomotion, some were common to Inuit culture and others were specific to the Sadlermuit. (Merbs, 1983: 147). The skeletal material from the Stirland's study of the Mary Rose provided a sample with a record of known occupational tasks and therefore the potential for associated occupational pathologies. In this circumstance the division of labor was not directly associated with a list of production categories but rather related to tasks identified by occupation (Stirland, 1988).

The primary studies which identify tasks associated with the division of labor by sex in horticultural societies and those which apply the concept of the division of labor to activity-induced pathology highlight two problems. First, the categorization of the social organization demonstrates a selection bias by only including production or occupation tasks rather than a range of activities associated with human existence. The second problem is that the selection of categories is biased toward the probable

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association with an activity-induced pathology. The result is that activities with no perceived immediate pathological consequence are eliminated from the categorization. In order to correct these shortcomings, the division of labor by sex for this research is expanded to a more inclusive division of activity by gender. The division of activity by gender encompasses the actions of subsistence performed by men and women and also includes the activities related to social and biological reproduction. The categories of activity are designed in this research without consideration for specific or probable pathological associations. In this sense, the division of activity by gender is a general framework applicable to multiple aspects of human existence. It is not a task-specific system designed to link a particular activity with a particular pathology. There are, however, limitations with this model as it is applied to a skeletal sample. The former activity patterns of the individuals in skeletal material must be derived from ethnographic documentation and not participant observation. This limitation is overcome, to some degree, in identifying clusters of activity by gender and maintaining a general description of the activities by the cluster. The clusters of activities are not designed to align a specific skeletal finding to a general ethnographic pattern nor to align specific skeletal pathologies with assumed specific tasks. Rather, the categorization model is designed to relate a general pattern of activity by gender as documented in the ethnographic literature with the skeletal information afforded by the sample analysis.

Division of Activity by Gender Categorization

The categorization of the division of activity by gender (Appendix A, Figures 1 through 7) has been developed and expanded from the initial list of fifty tasks identified by Murdock and Provost in their cross-cultural horticultural analysis (Murdock and Provost, 1972: 207). It is intended to identify activities by performer. In this study, the division of activity by gender categorization is constructed from the information available regarding the activity and performer in the ethnographic literature.

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literature. The categorization is designed to structure activities specified by gender in a sample's ethnographic history. If a category or specification is not present on the categorization chart it is added under the appropriate general heading and grouped with associated tasks. The activity categorization is ordered into three general divisions: activities related to acquiring food and shelter, activities related to manufacturing and activities related to social exchange. Each general division of activity is subdivided into associated activities by category. The category is specified as necessary, particular to technique or location (Appendix A, Figures 1 through 7).

Those activities related to the acquisition of food and shelter are subdivided into: food collection, food production, food preparation, food consumption, domicile construction and domestic maintenance. Each subdivision is further divided into categories of associated activity which may be specified. In each categorization the areas of specification follow a sequence of associated activities. The same pattern also occurs under the general division of activities related to manufacturing. There is, however, some variation within the activities related to social exchange. Included under this heading are activities which have previously been excluded in the general division of labor by sex classification. The subdivisions are: child rearing, trading, war, athletic contest, political practice, medical practice and ceremonial practice.

The division of activity by gender categorization identifies the activity by performer (Appendix A, Figures 1 through 7). The activity is recognized to be performed either predominantly by women (pW), mostly by women (mW), mostly by men, (mM) predominantly by men (pM) or equally (E). The confirmation of performer is determined by evidence in the primary and secondary ethnographic literature. The activity by performer is logged into the categorization when performer references are identified from at least two primary documents. If an activity, listed in the categorization, is unable to be confirmed by performer in the literature, it is not included in the division of activity by gender reconstruction.

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CHAPTER III

PROTOHISTORIC SENECA DIVISION OF ACTIVITY BY GENDER

The Seneca Division of Activity by Gender Categorization

The division of activity by gender categorization has been utilized in a review of the Seneca and Iroquois ethnographic literature. It is assumed that the general pattern of the division of activity by gender holds true throughout the cultural region of the five Iroquois nations, as well as the Huron, Neutral and Saint Lawrence Valley Iroquois. This is a particularly important assumption, in that it compensates for the sometimes vague identification of Iroquois groups in the primary documents of the ethnographic literature. The assumption also is intended to maintain a consistent level of alignment between ethnographic patterns of activity by gender and a profile of dental and osseous conditions in the protohistoric Seneca sample. Surveying the literature within the design of the applied categorization of activity by gender (Appendix A) is not a specific search for activities which appear to relate directly to skeletal conditions. Therefore, the review of the literature and the recognition of the activity in protohistoric Iroquois society places a heavy emphasis on primary documents. The method of categorization of activity by gender requires two references, preferably in primary documents, to establish the activity and performer. On occasion, a secondary document is used as verification when the reference of activity is not traceable to primary documents. When no references are found relative to a category of activity, no performer is assumed by associated activity and therefore no ent

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no entry is made on the categorization sheets. On occasion, variation in the primary literature leads to conflicting evidence as to the performer by gender. In such cases, both results have been entered in the categorization and the results are interpreted accordingly.

Food Collection

The food collection categories, as a subsistence activity, identify the performer in four food acquisition techniques: gathering, hunting, fishing and trapping. Food collection is considered an activity which relates to the methods of acquiring food in a non-domesticated environment. For example, gathering is used as it applies to acquisition of resources in the wild and differs from harvesting which is associated with domesticated plants. The specification column in the categorization figures is a cluster of related tasks listed without preference for performer (Figure III-1).

Gathering was an activity in protohistoric Iroquois society performed either predominantly or mostly by women. The collection of non-domesticated plants, bird eggs, riverine shellfish, honey, nuts and berries was recognized as the domain of women. However, this does not mean that men did not individually forage. Non-domesticated plants, eggs, nuts and berries were gathered by men while on journeys away from their villages (Gehring and Starna, 1986; Lafitau, 1977; Parker, 1968; Stites, 1905; Tooker, 1984). The identification of the performer places primary emphasis on the activity as one which is related to the individual's contribution to the group or village as a whole. Any individual may have collected nuts, berries or performed an activity that was immediate and necessary for their singular survival. The protohistoric Seneca activities categorized by performer are identified as activities which contribute to subsistence within the context of a horticultural society. In the categorization of activities by gender, the assumption for the performer is that the product of the activity was intended to meet both the individual's need and to be distributed to others.

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Figure III-1.

Activity / Category / Specification	Performer: Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Food Collection:					
gathering					
non-domesticated vegetables	●				
eggs		●			
insects					
shellfish		●			
honey					
maple sap	●				
nuts and berries	●				
hunting					
small land fauna				●	
small aquatic fauna				●	
large land fauna					●
birds				●	
expedition				●	
fishing					
nets and spears				●	●
line and hooks			●		
expedition				●	
trapping					
expedition					●
local small fauna				●	
fish		●			

Figure III-1. Seneca Division of activity by gender categorization; food collection

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Hunting was markedly different from gathering in protohistoric Seneca society, in that the activity was performed either mostly by men or predominantly by men. This included hunting for small land fauna such as rabbits and small aquatic fauna such as beaver and muskrat. Birds were also hunted mostly by men. Large land fauna: deer, elk, bear and moose were hunted mostly or predominantly by men. Women participated in expedition hunting by carrying supplies and in collective hunting by herding prey toward a kill site. Despite their presence during the activity of hunting, women did not perform the task (Thwaites, 1901; Lafitau, 1977; Quain, 1937; Stites, 1905; Wray, 1964).

Fishing varied from hunting in Iroquois subsistence. Though it was still predominantly an activity of men when it was performed as an expedition, fishing which occurred during spring spawning season included women and children at campsites. Hook and line fishing was performed equally by men and women. The use of a net and spear was considered to be mostly or predominantly an activity of men (Baxter, 1960; Fenton, 1942; Stites, 1905; Thwaites, 1901).

The trapping of small fauna, either near the village site or on an expedition, was performed mostly or predominantly by men. Trapping fish near the village was performed mostly by women (Fenton 1942; Sagard 1939; Thwaites 1901).

The methods of food collection in protohistoric Seneca society were activities divided by gender with the exception of fishing with hook and line. Although this activity was performed equally, it varied in location by gender. Women fished with a hook and line close to the village and men used the technique while away from the village during travel. Men traveled on hunting expeditions, sometimes for extended periods of time with women. However, women did not perform tasks directly related to hunting. Their primary activities were related to transportation of supplies and campsite maintenance. Fishing afforded some integration of men and women during spawning

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spawning season, yet whenever men and women were in the same location a division of activity by gender prevailed with most of the fishing performed by men.

Food Production

As has been previously stated and well documented in the literature, the subsistence base of the Iroquois during the occupation of the sites in this study was horticultural and included crops of primarily corn, squash and beans. Food production includes seven categories of activity: clearing the land, soil preparation, crop planting, crop tending, harvesting, preparation for storage, storage and food distribution (Figure III-2). As with food collection, the performer has been identified as an individual in an activity contributing to the social organization. The Seneca practiced a pattern of hoe horticulture in which corn, beans and squash were grown in the same field, often with the corn stalk supplying the support for the bean plant. The fields were cleared predominantly by men (Sagard, 1937; Thwaites, 1901). The smaller trees were removed and the brush burned. Larger trees were girdled and felled for fire wood. Fields were cleared in anticipation of the soil depletion in fields under cultivation. Village site relocation was determined accordingly. The clearing of new fields was often outside the border of existing palisades and protection. The extension into new territory frequently involved engagement with enemies. These activities in protohistoric Seneca society were performed mostly or predominantly by men (Gehring and Starna, 1986; Lafitau, 1977; Thwaites, 1901).

Once a field had been cleared and the previous field abandoned, soil preparation began. The weeding and breaking up of the soil was performed mostly to predominantly by women; however, there is an occasional reference to older males participating in this activity (Segard, 1937; Thwaites, 1901). The activity included the use of a small hoe or digging stick to create mounds for the corn plants. Soil preparation for small village gardens was performed predominantly by women.

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Figure III-2.

Activity / Category / Specification	Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Food Production:					
land clearing					
collective village field					●
garden plots					
soil preparation					
fields	●	●			
gardens	●				
crop planting					
field	●				
gardens	●				
crop tending					
fields	●				
gardens	●				
harvesting					
fields	●	●			
gardens		●			
preparation for storage of vegetables	●				
storage of vegetables	●				
distribution					
daily	●	●			
ceremonial	●				

Figure III-2. Seneca division of activity by gender categorization; food production.

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These gardens included medicinal herbs and tobacco (Lafitau, 1977; Sagard, 1939: Thwaites, 1901).

Crop planting and crop tending in both the fields and village gardens were predominantly women's activities (Lafitau, 1977; Quain, 1937; Seaver, 1856; Thwaites, 1901). The tasks were performed collectively and usually with children present. This tradition persisted two centuries after the period of the Seneca sample. Mary Jamison, an Iroquois captive, recalled the activities in her diary:

> "In the summer season, we planted, tended and harvested and generally had all our children with us; but had no master to oversee or drive us, so that we could work as leisurely as we pleased. We had no ploughs on the Ohio; but performed the whole process of planting and hoeing with a small tool that resembled; in some respects; a hoe with a very short handle (Seaver 1856: 31)."

Harvesting was an activity performed predominantly by women. The crop was prepared for storage and stored predominantly by and at the discretion of women. Storage pits lined with bark and skins, as well as casks in sections of the long house, provided ample supply and reserves for the corn, squash and beans of the Iroquois diet (Parker, 1968; Quain, 1937; Sagard, 1939; Seaver, 1856).

The daily distribution of vegetable produce was an activity performed either mostly or predominantly by women. Ceremonial distribution and designation of available stored resources was also the domain of women (Bonvillain, 1980; Lafitau, 1977; Thwaites, 1901; Tooker, 1984).

Horticultural production, with the exception of clearing the land and the distribution of corn, squash and beans was mostly or predominantly an activity performed by women in protohistoric Seneca society. The task of providing the major food source for a village may have incorporated elderly men and young children, but it was a subsistence role predominantly filled by women.

Food Preparation

The preparation of food prior to cooking was predominantly an activity of women (Figure III-3). A major portion of the preparation of vegetable produce involved hulling

Activity / Category / Specification	Performer: Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Food Preparation:					
preparation prior to cooking					
hulling	●				
milling	●				
butchering					
kill site				●	
village site	●				
preservation of meat					
drying	●				
smoking	●				
preservation of fish					
drying	●				
smoking	●				
preparing and cooking					
village long house	●				
campsite		●	●		
food consumption					
diet based on short-term acquisition of resources				●	
diet based on stored resources		●			

Figure III-3. Seneca division of activity by gender categorization; food preparation

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the corn and milling the flour either by stone grinding or wooden mortar and pedestal. The butchering of game by men or women was dependent upon location. At the kill site, men were more likely to perform the activity and women more likely to transport the gutted animal or remaining sections back to the village for distribution. Butchering at the kill site was mostly performed by men; however, if a kill occurred near the village, the prey was often brought back to the women for butchering and distribution (Thwaites, 1901). If the meat were to be preserved and stored, the drying or smoking was predominantly performed by women. Drying or smoking of fish was also predominantly performed by women, either at the village or on location during an expedition (Harrington, 1908; Sagard, 1939; Seaver, 1856; Thwaites, 1901; Tooker, 1965).

Preparing and cooking meals at the village long house was predominantly the domain of women. This usually consisted of a morning and evening meal available to anyone who requested food. The most frequent Iroquois food, "sagamaté" was a corn meal-based stew to which was added available vegetables, fruit, fish or meat. Sagamaté was also prepared by women when present at the camp site; otherwise, the younger males were responsible for campsite cooking (Harrington, 1908; Lafitau, 1977; Quain, 1927; Seaver, 1856; Stites, 1905). During long hunting, trading or warfare expeditions, which fell into the domain of men, the diet was based on the short term acquisition of resources. Ground corn was brought on the expedition but the arduous journeys often made traveling with extensive supplies impossible. The men, during the expeditions, relied on hunting, fishing and gathering when corn supplies were exhausted or trail caches were unable to be located. Men, whose activity required long months or even years away from the village, had a different diet than those, mostly women, who remained at the village with a diet based primarily on stored resources (Harris, 1891; Morgan, 1962; Sagard, 1939; Stites, 1905; Thwaites, 1901).

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Food preparation in protohistoric Seneca life was predominately an activity of women. Men performed tasks related to food preparation out of necessity or location. Food consumption was an activity which differed by gender according to location. Activities of men, which resulted in travel far from stored food reserves altered their dietary base and established a difference by gender in foods consumed.

Domicile Construction and Domestic Maintenance

Domicile construction was associated with a change in location from the existing village to a campsite or to new horticultural fields. The extension into new territory and the initial construction of long houses and palisades was mostly or predominantly the work of men (Figure III-4). Iroquois construction techniques employed the use of arched saplings covered with bark. The placement of bark siding or occasional repair may have been performed by women but the construction of village sites and fortification was, in the Seneca social organization, a domain of men (Lafitau, 1977; Sagard, 1939; Thwaites, 1901; Tooker, 1984). Within the clustering of long house and palisade construction, the assumption of sweat lodge fabrication by men is a logical progression; however, to date, no direct reference has been found.

Fetching water, burden carrying and wood gathering associated with the village site were predominantly activities of women. The technique often involved carrying the object on the individual's back with a strap over the shoulders and across to the forehead. This freed the hands and arms for children or additional material. During an expedition, or when moving the village, men participated in transporting materials as necessity and personnel dictated. Generation of fire was an activity performed equally by men and women and was location dependent, at the village mostly by women and at the campsite mostly by men. The maintenance of the fire at the village site was an activity predominantly performed by women (Axtell, 1981; Bonvillain, 1980; Fenton, 1974;

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Activity / Category / Specification	Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Domicile and Domestic Maintenance:					
house construction					
long house				●	●
hunting lodges				●	
sweat houses					
palisades				●	●
laundry					
fetching water	●				
burden carrying					
village site	●				
expedition		●		●	
wood gathering	●				
generation of fire			●		
maintenance of fire	●				
caring for domestic animals	●				

Figure III-4. Seneca division of activity by gender categorization; domicile construction and domestic maintenance.

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Dogs were the primary domestic animal of the protohistoric Seneca. Occasionally, a bear was raised for sacrifice and celebration at various times in their ceremonial cycle. When a bear cub was captured, a cage was constructed within the palisades. The bear was raised on scraps and refuse until slaughtered. Caring for dogs and ceremonial bears was a task performed predominantly by women (Gehring and Starna, 1986; Seaver, 1856).

Activities of domestic construction and maintenance were clearly defined by gender in the social organization of protohistoric Seneca. During periods of transition, either village relocation or campsites, activities were less divided by gender. This was, presumably, in order to increase efficiency of movement and safety of the group. However, village relocation was not a frequent occurrence; it has been estimated to occur in intervals of approximately twelve to twenty years (Trigger, 1972). In this respect, with an established village site, Seneca activities in food collection, food production, food preparation, and domestic maintenance were well defined and clearly separated by gender.

The pattern of manufacturing for the protohistoric Seneca was related to the production of artifacts for individual use. Often the manufacturer of the artifact was the user. Artifacts were sometimes used for trading to obtain material resources not available in the Iroquois environment. Individuals produced products as part of an assemblage necessary to perform tasks and ceremonial activities. The products required for tasks were often of limited durability and easily replaced. The extraction of raw materials and the processing of raw materials varied by location and gender of the performer and was not necessarily consistent with the gender of the manufacturer.

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Extraction of Raw Materials

Gabrial Sagard identified women as the potters among the Huron but did not identify whether it was men or women who extracted the clay from the earth when he wrote:

> "The women savages make them, taking suitable earth which they sift and pulverize very thoroughly, mixing with it a little sandstone. Then when a lump has been shaped like a ball they put a hole in it with their fist, and this they keep enlarging, scraping it inside with a little wooden paddle as much and as long as is necessary to complete the work (Sagard 1936: 109)."

For both digging clay and quarrying flint or copper, there have been no specific performer references established (Figure III-5). As with other incomplete activity performer identifications, it is reasonable to assume that if a source for clay was close to or within the palisades, women extracted it to manufacture pots. It is also reasonable to assume that if the clay source were far from the village, the acquisition of the raw material was performed by men.

Chopping wood for manufacturing was performed mostly by men. The wood was then available for the products of both men and women. Bark stripping varied slightly in that the performer of the stripping task was also the individual who processed and used the material. For products such as elm bark canoes, bark stripping was mostly an activity of men. For corn storage caches, bark stripping was an activity of women (Quain, 1937; Sagard, 1936; Thwaites, 1901).

The extraction of raw materials is probably the least clearly defined activity by gender in the Iroquois literature. However, in the relationship between processing and production, there is definite association and distinction by gender in the activities necessary to manufacture a product.

Processing Raw Materials

Preparation of skins at the kill site was limited and contiguous with butchering at the kill site as an activity of men (Figure III-6). Skin preparation at the village site was an activity performed by women. The technique at both locations was the same and

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Activity					Performer
Category					
Specification	Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Extraction of Raw Materials:					
digging clay					
quarrying stones/copper					
chopping wood				●	
stripping bark		●		●	
Processing Raw materials:					
preparation of skins		●		●	
preparation of cordage	●	●			
pottery	●				
basket fiber 0					
stone chipping					●
bone cutting					●
metal working				●	

Figure III-5. Seneca division of activity by gender categorization; extraction of raw materials and processing raw materials consisted o

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Preparation of cordage from bark was mostly to predominantly performed by women for use as fishing line and to be woven by men into fishing nets. The cordage was prepared by rolling the strands together on the individual's thigh. Processing the raw material for pottery and basket fabrication was predominantly an activity performed by women (Beauchamp, 1897; Bradley, 1987; Parker, 1968; Sagard, 1936; Thwaites, 1901).

Stone chipping, bone cutting and metal working were mostly to predominantly activities performed by men. Protohistoric Seneca, although exposed through trade to iron, still relied on flint arrow and ax heads. The iron available was repeatedly recycled by men into knives and scrapers. A small amount of European copper and brass was also reworked into various implements to extend the use of the material by men (Beauchamp, 1893, 1897; Bradley, 1980; Gehring and Starna, 1986; Houghton, 1912).

The processing of raw materials was a series of activities whose performers were clearly divided by gender. The pattern of the divisions cluster, in most instances, in continuity of performer with extraction, production and utilization of the product.

Producing the Finished Artifact

Basket weaving, mat making, firing pots, sewing and decorating clothing were all activities performed mostly or predominantly by women (Figure III-6). With the possible exception of leather products, there was a strong pattern of continuity between extraction, preparation and production by women in these activities. Producing the finished artifact occurred at the village site. The products were either used directly in associated tasks performed by women or were distributed by women to appropriate members of the village (Beauchamp, 1898, 1900; Morgan, 1901; Parker, 1968; Sargard, 1936; Thwaites, 1901).

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Activity Category Specification	Performer Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men
Producing the Finished Artifact:					
basket weaving	●				
mat making	●				
firing pots	●				
production of leather clothing					
sewing	●				
decorating	●				
woodworking					
furniture				●	●
utensils and dishes		●			●
canoe building					●
stone polishing					●
bone carving				●	
net making					●
weapons production					●
ornament production					
beads		●			
wood				●	
ceremonial artifacts production		●			

Figure III-6. Seneca division of activity by gender categorization; producing the finished artifact

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Wood working varied slightly from the producer - user pattern, in that men constructed furniture and carved utensils for all residents of the long house. Women fabricated containers, bins and dishes for preparing and distributing food, as well as some of the utensils required for preparation and cooking food. The demarcation by gender in producing utensils for food preparation and consumption was particular to individual need, and occasionally overlapped between men and women. With regard to canoe building, stone polishing, net making and weapons production there was no ambiguity of performer by gender. These were all predominantly activities of men. Canoes of the protohistoric Seneca were elm bark and often constructed hastily for a specific purpose and then discarded (Parker, 1909). Stone polishing and weapons production during this period were only slightly affected by the presence of iron. The hunting and weapon assemblages of the protohistoric Seneca relied heavily on flint projectile points, stone axes and spears. The production and utilization of weapons was exclusively an activity of men (Sagard, 1936). Net making for fishing was an activity predominantly performed by men but related to the production of hemp twine necessary for weaving which was predominantly performed by women (Thwaites, 1901). Bone carving was an activity mostly of men as it related to fishing hooks and tool production; however, women also carved bone in order to produce utensils necessary in the preparation of food and manufacturing of clothes (Beauchamp, 1893; Fenton, 1949; Lafitau, 1977; Parker, 1909, 1968; Sargard, 1936; Thwaites, 1901; Trigger, 1972).

Ornamentation and ceremonial artifact production was mostly an activity of women. Decorative beads were fabricated, designed and sewn by women. Ceremonial artifacts were woven, painted or manufactured as needed by women. Men contributed in ceremonial ornamentation when the requirement was for a carved wooden object such as in the False Face Ceremony. However, for the most

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part, these production activities were the domain of women (Morgan, 1901; Parker, 1910, 1968; Quain, 1937; Sargard, 1936).

As with the other categories of manufacturing, the production of finished artifacts in protohistoric Seneca society was a series of activities whose performers were generally predominant by gender and clustered in a fashion that the producer of the artifact was most likely the user.

Child Rearing

Child rearing in protohistoric Seneca society was predominantly an activity of women (Figure III-7). The care of both girls and boys was performed by women. The care of each gender differed. Girls were taught at an early age the skills necessary for activities which were traditionally performed by women. Boys were generally introduced to the skills required to hunt and fish by men at around the age of ten. Until this age boys remained in the village and were cared for by women. Child grooming was also a task performed predominantly by women. The hair and skin were regularly searched for lice. As lice were removed, the women consumed them by crushing the lice in their teeth (Sagard, 1936: 228). At the onset of puberty, the activities of adolescents were divided along the lines of the existing division of activity by gender (Axtell, 1981; Baxter, 1960; Seaver, 1856; Thwaites ,1901).

Trade and Warfare

Trading occurred among members of the same village, between villages or between nations. Intratribal trading was usually reserved for items of produce or manufactured goods and was performed equally by men and women. Intertribal trading, which was primarily furs and cultivated vegetables, involved long journeys and extended periods of absence from the village. It was mostly to predominantly performed by men. This did not mean, however, that women or adolescent boys were not present on the expedition but that their activities on the journey were not as traders (Axtell, 1981; Baxter, 1960; Bonvillain, 1980; Kenyon and Kenyon, 1987; Krench, 1981; Lafitau, 1977; McLeod,

Activity / Category / Specification	Predominantly Women	Mostly Women	Equally	Mostly Men	Predominantly Men	
Child Rearing:						
care	●					
grooming	●					
Trading:						
cultivated vegetables						
intratribal			●			
intertribal				●		
furs						
intratribal			●			
intertribal					●	
manufactured products						
intratribal			●			
intertribal					●	
War:						
battle						●
torture				●		
Athletic Contest:						
snowsnake					●	
lacrose						●
Political Practice:						
intratribal			●			
intertribal				●	●	
Medical Practice:						
medicine production		●		●		
treatment procedures					●	
Ceremonial Practice:						
smoking					●	
dancing			●	●		

Figure III-7. Seneca division of activity by gender categorization; social exchange

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1927; Parker, 1966; Stites, 1905; Thwaites, 1901). This was similar in warfare expeditions. Women and adolescent boys would accompany the group usually as burden carriers, campsite preparers and cooks. The battle or attack was predominantly an activity of men. If food resources, goods or captives were acquired as the result of victory, those accompanying the warriors were to transport the spoils home. Torture of captives at the village upon the warriors return was performed equally by men and women. Burning, beating, cutting and consuming the victim were not gender specific activities (Baxter, 1960; Stites, 1905; Thwaites, 1901).

Athletic Contests

There were two athletic activities of the protohistoric Seneca which were predominantly those of men. In the winter months snowsnake competition was a primary sport. It required that each competitor fabricate at least one snow snake. The competition was performed by sliding a wooden rod across the snow. The winner was the individual who achieved the greatest distance against one or more men. Lacrosse was played by groups of men in warmer weather within or between villages. Games often lasted extend periods of time and required the substitution of men among the players as a result of injury and fatigue. There was no record in the primary documents which were examined that identified an athletic contest performed by women (Beaucamp, 1896; Morgan, 1901; Parker, 1909).

Political Practice, Ceremonial Practice and Medicinal Practice

Participation in intertribal political practices was for the most part equal (Figure III-7). This is not to say that both men and women held the same political positions or that participation in conferences or meetings was similar. However, the activity of practicing politics within the system as it existed in protohistoric Seneca society was essentially the same for men and women. Intertribal political practices were performed predominantly by men. The travel in association with political tasks throughout the geographic region during the protohistoric period was done by men

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(Axtell, 1981; Bonvillain, 1980; Johnson, 1981; Lafitau, 1977; Quain, 1937; Tooker, 1970).

Ceremonial practices which involved smoking were also predominantly an activity of men. However, participation in dancing, which may or may not have been exclusive by gender at various times in the ceremonial cycle, was performed by men and women in a generally equal fashion (Axtell, 1981; Baxter, 1960; Beauchamp, 1901; Bonvillain, 1980; Conover, 1930; Fenton, 1974; Mathews, 1976; Sargard, 1936; Wray, 1956, 1957).

Within medical practice, medicine production was performed equally by men and women. Treatment procedures, however, were predominantly an activity of men (Axtell, 1981; Beauchamp, 1901; Hewitt, 1932).

The protohistoric Seneca, based on the references in the primary and secondary literature, have been categorized in activities which clearly demonstrate a society dichotomous in activity by gender. The division of activity by gender categorization was done by the identification of performers for categories of activity as a means to describe the protohistoric Seneca.

Sample Expectations

Based on the description of the protohistoric Seneca division of activity by gender, there are some expectations for profile differences in the activity-induced dental and osseous conditions of the male and female skeletal material. As described, there was a difference in manufacturing activities between men and women in protohistoric Seneca subsistence. The use by men of materials such as stone, bone and metal may be expected to yield higher abrasion scores in males than females. Assuming that higher abrasion scores in males is associated with increased physical stress, higher temporomandible joint scores in males might also be expected. Varied techniques in manufacturing and production with the use of anterior teeth as a tool may result in a difference in the antemortem edentia scores between males and

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females of the sample. Whether males or females will have higher scores is uncertain from the ethnographic description of the manufacturing activities of Seneca men and women.

There is no indication in the ceremonial practices of the Seneca that men and women were treated differently at the time of burial and, therefore, the expectation for postmortem edentia is one of similar scores for males and females. There are also no distinctions in protohistoric Seneca subsistence which would denote an expected difference in the pattern of occlusion between males and females of the sample. A Class IV occlusion is expected to increase in frequency with age.

The possibility of a difference in diet between men and women at various times in the life cycle may impact the conditions of demineralization, antemortem edentia, alveolar bone and attrition. It appears that through mid-adolescence boys and girls of the Seneca had the same diet. The effect of the same diet during adolescence should demonstrate similar patterns of antemortem edentia and demineralization in early to middle adults for both males and females. It is possible, however, that as the diet of adult men changed with the difference in activities between men and women, the pattern of demineralization and antemortem edentia scores for middle and older adults will vary between males and females. Such an alteration in diet may also be reflected in the attrition and periapical alveolar defect scores with an expectation for higher scores in males.

The division of activity by gender which was present in the protohistoric Seneca is expected to result in activity-induced dental and osseous condition profiles scores which are consistent with the description of the protohistoric Seneca.

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CHAPTER IV

METHODOLOGY

Sample Selection

The method of this research is designed for application to multiple samples. The selection criteria for samples are: 1) that the skeletal material be a collection of individuals rather than collections of various bones and teeth, 2) that when possible, the individuals be sexed and aged by post-cranial material. 3) that the sex and age distribution be relatively even between males and females, 4) that the sample size be approximately one hundred or more adults, and 5) that, if feasible, the geographic region of the burial sites be relatively small with a short temporal span of interment. The applicability of available ethnographic information is essential to the overall methodological investigation of multiple samples; however, it is not necessary for every sample analysis.

In this study, the individuals of the sample are divided according to age at death into five-year cohorts: fifteen to nineteen years, twenty to twenty-four years, twenty-five to twenty-nine years, thirty to thirty-four years, thirty-five to thirty-nine years and forty to forty-four years and are identified as groups one through six respectively.

Identification of Activity-Induced Dental and Osseous Conditions

The activity-induced dental and osseous conditions are identified and recorded for each specimen in the following fourteen condition categories: 1) occlusion, 2) temporomandibular joint, 3) antemortem edentia, 4) postmortem edentia, 5) dentition,

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6) occlusal demineralization, 7) coronal demineralization, 8) interproximal demineralization, 9) root surface demineralization, 10) alveolar crest, 11) periapical alveolar defects, 12) interdental alveolar defects, 13) dental abrasion and 14) dental attrition.

1. Occlusion

The identification of the occlusion is the classification of the relationship between the mandible and maxilla in articulation. This relationship is primarily dictated by the intercuspation of the maxillary and mandibular dentition. The establishment of an occlusal classification generally requires an intact mandible and maxilla in which minimal skeletal distortion and erosion permit the articulation of the dentition. However, it is possible with fragments or segments of distorted specimens to establish with a facet pattern the intercuspation of the posterior dentition necessary to classify the occlusal relationship.

Four categories of occlusion are utilized in this methodology. Three are from the clinical orthodontic literature based in Angle's classifications of occlusion and the fourth is a pattern of edge-to-edge acquired occlusion documented in the physical anthropology literature (Barrett, 1969; Begg, 1954; Brown et al., 1990; Corruccini, 1991; DuBrul, 1974; Graber and Swain, 1985; Reinhardt, 1983; Ross, 1970; Van Kirk and Pennell, 1959).

The identification of an occlusal relationship in Angle's classification of occlusion evaluates the relationship between maxillary and mandibular first molars, the maxillary and mandibular canines and the vertical and horizontal relationship of the incisal teeth (Graber and Swain, 1985: 42).

A Class I occlusion can generally be described as one in which the mandibular first molar is anterior to the maxillary first molar to such a degree that the maxillary mesial palatal cusp seats in the central fossa of the mandibular first molars when the two arches are intercuspated. The mandibular canine is also anterior to the maxillary canine to the extent that, in intercuspation and excursive movements, the distal labial guide plane of mandibular canine articulates with the mesiolingual guide plane of the maxillary canine. In a Class I occlusion the anterior-posterior relationship is one of minimal overjet and moderate overbite (Figure IV-1). Overjet is the distance between the labial surface of the mandibular central incisor at the labial incisal line angle and the lingual of the maxillary central incisor at the lingual incisal line angle (Graber and Swain, 1985: 46).

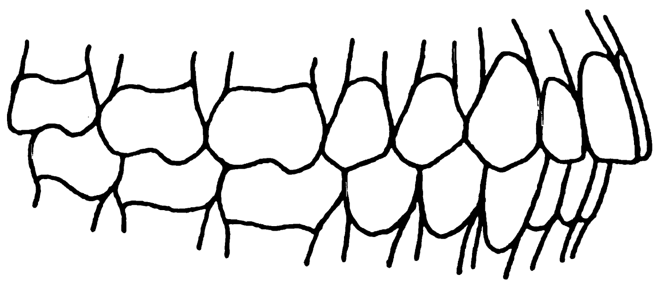

Figure IV-1. Angle Class I occlusion, right lateral view

A Class II occlusion is one in which the mandibular first molar is posterior to the maxillary first molar to such a degree that mescal palatal cusp of the maxillary first molar contacts the mescal marginal ridge of the mandibular first molar when the two arches are intercuspated. In the canine area the mesiolabial surface of the mandibular canine articulates with distolingual surface of the maxillary canine during intercuspation and excursive movements. The overjet in a Class II is increased but the overbite may either remain similar to a Class I overbite or decrease to zero (Figure IV-2).

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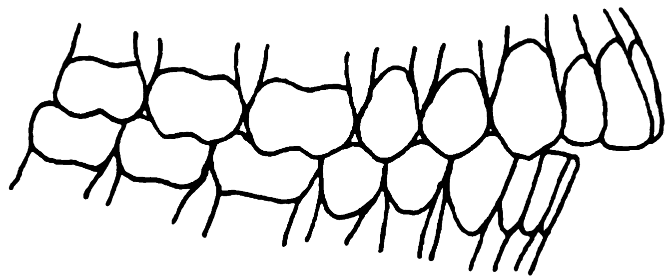

Figure IV-2. Angle Class II occlusion, right lateral view

A Class III occlusion is characterized by a molar relationship in which the mandibular first molar is completely anterior to the maxillary first molar to such an extent that when intercuspation occurs there is no contact between the two teeth. In a Class III occlusion the mandibular canines and incisor teeth are anterior to the maxillary canines and incisor teeth. This results in a reverse overjet and overbite relationship between the maxillary and mandibular anterior segments (Figure IV-3).

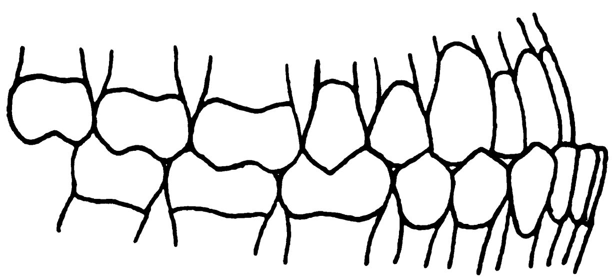

Figure IV-3. Angle Class III occlusion, right lateral view

The Class IV occlusion differs from Angle's classifications in that it is the categorization of a functional relationship between the maxillary and mandibular dentions of an individual over a period of time. It is not the classification of a skeletal relationship, maxilla to mandible, as reflected in the intercuspation of the teeth. It is a classification based in a change in the occlusal pattern of the dentition in which the occlusal plane becomes flat, allowing a protrusive shift of the mandible to a functional edge-to-edge occlusion. A Class IV occlusion has no overbite and no overjet. The articulation of the dental arches in a Class IV occlusion result in contact of the occlusal and incisal surfaces throughout the arch length (Figure IV-4).

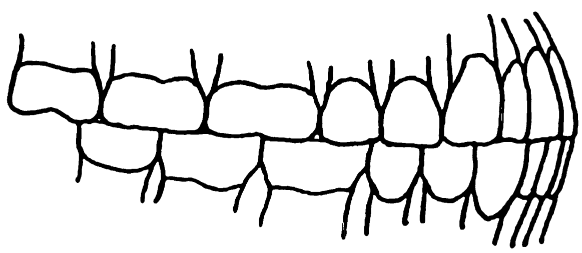

Figure IV-4. Angle Class IV occlusion, right lateral view

The anthropology literature has fostered the Class IV occlusion as a descriptive term for skeletal material with a uniform pattern of attrition resulting in a monoplane occlusion and the loss of intercuspation. This has been particularly true for samples with diets and environments which result in a level of attrition that eliminates the intercuspal relationship necessary for categorization in Angle's classification (Molnar et al., 1977; Murphy, 1958; Reinhardt, 1983).

Each specimen is evaluated for one of the four classifications of occlusion. This is accomplished by the investigator hand articulating the mandible with the maxilla as dictated by the tempromandibular joint and the occlusal pattern of the dentition. When the maxilla is disarticulated from the base of the skull or either the maxilla or mandible is fragmentary, segments or portions of bone are placed in relationship based on the cuspal relationship of opposing teeth. The occlusal intercuspal pattern established in the molar, canine and incisal relationships determines an occlusal classification.

The specimen is identified as Class I, II, III or IV. If, due to fracturing or edentia, the specimens are too fragmentary for identification, they are either discarded from the sample or categorized as indeterminate. Therefore, in sample selection, there are no completely edentulous individuals or individuals who are dentally represented as a collection of loose teeth. Soil erosion and distortion contribute to indeterminate entries on individuals with dentitions by prohibiting the articulation of the maxilla and mandible. In these cases, occlusion is not recorded but other conditions may still be evaluated.

The distinction between a Class I and Class IV occlusion presents difficulty in some individuals. Because Class IV is an acquired occlusion, it is the result of a progression from Class I or II to Class IV. The difficulty is establishing, when in this functional progression, an occlusion is no longer Class I or II but Class IV. The criteria for making this choice are the loss of Class I or II intercuspation of the first molars. When the occlusal plane of the first molars no longer establishes a definitive position between the mandible and the maxilla and the ensuing relationship is a monoplane edge-to-edge, Class IV is the designation. If a molar relationship is established, even though there is attritional evidence of a protrusive edge-to-edge pattern, the molar pattern dictates the classification.

2. Temporomandibular Joint

The temporomandibular joint has been evaluated and described in a number of skeletal studies (Alexandersen, 1967; Hinton, 1981; Hinton and Carlson, 1979; McNamara and Carlson, 1979; Renson, 1978; Richards and Brown, 1981; Seward, 1976; Williams, 1921). These varied approaches to temporomandibular joint research have considered the joint in relation to occlusion, attrition and antemortem tooth loss. Some of the more descriptive studies have documented changes in the shape of the heads of the mandibular condyles. The temporomandibular joint condition scored in this research methodology is the amount of degenerative change in bone. To evaluate the osseous change, the joint is assessed on four surfaces - the glenoid fossa and the head of the condyle for the right and left sides. Each area is scored according to categories identifying the osseous change of each surface - no change, localized erosion, localized proliferation, generalized proliferation or eburnation. No measurements are taken of the areas. The presence of an altered osseous condition is simply associated with the visual and descriptive scores modified from Richard's temporomandibular joint scoring methodology (Figure IV-5) (Richards and Brown, 1981: 297).

Category	Score
Indeterminate	0
Without evidence of change	1
Localized erosion	2
Localized proliferation	3
Generalized proliferation	4
Eburnation	5

Figure IV-5. Temporomandibular Joint categories and scores

When soil erosion or the poor condition of a specimen prohibits scoring, that portion is eliminated from the generation of a total score and classified an indeterminate area. Each specimen is evaluated without prior knowledge of age or sex. The method applied to the temporomandibular joint is designed to represent the degenerative changes i

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3. Antemortem Edentia

Antemortem edentia is the loss of dentition prior to the individual's death. It is determined by the remodeling of the cortical plate of alveolar bone which comprises the dental socket. When a tooth is lost in a living individual, the area previously housing the root or roots of the tooth is altered to eliminate the cortical bone which, in life, provided the surface for the dental attachment apparatus. The alveolar site of antemortem edentia is remodeled to a smooth crested ridge of cortical bone with no intraosseous pattern of the dental socket.

Each edentulous area on the mandible and maxilla is assessed for the presence of alveolar remodeling associated with the elimination of the cortical bone consistent with appropriate root form for a particular area of the arch. If no evidence of cortical bone consistent with root form is found, a positive score is indicated for antemortem edentia for a particular tooth location on the arch. It is assumed that sixteen teeth are representative of an adult dentition in each arch. If anodontia (lack of tooth formation) occurs in a particular individual, this method provides no means to recognize such circumstance and the missing tooth is considered as antemortem edentia. This assumption is made based on the limited frequency of anodontia and its localized effect in the third molar, mandibular premolar and maxillary lateral incisor areas. It is also assumed that the limited frequency of anodontia would not significantly impact the antemortem edentia assessment (Baum and Cohen, 1972; Graber, 1978).

Teeth which are not located in the alveolus but have been recovered in proximity to the maxilla and mandible at the time of the specimen's excavation are considered dental members of the individual's functional dentition during life. Teeth which have been repositioned in the correct location by artificial means during the reconstr

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reconstruction of some specimens are also considered as part of the individual's dentition. The number of the tooth identified as lost antemortem is recorded for each individual. In cases where the circumstances of edentia are indeterminate, the area, as referenced by tooth number, is recorded as such and included in the information considered for analysis.

4. Postmortem Edentia

Postmortem tooth loss is determined by the presence of cortical bone in the alveolus which approximates the root form of the appropriate tooth for the area. When well defined cortical bone associated with root form, including interradicular bone, is present, the tooth location is scored as positive for postmortem edentia. A well defined pattern of radicular cortical bone without an associated tooth is the primary indication that no remodeling of the alveolar process has occurred.

The well defined radicular cortical bone is also identified radiographically in association with tooth loss and scored as a positive for postmortem edentia as indicated.

When soil erosion or other artifactual circumstances make the determination of antemortem versus postmortem edentia impossible both radiographically and visually, an indeterminate score is assigned to the area. If loose teeth are associated with cranial material, an attempt is made prior to the visual and radiographic examination to reposition the teeth in the proper locations. The determination, by correct location for each tooth, is made by the relationship of root form and corresponding alveolar receptivity. If there is any question as to the approximation in replacing a tooth in the alveolar process, the tooth is removed from consideration and no evaluation is performed.

5. Dentition

The dentition is identified for each individual as the number of teeth present on the maxilla and mandible including loose teeth which demonstrate a positive

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relationship to alveolar bone despite a lack of skeletal retention. For example, in an occasional specimen, the dentition may be held in position by artificial means; either glue or reconstructive resin. In other specimens, teeth which are displaced from the alveolar process by soil erosion are considered components of that individual's dentition. In some instances, during the handling of the skeletal material, the dentition is not stable in the alveolar process. In such cases, the loose individual teeth are examined separately and recorded as members of the existing dentition.

The assumption is made that for each individual there is a total of thirty-two possible teeth. Supernumerary teeth are not included in the scoring method or evaluated for various dental conditions. When artifact or complete coronal destruction make it visually impossible to establish the identification of a remaining fragment, radiographs are used to determine specific tooth type.

The dentition score for each individual is generated by combining the scores for antemortem edentia, postmortem edentia and indeterminate entries and subtracting the sum from the assumed possible total of thirty-two. The dentition score is the number of teeth evaluated for particular dental conditions (Appendix C).

6. Occlusal Demineralization

Dentition studies of skeletal material often include the incidence of dental caries as a pathologic sign contributing to the description of the sample (Andrews, 1935; Beattie, 1980; Corbett and Moore, 1976; Elzay et al., 1977; Herrala, 1962; Moore and Corbett, 1971, 1973; Pedersen, 1938; Turner, 1978, 1979; Whittaker et al., 1981). Dental caries, as associated with diet and reflecting subsistence, has been a recurrent research orientation (Campbell, 1939; Harwick, 1960; Larsen et al., 1991; Lukacs, 1992; Patterson, 1984; Turner, 1979; Turner and Machado, 1983). The reporting of dental caries has varied in method from a percentage of teeth examined, tooth count, to a percentage of individuals with caries, and individual count

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(Anderson, 1964; Bang and Kristofferson, 1972; Banting and Courtright, 1975; Costa, 1980; Hall and German, 1975; Hall et al., 1986; Herrala, 1962; Klein and Palmer, 1941; König, 1963; Larsen et al., 1991; Leigh, 1925; Lukacs, 1992; Nanda, 1955; Schneider, 1986; Turner, 1979).

Dental caries, like other human pathologic processes, is active only in life. In death, the results of the disease process are recorded as an alteration in the integrity of the tooth surface. Dental caries, in a living individual, is the result of a demineralization of the inorganic material of tooth structure and the dissolution of the remaining organic matrix (Levine, 1977; Pindborg, 1970). The usual diagnostic technique, for living individuals, is to probe the tooth's surface for a breakdown in structure and to penetrate into a soft organic enamel or dentin surface defect. The dental surface alteration is also possible to detect radiographically as a consequence of a change in tooth density.

In skeletal material the organic matrix present in dental caries has decomposed. The altered inorganic tooth structure remains as a sign of the process to which the tooth was subjected during life. The condition present in the dentition of skeletal material, as it relates to the disease of dental caries, is surface demineralization. The identification of the condition requires that it be distinguished from other dental surface changes such as those present in enamel hypoplasia, abrasion, erosion, attrition and postmortem fracture. Tooth surface location may also contribute to the character of dental demineralization. Root surface demineralization is different in presentation than interproximal demineralization (Barr, 1957; Carlos and Gittelsohn, 1965; Katz, 1980; Klein and Palmer, 1941; Loose, 1947; Nanda, 1955; Newitter et al., 1985; Pfeiffer, 1979; Schamschula et al., 1974). Demineralization of the dentition in skeletal collections is identifiable radiographically, and dental radiographs are necessary in recognizing this condition (Haugejorden and Slack, 1975; Katz, 1980, 1984; Zamir et al., 1976).

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The presence of demineralization is recorded for four surfaces on each tooth present in the individual. The occlusal surface for posterior teeth and the incisal surface for anterior teeth are included in the occlusal demineralization category. The surface is bordered by the mesial and distal marginal ridges on the anterior and posterior sections and the buccal and lingual line angles on the buccal and lingual sections. If a tooth is considered a geometric shape with four sides and a top, the occlusal surface is the top or masticator surface.

Each occlusal surface is examined macroscopically in direct light and probed with a number six dental explorer. The explorer is used to determine the structural integrity of the tooth surface and to distinguish between abrasion, attrition, hypoplasia and demineralization. Each occlusal surface is scored as positive, when demineralization is present and as negative when no alteration of the surface associated with demineralization has occurred. In some individuals the occlusal surface contains pits and fissures. On occasion, the dental explorer sticks into such an area. If no surface alteration is apparent visually or radiographically, the explorer retention is considered anatomical and not entered as a positive finding for the condition. Discoloration is not considered positive evidence for demineralization of the occlusal surface. On anterior teeth, in which a considerable amount of attrition has occurred, the distinction between attrition and incisal demineralization is often difficult to determine. In such cases, the hand articulation of the mandible to the maxilla establishes a pattern of contact which is used to determine whether the structural loss is consistent with an occlusal pattern of attrition or demineralization.

7. Coronal Demineralization

The identification of coronal demineralization is made on the buccal and lingual surfaces of posterior teeth from the occlusal line angles to the cementoenamel junction (CEJ) vertically and from the mesial to the distal line angles anterior-posteriorly. For anterior teeth, the coronal surface is from the incisal line angle to the junction

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junction (CEJ) vertically and from the mesial to the distal line angles anterior-posteriorly. For anterior teeth, the coronal surface is from the incisal line angle to the CEJ vertically and from the mesial to the distal line angle on both labial and lingual aspects anterior - posteriorly (Figure IV-6).

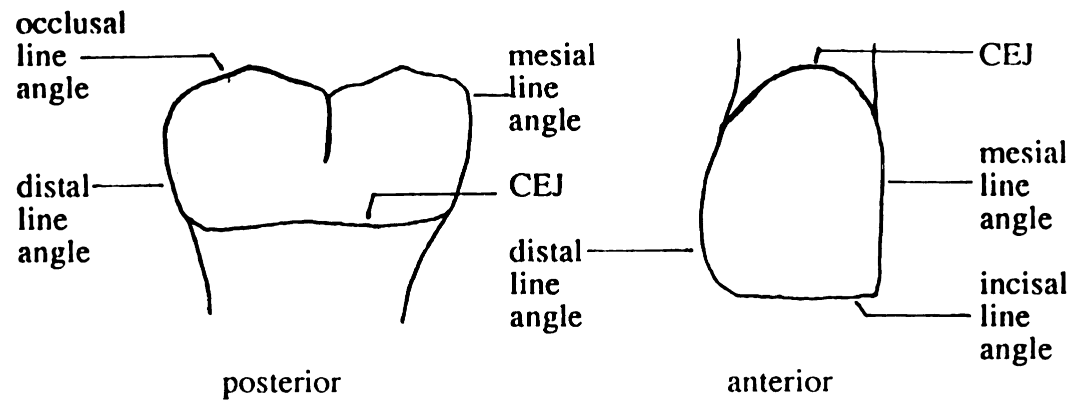

Figure IV-6 Coronal surface area

The coronal surface ends at the CEJ regardless of alveolar changes which may alter the amount of tooth structure exposed. The buccal surface of mandibular molars, as well as the palatal surface of the maxillary molars, often present with a developmental coronal pit. The recognition of the condition of demineralization in the coronal pit areas follows the criteria described regarding occlusal pits and fissures. The presence of coronal demineralization is recorded as positive when present on buccal, lingual or both surfaces. It is important to note that this method identifies the surfaces demineralized for each individual, not the number of areas of demineralization for each surface. Soil erosion often presents as a complicating factor in the assessment process. The texture and character; flakiness with irregular margins, usually make the visual distinction between erosion and demineralization possible. Radiographically however, both have similar appearances. In cases where uncertainty prevails, the area is negative for demineralization.

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8. Interproximal Demineralization

Like coronal demineralization, two surfaces of the dental crown, in this case, the mesial and distal interproximal areas, combine to make up the area scored. On the mesial portion of posterior teeth the surface is from the mesial marginal ridge to the CEJ vertically and from the mesiobuccal line angle to the mesiolingual line angle laterally. The distal portion of posterior teeth is from the distal marginal ridge to the CEJ vertically and from the distobuccal line angle to the distolingual line angle laterally (Figure IV-7).

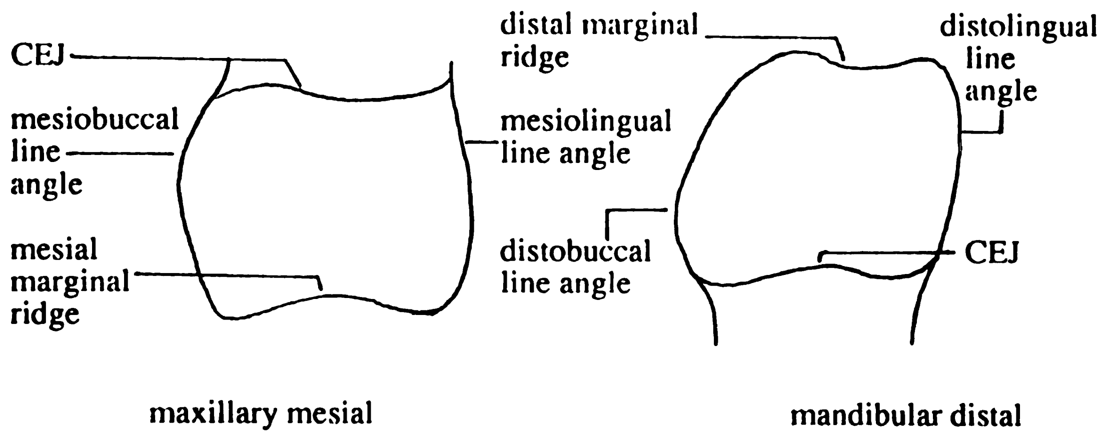

Figure IV-7. Interproximal surface area of the maxillary and mandibular posterior dentition

Demineralization of the interproximal area is determined visually and radiographically. Individual teeth are not removed from the alveolus and inspected at the point of interproximal contact. A defect in the integrity of the dental surface, similar in appearance and texture as described for occlusal and coronal demineralization, is considered a positive finding of the condition. Radiographically, interproximal demineralization is scored as a positive when the radiolucent area penetrates to or past the dentoenamel junction of the tooth. If a defect appears to have originated on the interproximal surface and progresses vertically past the CEJ to the root

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root surface, it is scored as both interproximal demineralization and root surface demineralization.

The interproximal surface for anterior teeth is from the incisal line angle to the CEJ vertically and from the labial and lingual line angles mesially and distally (Figure IV-8).

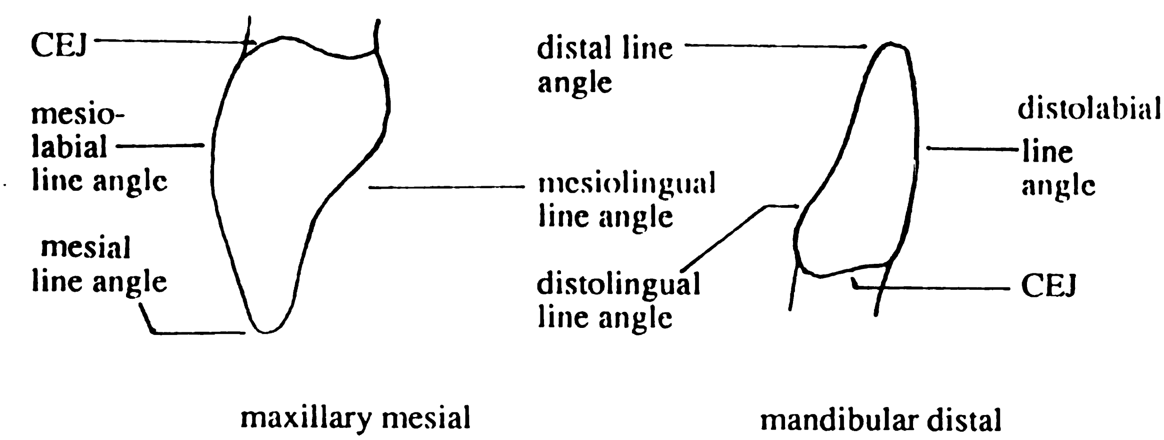

Figure IV-8. Interproximal surface area of the maxillary and mandibular anterior dentition

A positive score for the condition in the anterior segments is determined by visual and radiographic examination.

9. Root Surface Demineralization

The dental condition of root surface demineralization varies from the pattern of demineralization present in enamel and dentin. Root surface demineralization in living individuals is believed to be a different process than coronal demineralization. The bacterial colonies present in root caries vary from other models of dental caries. The composition of the root surface cementum and the organic and inorganic matrices of dentin result in a different pattern of disease (Katz, 1980; Newitter, et al., 1985).

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These differences are also evident in the character of the condition in skeletal material. Root demineralization appears to have a less penetrating pattern of surface destruction with a broader area of alteration relative to depth. The areas of demineralization often follow the inferior border of the CEJ and the superior border of the alveolar crest. Soil erosion and artifact often result in a similarly appearing condition. Root surface demineralization is scored as a positive finding if, on any of the tooth's root surfaces, a well-defined destructive border is identified. The border of soil erosion and artifact are diffuse and poorly demarcated. The texture of demineralization also varies from soil erosion and surface artifact by presenting a smooth and well-defined base wall in the concavity which follows the contour of the root surface. On occasion, root surface demineralization crosses the CEJ to the coronal or interproximal surfaces. In such cases, the area is scored as both a root and associated surface demineralization.

Root surface demineralization is scored as a positive finding when present on visual or radiographic examination. All of the exposed areas of the root of an individual tooth are considered one surface. These include the areas of the furcation in multi-rooted teeth. It is possible to have more than one area of the root demineralized on an individual tooth; however, it is scored as a positive for the surface. On occasion, soil erosion makes the determination of root surface demineralization impossible; in such cases, the tooth is scored as indeterminate.

The demineralization score records the number of surfaces positive for the condition and not the frequency demineralization. Dental caries, as a disease of living individuals, is recorded in terms of frequency and rate (Levine, 1977; Pindborg, 1970). The descriptive aspects of these references imply the morbidity of the disease process. If an individual has a high incidence at a rapid rate, the implication for the disease process is high morbidity and rampant caries. In skeletal material, on which the record identifies surfaces of demineralization, the implication for morb

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10. Alveolar Crest

In living individuals the diagnostic criteria for periodontal disease includes an evaluation of the alveolar process. Measurements are made to determine the distance between the CEJ of a particular tooth and the associated crest of the alveolus (Goldman and Cohen, 1980: 89). Many studies of skeletal material have applied this measurement and interpreted it to be the indicator of a past population's periodontal health (Davies 1969; Davies et al., 1969; Goldberg et al., 1976; Hildebolt and Molnar, 1991; Lavelle and Moore, 1969; Lavelle, 1973; Tal, 1985; Whittaker et al., 1985). The measurement of the alveolar crest to the CEJ of teeth in a skeletal sample simply records a relative change in alveolar bone. Periodontal disease is an active process of living individuals with many components: diet, hygiene, occlusion, relative alveolar size, bacterial flora, dentition and soft tissue supporting apparatus (Goldman and Cohen, 1980: 75). The measurement of the alveolar crest, although utilized in the diagnosis of periodontal disease and implied as an indicator of disease in previous studies, is designed in this research to measure change in bone as an osseous condition of the sample.

As previously stated, an objective of this research is to test the primary hypothesis of the difference between men and women in activity-induced dental and osseous conditions. Prior studies which measured the alveolar crest to the dental CEJ have generated relative measurements that do not account for sexual dimorphism (Davies and Pictor, 1969; Davies et al., 1969; Goldberg et al., 1976; Hildebolt and Molnar, 1991; Lavelle, 1973; Lavelle and Moore, 1969; Tal, 1985; Whittaker et al., 1985). It is assumed that alveolar crest changes are partially a function of an individual's activity. A measurement of four millimeters from the CEJ to alveolar crest of a male's maxillary right canine may or may not have the same implications as a measurement of four millimeters of the same area on a female of similar age. The reason for the possible differences in interpretation is the potential sexually dimorphic differences of canine root length. In order to account for sexual dimorphism, the alveolar crest is related to not only the CEJ of the associated tooth but also radiographically to the tooth's apex. Alveolar crest scores are generated on the facial root surface for anterior teeth and the buccal surface for posterior teeth. On multirooted posterior teeth the mesial root is selected for assessment. A tooth which is repositioned inaccurately and artificially secured is considered indeterminate. Also indeterminate are areas in which soil erosion or artifact make the assessment impossible.

In living individuals, with the soft tissue dental attachment apparatus present and without any signs of pathologic change, the distance between the CEJ and the alveolar crest is approximately two millimeters or less (Goldman and Cohen, 1980: 42). Therefore, because the alveolar crest never approximates the CEJ in adults, the first zone of alveolar crest location is viewed as a band two millimeters or less from the CEJ. When the alveolar crest is within this two millimeter band, it is designated as a score of one. The distance from the CEJ two millimeter band to the root apex is divided into three equal areas. The area beyond the apex of the tooth is also designated as a zone of evaluation. If the alveolar crest is within the coronal one third of the root it is scored a two, within the middle one third it is scored a three, and if the alveolar crest was within the apical one third zone, it is scored a four. If the alveolar crest is associated with a periapical defect and the crest of bone proceeds beyond the apex of the tooth the area is scored a five. Indeterminate sites are scored zero (Figure IV-9).

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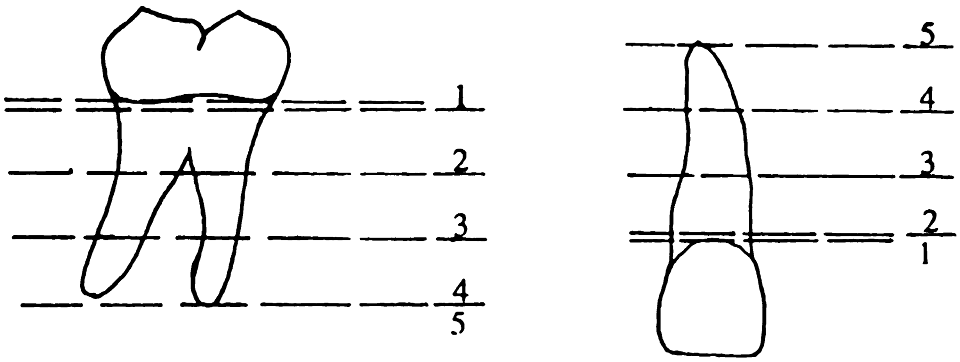

Figure IV-9. Alveolar crest scores

The examination of the alveolar crest is performed in direct light with the radiographs of the area under examination. As with the assessment of all the dental and osseous conditions, soil erosion and artifact are a part of the scoring determination. Alveolar crest fractures usually present with a different color and texture than the adjacent undisturbed alveolar crest. Soil erosion usually alters both the root surface and the alveolar crest by destroying normal landmarks in adjacent areas. Again, any area of uncertainty, either visually or radiographically, is considered indeterminate.

11. Periapical Alveolar Defect

A periapical alveolar defect is identified as a condition of alveolar bone associated with the root apex. The condition is the consequence of a destructive process which alters trabecular and cortical bone resulting in the loss of anatomical structure. When the cortical plate is destroyed, the defect is observed directly. On occasion, the defect occurs in trabecular bone surrounding the root apex and does not penetrate cortical bone. In such cases, the defect is identified radiographically.

In living individuals, periapical alveolar defects are associated with periapical cysts, dental abscesses and periodontal abscesses. These are pathologic processes identified as signs of disease. The changes in bone, identified on the skeletal material are no

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are not distinguished by etiology. The only osseous distinction is to separate periapical alveolar defects from alveolar fenestrations (Davies et al., 1974; Elliot and Bowers, 1963; Muller and Perizonius, 1980; Tal, 1985). An alveolar fenestration identified as a root surface perforation of cortical bone is not classified as a periapical alveolar defect. When a fenestration involves the root apex, the determining factor is the amount of alveolar change surrounding the root apex. If, in direct view or radiographically, there is a periapical defect present in association with the alveolar fenestration, the area is scored positively for the category. Thirty-two areas associated with the corresponding dentition are evaluated for the presence of periapical alveolar defects. An area identified as a periapical alveolar defect either in direct observation or radiographically is scored as a positive for the condition. It may be possible to have postmortem edentia with a positive periapical alveolar defect. It is not possible, however, when antemortem edentia occurs near the time of death, to determine the presence of a periapical alveolar defect. The rapid remodeling of alveolar bone masks any evidence of the defect. Indeterminate scores are recorded when soil erosion, fragmentation or artificial reconstruction make accurate assessment impossible.

12. Interdental Alveolar Defect

An interdental alveolar defect is identified as the loss of the interdental alveolar process with trabecular bone lying apical to the cortical bone surrounding it. The condition of an interdental alveolar defect exists in skeletal material when horizontal interdental alveolar bone is destroyed (Larato, 1970; Manson, 1976; Manson and Nicholson, 1974; Saari et al., 1968). The defect is identified by direct view of thirty interdental areas and scored as positive when present. No radiographic information is utilized in this condition assessment. The alveolar impaction of the third molars presents a difficulty by making it necessary to distinguish between an interdental defect and the alveolar crypt for the developing tooth. Shape and cortical surface texture are the defining criteria for identification. The surface texture of cortical bone for a developing tooth is smooth and well defined. This is opposed to the irregular and erosive texture of an interdental defect.

13. Abrasion

Dental wear is comprised of three different types of alteration of the dentition: attrition, abrasion and erosion. The literature is often ambiguous as to whether dental wear, as a term of identification, refers to only one, two or all three types of alteration of the dental surface (Bartlett, 1972; Cybulski, 1974; Hinton, 1981a; Molnar, 1970, 1971a, 1971b; Molnar et al., 1983; Smith, 1984; Taylor, 1963). Abrasion is identified as a distinct condition and recorded as a category separate from attrition. Erosion is not considered an activity-induced dental condition. Abrasion is defined as the alteration of a tooth surface by material other than food in a pattern of incidental or habitual paramasticatory activity (Eccles 1982: 373). A common association in the literature is the evidence for abrasion and the use of the dentition as a tool (Brace, 1975; Eckhardt and Piermarini, 1988; Hinton, 1981a; Larson, 1985; Schulz, 1977; Turner, 1988; Turner and Cadien, 1970). However, it is also possible that other activities not associated with labor-related tasks are generating abrasive conditions.

The definition of abrasion includes intentional mutilation of the dentition but the method of recording does not recognize an individual's intention. It simply identifies activity-induced dental alteration. All of the dental findings which meet the criteria on the condition of dental abrasion include characteristics of intentional mutilation.

Each tooth in the dentition is evaluated and scored for the presence of dental abrasion. There are four types of tooth surface alteration considered to be dental abrasion. The first is dental antemortem fracture. In order to record the extent of the fracture, there are three categories: fractures which are in enamel only, fractures of enamel and dentin, and fractures communicating with the pulp chamber. The presence of each generates a positive abrasion score of one. If a tooth has a fracture which communicates with the pulp chamber, it is scored as a three - a fracture of enamel, a fracture of dentin and a fracture communicating with the pulp chamber.

The second type of dental surface alteration considered an abrasive change is dental grooving and notching. The groove and notch are viewed as the same pattern recognizing, however, that a groove usually has a rounded surface and a notch usually has a wedge-shaped surface. Grooves and notches are recorded in two primary locations - either the incisal surface or interproximal surface. Each tooth is scored for the presence of a groove or notch. Each positive finding, on any surface of the tooth, receives a score of one. For example, if a tooth has an incisal groove in two locations and an interproximal groove on the mesial surface, the tooth receives an abrasion score of three.

The third type of abrasive alteration is surface change associated with the incisal and occlusal line angles. The incisal and occlusal line angles occur at the junction of the incisal or occlusal surfaces and the labial and lingual surfaces of the teeth (Figure IV-10).

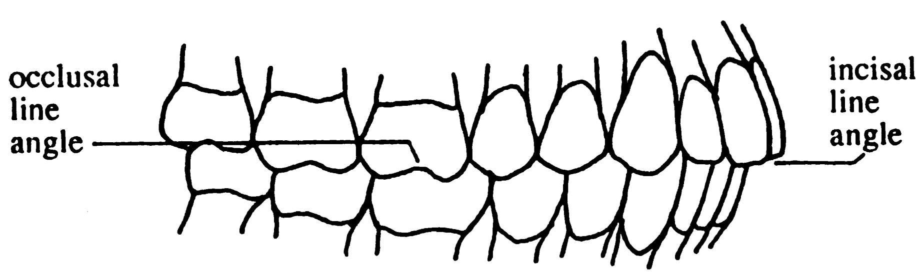

Figure IV-10. Occlusal and incisal line angles in Class I occlusion right lateral view

The line angle formed by these surfaces follows the cusp planes in newly erupted teeth, or in teeth with a flat incisal or occlusal table, it follows a very sharp well-defined plane dictated by the pattern of occlusion (Figure IV-11).

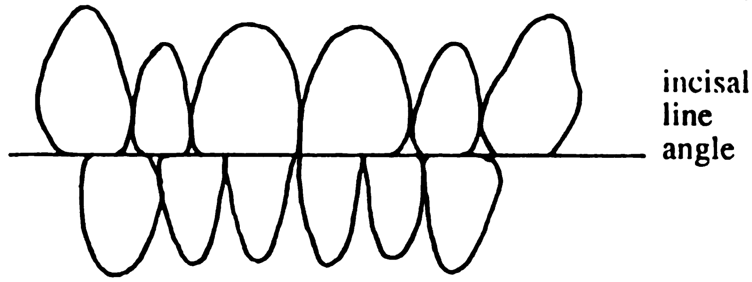

Figure IV-11. Incisal line angle in edge-to-edge Class IV occlusion anterior view

The rationale for recognizing line angle changes as a condition of abrasion is that the alteration of the line angle, other than that which is dictated by occlusion, cannot occur without the introduction of a foreign material whether it is either incidental or

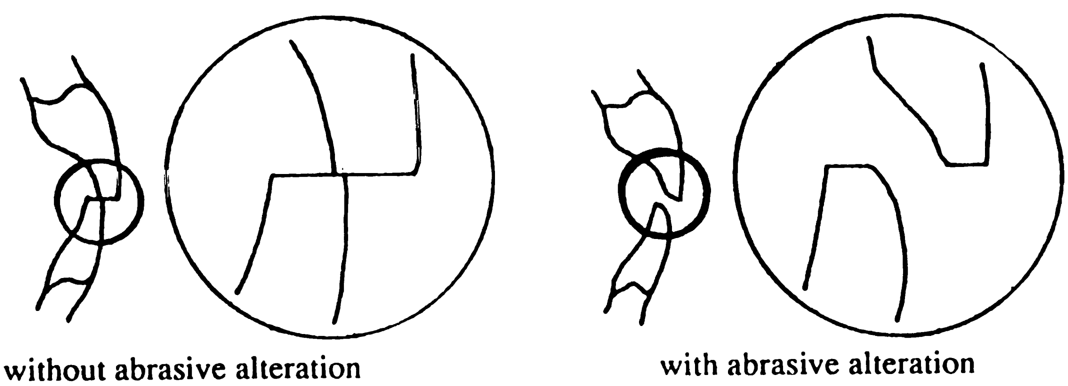

Figure IV-12. Lateral view of anterior incisal line angle without and with abrasive alteration

habitual. For each tooth location on which the line angle is altered, other than by occlusion, an abrasion score of one is generated.

The fourth type of dental alteration, recognized as an abrasive change, addresses the surface integrity of the labial, buccal and palatal surfaces of the maxillary teeth and the labial, buccal and lingual surfaces of the mandibular teeth. All or portions of these surface areas which demonstrate a loss of coronal or root form not attributable to demineralization, developmental anomalies, enamel hypoplasia or unique occlusal patterns are scored as an abrasive condition. This includes, but is not limited to, abfraction of the labial or buccal coronal and root surfaces, as well as loss of the cingulum. Again, each individual finding present on a tooth receives a score of one.

The problems which make the identification of an abrasive condition difficult are consistent with those previously discussed for other conditions. Postmortem fracture is distinguished from antemortem fracture by the color and texture of the tooth surface. A postmortem fracture is sharp and follows a pattern consistent with the crystalline structure of enamel and has obvious color contrast. Antemortem fractures are rounded and irregularly shaped surfaces similar in color to surrounding tooth structure. Often, particular occlusal relationships create particular patterns in the incisal or occlusal surfaces of the dentition. When a tooth is viewed outside the context of the occlusal relationship, a facet of occlusion may be misinterpreted as an occlusal notch or groove. Establishing an occlusal relationship and pattern of excursive movement is essential to discerning the groove and line angle abrasive conditions.

Soil erosion and artifact also make the identification of abrasion difficult. However, when a particular circumstance yields doubt, the location is not scored as a positive finding for abrasion.

14. Attrition

Dental attrition is identified as a condition in which loss of enamel and dentine occurs as a result of tooth to tooth contact or in association with the mastication of food (Eccles, 1982: 374). The pattern of dental attrition is evaluated both on individual teeth and in an arch-to-arch occlusal relationship. Because of the importance of the hand articulation of the maxilla and mandible in order to determine and distinguish between attrition and abrasion, specimen selection requires skeletal components suitable for establishing an occlusal relationship. As noted in the Occlusion section of this Chapter, it is not necessary that each maxilla or mandible be completely intact. They must, however, be integral enough to reproduce a portion of the articulating relationship with the opposing component. Attrition is recorded by determining the amount of exposed dentin and assigning a value based on a scale adapted from previous investigators (Behrend, 1977; Lavelle, 1970; Molnar, 1971; Molnar et al., 1983; Murphy, 1964c; Richards, 1984; Scott, 1979b; Sekikawa et al., 1986; Smith, 1984; Walker, 1978). This ordinal scale is modified to include mandibular anterior teeth not depicted in the scoring charts utilized by previous authors.

There is no attempt to record the rate of occlusal attrition or determine the amount of interproximal attrition (Hinton, 1982; Murphy, 1964b; Richards, 1984; Scott, 1979a; Walker, 1978). Each tooth is subjectively assigned to one of eight categories which follow a progression of increasing dentinal exposure. The result of this scoring is an ordinal record of attrition for each tooth of an individual at the time of death (Figure IV-13).

A tooth receives an indeterminate score when demineralization, postmortem-fracture or artifact make the assessment of attrition impossible. On occasion, soil stain and preservation of the specimens make it difficult to distinguish between dentine and enamel. In these circumstances, if clear definition of the dentin-enamel junction is not established, an indeterminate score is entered. As a result of extensive antemortem tooth loss, it is possible for a pattern of occlusion to develop in which the point of contact with the opposing arch is not on the occlusal plane. This usually occurs on a mesial or distal surface of a posterior tooth adjacent to an edentulous

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Score	Molar	Diagram Premolar	Incisor	Description
0				indeterminate
1				without evidence of surface facet
2				surface facet without exposed dentin
3				surface facet, exposure of dentin minimal
4				surface facet, exposure of dentin minimal to moderate
5				surface facet, exposure of dentin moderate
6				surface exposure of dentin moderate to severe
7				surface exposure of dentin severe with enamel remaining
8				surface exposure of dentin severe with no enamel remaining

Figure IV-13. Attrition scoring scale modified for this research from Molnar and Smith (Molnar, 1971; Smith, 1984)

area. The teeth involved in this circumstance are scored for the amount of exposed dentin on the occlusal surface only.

Data Collection

Micro Video Visual Examination Protocol

The examination of each specimen is recorded in direct light by a Panasonic Microvideo camera Model GP-KS102 with an audio component on standard VHS video tape. The specimen is shown and described in a full frontal view, with the mandible articulating at the base of the skull. If the specimen has been marked with an identification number and burial site number, these numbers are visually and verbally used to introduce and close the specimen examination. A closeup image and

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description of the right glenoid fossa is the first area recorded. The exam proceeds to the occlusal surface of the maxillary right third molar which is identified as tooth number one and continues on an occusal view around the maxillary arch to the maxillary left third molar identified as tooth number sixteen. The left glenoid fossa is recorded and followed by a palatal view of the maxillary arch, beginning at tooth number sixteen and ending at tooth number one. The buccal view of tooth number one, with a camera angle perpendicular to the long axis of the tooth, begins the facial view of the maxillary dentition and ends with the buccal view of tooth number sixteen. In the buccal posterior area, a relative frame measurement is taken to the nearest hundredth of a millimeter with digital calipers to create a scale for single frame analysis. The technique of relative scale still frame is repeated for the anterior segment and the maxillary left posterior area.

The mandibular examination begins with a view of the left condylar head at ninety degrees to the articular surface. A description of the condylar head is followed by a view of the occlusal surface of the mandibular left third molar, tooth number seventeen. Again, the microvideo camera is perpendicular to the occlusal plane. Each tooth in succession is examined, recorded and described through to the occlusal view of the mandibular right third molar, tooth number thirty-two.

A view of the lingual aspect of the mandible is recorded from the lingual surface of tooth number thirty-two and progresses to the lingual of tooth number seventeen. At tooth number seventeen, the microcamera is rotated to capture the buccal view perpendicular to the long axis of the tooth. In the posterior segment a relative frame measurement is taken to create a scale to the nearest tenth of a millimeter. Each tooth in the arch is recorded at a ninety degree angle to the long axis and relative scale measurements are taken in the anterior and posterior right segments.

The microvideo examination concludes with a view of the right condylar head perpendicular to the articular surface. The location of the specimen on the video tape is recorded in minutes and seconds on a sample index.

Radiographic Examination Protocol

The use of intraoral radiographs has had limited and inconsistent application in the evaluation of skeletal material (Fishman, 1976; Haugejorden and Slack, 1975; Katz, 1980, 1984; Linn et al., 1987; Stoner, 1972; Zamir et al., 1976). Studies which report dental pathologies on skeletal material are often unclear in the utilization, technique, and interpretation of radiographs (Hardwick, 1960; Lukacs, 1989, 1992; Molnar and Molnar, 1985; Sledzik and Moore-Jansen, 1991). In order to assess adequately alveolar bone and the dental condition of demineralization, particularly interproximally, dental radiographs are essential to the method.

Using a Phillips Oralix 65 portable intraoral x-ray machine with a 7.5 MA and a KVp65 standard periapical size, number two film is exposed to generate dental radiographs. When possible, the radiographic examination consists of ten areas recorded separately on periapical films. For each individual, the film is placed horizontally in the maxillary right molar area covering the region from the third molar to the second premolar. When possible, the film is placed parallel to the long axis of the teeth and the cone of the x-ray head is placed at a ninety degree angle relative to the teeth and film. If anatomical structures prohibit parallel placement, the bisecting technique is utilized in order to minimize distortion (Tolman, 1975: 428). This method is repeated for the area mesial of the first molar to include the maxillary canine. The anterior radiograph is taken with the film in a vertical position covering the area from the right lateral incisor to the left lateral incisor. In the anterior segment, either the parallel or the bisecting technique is used. The maxillary left is imaged in the same fashion as the maxillary right.

The mandibular films are taken in the same spacing locations as in the maxilla. Mandibular anatomy allows the paralleling technique to be applied in all five areas. Fragmentary specimens are stabilized in a large box of salt with the film held at the appropriate angle by modeling putty. When a section of the mandible is missing teeth, films are taken of the alveolus. In areas of bone, which are either too fragmentary or completely reconstructed, no radiographs are taken.

Radiographs are read for the positive identification in the conditions of: antemortem edentia, postmortem edentia, occlusal demineralization, coronal demineralization, interproximal demineralization, root surface demineralization, alveolar crest, periapical alveolar defect and interdental alveolar defect. Radiographic interpretation follows standard dental clinical diagnostic criteria. Each film is read separately by two investigators and discussed for concurrence where different interpretations occur. Entries are made on the radiographic data sheet and integrated with corresponding visual data sheet for tabulations. As previously presented, the radiographs are also used during the visual examination for the alveolar crest scoring.

Data Collection Sheets

The examination of each specimen generates a visual and a radiographic data sheet. On each sheet, scores are entered for the variables which are identified by column for thirty-two teeth. The visual data sheet also contains entries for the temporomandibular joint score and the occlusal classification (see Figures IV-14 and IV-15).

On each data sheet, the entries for thirty-two teeth are divided into four segments. Segment I is the maxillary posterior consisting of teeth one through five and twelve through sixteen. Segment II is the maxillary anterior; teeth six through

VISUAL DATA SHEET

		A1	A2	B1	B2	B3	B4	C1	C2	C3	D	E
	1											
I	2											
	3											
	4											
	5											
	6											
	7											
II	8											
	9											
	10											
	11											
	12											
	13											
I	14											
	15											
	16											
	17											
III	18											
	20											
	21											
	22											
	23											
IV	24											
	25											
	26											
	27											
	28											
	29											
III	30											
	31											
	32											
		A1	A2	B1	B2	B3	B4	C1	C2	C3	D	E

Specimen # __________

Age __________

Sex __________

Temporomandibular Joint
R ____|____
L ____|____

Occlusal Classification

CODE

A1	Antemortem Edentia
A2	Postmortem Edentia
B1	Occlusal Demineralization
B2	Coronal Demineralization
B3	Interproximal Demineralization
B4	Root Surface Demineralization
C1	Alveolar Crest
C2	Periapical Alveolar Defect
C3	Interdental Alveolar Defect
D	Abrasion
E	Attrition
I	Maxillary Posterior
II	Maxillary Anterior
III	Mandibular Posterior
IV	Mandibular Anterior

Figure IV-14 Visual examination data sheet

RADIOGRAPHIC DATA SHEET

Specimen #

____

Age

____

Sex

____

		A1	A2	B1	B2	B3	B4	C1	C2	C3
	1									
	2									
I	3									
	4									
	5									
	6									
	7									
II	8									
	9									
	10									
	11									
	12									
	13									
I	14									
	15									
	16									
	17									
	18									
III	19									
	20									
	21									
	22									
	23									
IV	24									
	25									
	26									
	27									
	28									
	29									
III	30									
	31									
	32									
		A1	A2	B1	B2	B3	B4	C1	C2	C3

CODE

A1	Antemortem Edentia		I	Maxillary Posterior
A2	Postmortem Edentia		II	Maxillary Anterior
B1	Occlusal Demineralization		III	Mandibular Posterior
B2	Coronal Demineralization		IV	Mandibular Anterior
B3	Interproximal Demineralization			
B4	Root Surface Demineralization			
C1	Alveolar Crest			
C2	Periapical Alveolar Defect			
C3	Interdental Alveolar Defect			

Figure IV-15 Radiographic examination data sheet eleven. The mandibular posterior is segment III and the mandibular anterior is segment IV. The sex and age at death of each individual are not entered on the data sheet until the visual and radiographic assessments are completed. For the variable columns which are scored positively or negatively, the number one represents a negative finding and the number two a positive finding. Tabulated value scores are entered in the variable columns as appropriate.

Data Analysis

Activity-Induced Dental and Osseous Condition Profile

The visual and radiographic data sheets are tabulated for each individual to generate condition profile scores for each variable (see appendix B for numerical formulas). The exception to this procedure is the occlusal classification which is presented by frequency.

The temporomandibular joint profile score is generated by totaling the assessment entries for each of the four surfaces; two condylar heads and two glenoid fossi. The assessment criteria of degenerative change follows a scoring system of one through five; one, recognized as normal hard tissue and five as bony eburnation. The sum of the surface scores is divided by the number of surfaces assessed. The resulting value is the temporomandibular joint profile score for the individual.

The antemortem edentia profile score for an individual is simply the sum of teeth determined by visual and radiographic examination which have been lost prior to death. The profile score for postmortem edentia is determined in similar fashion as the sum of teeth which satisfy the criteria for loss after the death of the individual. The remaining teeth examined on the specimen is the dentition score, which is generated by subtracting the sum of the scores for antemortem edentia, postmortem edentia and indeterminate entries from an expected adult dentition of thirty-two teeth. In order to compensate for the impact of postmortem edentia and indeterminate entries on the profile scores for the conditions of demineralization, alveolar bone, abrasion and attrition either the dentition or the antemortem edentia profile scores are used in the tabulation (Appendix B).

The segment scores for the dentition are tabulated by subtracting the sum of the segment antemortem, postmortem and indeterminate scores from the appropriate number of expected adult teeth per corresponding segment. In each anterior segment, six adult teeth are expected. The expected number of teeth in the adult posterior segments is ten. The resulting dentition segments scores are used in a similar fashion as the dentition profile score in the tabulation of segment values for various conditions (Appendix B).

The dental demineralization profile scores are generated by totaling the number of positives for the particular surfac,; such as occlusal, interproximal etc and dividing the sum by the dentition profile score. The resulting score is the percentage of surfaces which are demineralized and not a percentage of areas of demineralization. This formula assumes that the individual's missing teeth are without demineralization and therefore the profile score generated is a minimum score. To presume that teeth lost antemortem and postmortem were demineralized increases the variability of the score and weakens the comparability. This score provides the opportunity to contrast relative differences in demineralization in an intersample or intrasample comparison. It does not define or quantify the morbidity of dental destruction. The same formula is used to generate segment scores.

The alveolar crest profile score is determined by totaling the alveolar crest entries for each location and dividing by the dentition profile score. The resulting mean score for the individual is relative to the 1-5 alveolar scoring scale presented earlier in the Chapter.

Generation of the periapical alveolar defect score is achieved by dividing the sum of positive findings in each dental alveolar area by thirty-two. Segment scores are, again, produced by applying the appropriate segment denominator. The interdental alveolar defect profile scores are recorded in similar fashion; however, thirty and five are used as total and anterior segment denominators respectively (Appendix B).

The abrasion profile score is the result of the total of positive abrasive conditions in each individual divided by the dentition score of the individual. The abrasion segment score is determined by totaling the positive findings in the segment and dividing by the dentition score of the segment. The abrasion score is a relative value and is not convertible to a percentage of teeth with abrasion. This occurs because one or more types of abrasive conditions may be in evidence on a dental surface.

The attrition profile score is also a relative score for the dentition examined. It is tabulated by totaling the ordinal scale surface scores in each individual and dividing by the individuals' dentition score. A segment score is determined by dividing the segment surface score sum by the segment dentition score.

Each profile score and segment score tabulation is entered on the specimens Activity-Induced Dental and Osseous Condition Profile sheet (Table IV-1).

Analytic Method

The activity-induced dental and osseous condition profile is designed to yield a mean profile score for each condition. The mean profile score is the average of the segment scores for each condition evaluated on the specimen. The mean profile scores of individuals are tabulated to generate a mean profile score of each condition for the sample.

In order to examine the relationship between activity-induced dental and osseous conditions and the division of activity by gender, it is necessary to test the hypothesis that there is a significant difference between the activity-induced dental and osseous conditions of males and females. The activity-induced dental and osseous conditions are expressed in the sample and individual condition profiles as mean scores. Therefore, to test the difference between male and female condition profile scores, that is to test the difference in means, the instrument selected as most suited for the task is the two tailed t-test of independent samples. The two-tailed significance was selected because it is of no consequence whether the difference is the result of a higher or lower mean score. A confidence interval of 95 percent is applied to the skeletal sample as an acceptable level of statistical significance. The t-test of the null hypothesis that there is no difference between the scores of males and females in a sample with a probability level of $P<0.05$ is the analytic method expected to yield the most relevant statistical information for the interpretation of the activities of men and women and the reconstruction of the social organization of the skeletal sample.

Table IV.1

Table IV-1. Activity-induced dental and osseous condition profile table

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen ________ **Description:**

Sex ________

Age ________

Temporomandibular Joint Score ________

Occlusal Classification ________

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1					
Postmortem Edentia	A2					
Dentition	A3					
Occlusal Demineralization	B1					
Coronal Demineralization	B2					
Interproximal Demineralization	B3					
Root Surface Demineralization	B4					
Dental Demineralization	B5					
Alveolar Crest	C1					
Periapical Alveolar Defect	C2					
Interdental Alveolar Defect	C3					
Abrasion	D					
Attrition	E					

CHAPTER V

PROTOHISTORIC SENECA SKELETAL SAMPLE

Archaeology of the Protohistoric Seneca

The period of 1500AD to 1650AD in the region of North America, now known as western New York State, affords multiple opportunities to overcome some of the problems associated with integrating skeletal and ethnographic research. The area, particularly the region south of Lake Ontario and north of the Finger Lakes in the eastern Genesee River Valley, contains multiple burial sites of the late prehistoric and early historic Seneca Iroquois (Figure V-1). During this protohistoric period,

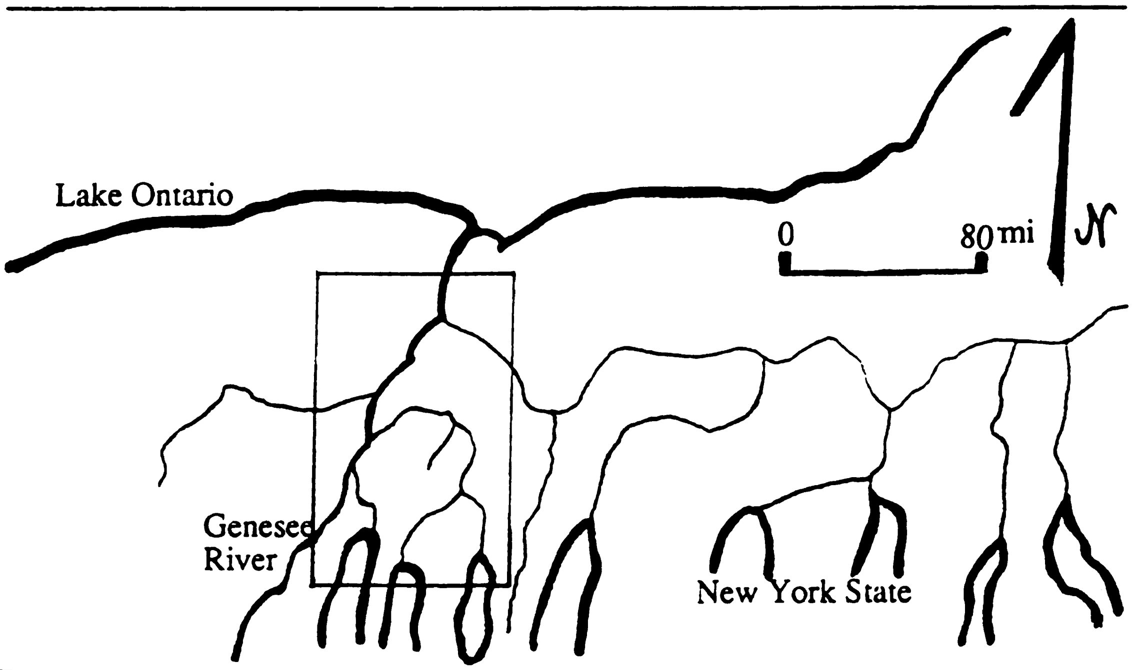

Figure V-1. Map of protohistoric Seneca region, for insert see Figure V-2.

exploration of the Saint Lawrence River Valley, primarily by French explorers and missionaries, resulted in the initial documentation of the lifeways of the inhabitants of the region (Biggar, 1924, 1929; Charlevoix, 1961; Lafitau, 1977; Sagard, 1939; Thwaites, 1901). Grave goods from the protohistoric Seneca sites which have been selected for analysis demonstrate a steady increase in European artifacts, presumably through extended trade routes and not direct contact during the protohistoric period (Wray et al., 1991). The burial sites selected represent villages occupied during a period of regional European exploration but not one of apparent prolonged European contact or interaction. Such sites are optimal for the identification and interpretation of activity-induced dental and osseous conditions and the division of activity by gender in a horticultural society.

The protohistoric Seneca sample is a collection of individuals from seven burial sites which have been reconstructed in a series of occupations throughout the period. It is argued that the individuals occupied village sites in a general sequence as established and accepted in the archaeological record (Wray et al., 1991: 5). Because of the geographic proximity and the chronological definition of the sites, they are analyzed as a single protohistoric Seneca sample numbering one hundred three individuals. For three of the individuals, sex could not be determined and they have been excluded from portions of the analysis which require identification by sex.

The majority of individuals are from five village sites, each occupied for periods of approximately twelve to twenty years throughout the one hundred and fifty years. During this period village migration and associated burial sites proceeded in primarily a northerly direction and was usually of a distance less than ten miles (Figure V-2) (Wray et al., 1991: 3). Village site selection appears to have been made relative to water, soil cultivatability, defense and shelter from the environment. At most village site locations, the soil was Ontario loam and well suited to planting and drainage.

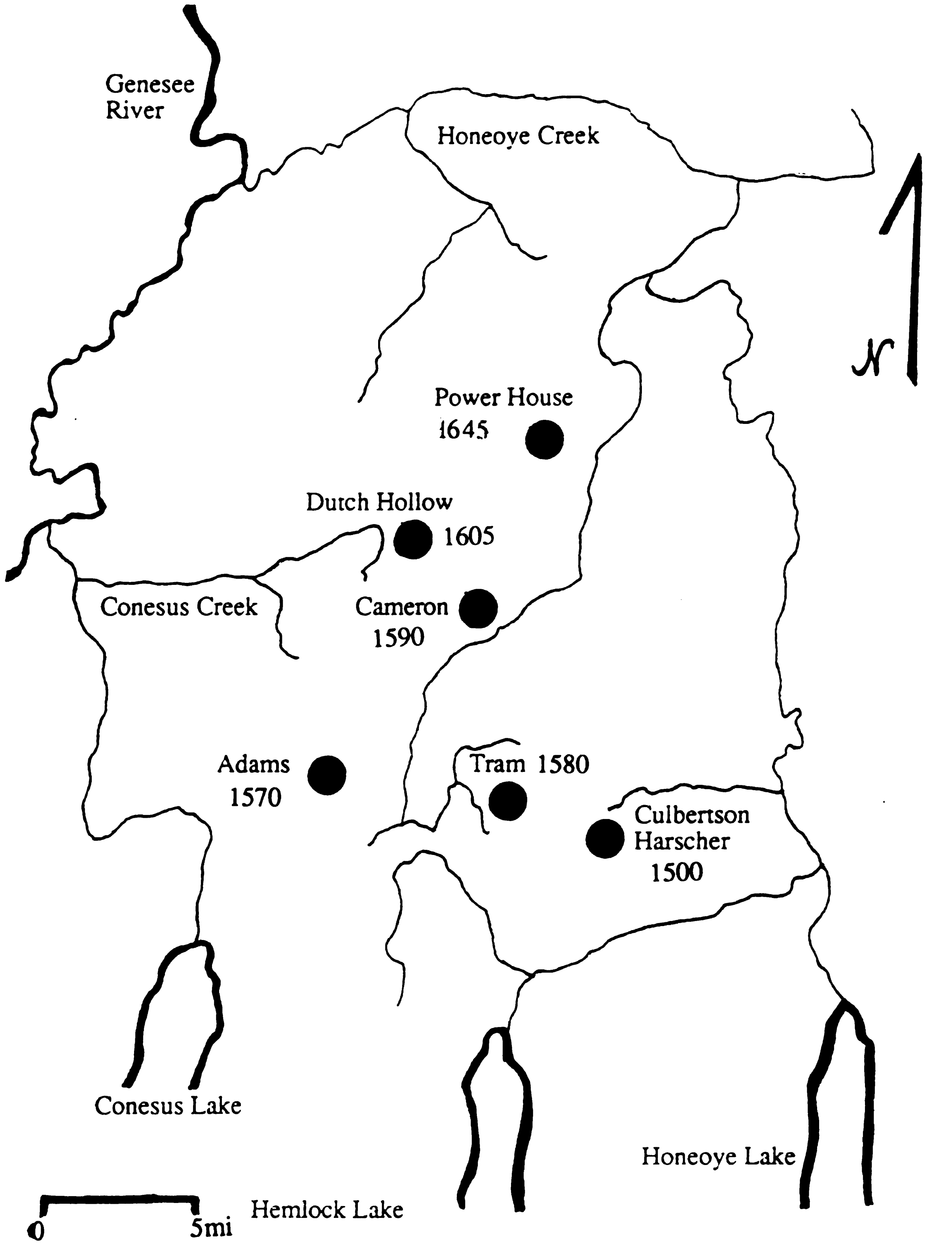

Figure V-2. Map of Seneca sample major site locations adapted from the proposed sequences of Wray, used with permission.

Springs were associated with each site. With the exception of the Harscher site, there was post hole evidence for palisading in an oval pattern of enclosure (Wray et al. 1991).

The five major burial sites of the skeletal sample were associated with village locations and approximately dated as follows: Harscher associated with Culbertson, 1500; Adams, 1570; Tram, 1580; Dutch Hollow, 1605; and Power House, 1645 (Saunders, 1992). Figure V-2 is an adaptation of the proposed Seneca Sequences developed by Charles Wray (Wray, 1957). Throughout the village site sequence the burial locations were for the most part individual graves with the body placed in a flexed position and lying laterally. Graves of the earlier sites tended to be directionally random, with no consistent orientation in the placement of the head. Toward the end of the sample period, the heads of individuals were placed to the West. Very few artifacts were associated with burials at the Harscher site. There was no evidence of the European goods generally associated with contact such as iron axes, knives, brass or beads. As the site sequence progresses, there was both an increase in grave goods, and other items associated with contact. Iron, sometimes reworked, was the primary European artifact found in male tool assemblages and was included with organic material, stone pipes and small numbers of glass beads. Evidence of firearms was minimal until the Power House site, which indicate a marked increase in European weaponry late in the protohistoric period (Ritchie, 1954; Wray, 1983, 1985; Wray et al., 1991).

The assumption, for the protohistoric Seneca sample, is that trade, until approximately 1650, was through a network extending from the region to the north and east. At that time, disease and warfare to the west allowed Seneca fur trade to expand into Huron and Neutral territories. Increased Dutch trade in firearms, in the Hudson River Valley, to all of the Iroquois nations, as well as direct trading with the French in the Saint Lawrence River Valley, affected the Seneca by increasing access a

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to new materials, technologies and political structures (Bonvillain ,1980; Bradley, 1987; Foster, 1984; Houghton, 1912, Trigger, 1972). The parameters which bound protohistoric Seneca society were changed by politics, warfare and technology to essentially end the protohistoric Seneca period.

The protohistoric Seneca sample analyzed is comprised of fifty-one females and forty-nine males. Table V-1 presents the frequencies by sex from each burial site in the appropriate chronological sequence (Saunders 1993).

Table V-1. Number of males and females at each site

Date	Site	Female n=51	Male n=49
1650	Power House	9	9
1605	Dutch Hollow	9	6
1580	Tram	8	11
1590	Cameron	0	1
1570	Adams	8	14
1550	Alhart	2	1
1500	Harscher	15	7

In order to present a relative perspective of the skeletal sample as it relates to the number of Seneca individuals that occupied the sites for the period, the population estimates of Charles Vandrei, based on soil class, field size, and years occupied, were used for each location. Applying the low estimates of Vandrei for the five major sites and assuming Harsher was similar in population size to the other sites, the total number of individuals occupying the sites was approximately seventy-five hundred (Vandrei, 1987: 10, 11). The assumption is made that one-half to two-thirds of the individuals present during the period were early adults or older and that the one hundred individuals examined are from a group of approximately forty-five hundred adult Seneca who lived over a period of one hundred and fifty years and occupied sites within a radius of ten miles.

The ages at death of the individuals examined are shown in Figure V-3 with the age categories as described in Chapter IV, Sample Selection. Fifty-one of the individuals are within the thirty to thirty-nine years of age at death categories and forty-three individuals are within the twenty-nine and under categories.

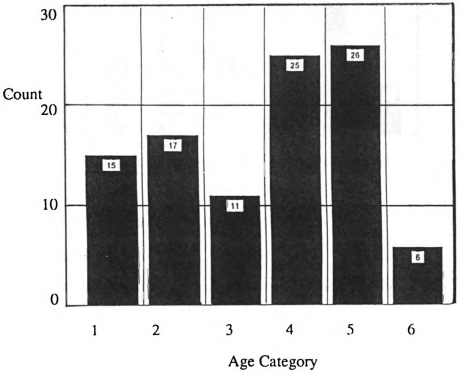

Figure V-3. Seneca sample distribution by age at death

The distribution by sex, Figure V-4, demonstrates that a greater number of females in the sample died in early adulthood and a greater number of males died as middle and older adults (Saunders, 1993).

The limited geographic distribution, temporal specificity and the presence of primary ethnographic documentation for the region makes the protohistoric Seneca an excellent skeletal sample for activity-induced dental and osseous condition analysis.

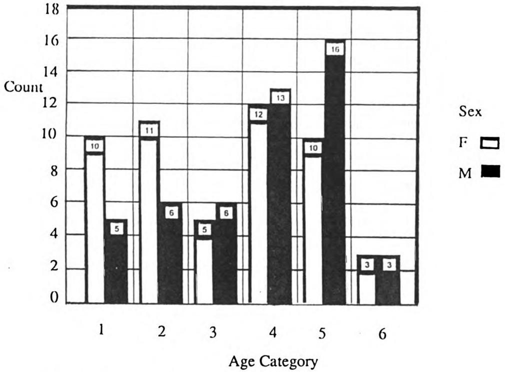

Figure V-4. Seneca sample age distribution by sex

<u>Sample Examination</u>

The sample examination was performed in Rochester, New York, at the Rochester Museum and Science Center. The specimens were generally in good condition with a minimal amount of fragmentary material. It was requested prior to examination that a sample be selected in which the specimens range in age from young adult to old adult. It was also requested that specimens be in satisfactory condition for the articulation of the maxilla and mandible. In a number of cases this resulted in the examination of a maxilla disarticulated from the base of the skull or fragmentary remains which were repositioned. Each specimen was examined without reference to sex or age by the examiner. The examination was recorded on VHS video tape with an audio track in the standard examination protocol described in the Microvideo Examination Protocol of Chapter IV.

Condition Profile Scores of the Seneca Sample

The visual and radiographic data sheets of the identified dental and osseous conditions for each individual were tabulated to generate profile scores for each individual (Appendix B).

The occlusal classification graph (Figure V-5) demonstrates the number of individuals tabulated by frequency with an indeterminate occlusion, Class I occlusion, Class II occlusion, and Class IV edge-to-edge acquired occlusion. There were no individuals with a Class III occlusion in the Seneca sample examined.

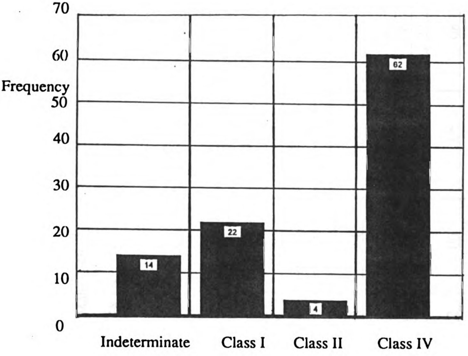

Figure V-5. Seneca sample distribution of Occlusal Classification, n=102

All other variable condition scores and the mean condition scores for the sample (Table V-2) were generated by applying profile score formulas developed for each variable to the combined visual and radiographic data as described in Chapter IV. Each individual activity-induced dental and osseous profile is presented in Appendix C.

Table V-2. Seneca sample condition profile scores

Table V-2. Seneca sample condition profile scores

PROTOHISTORIC SENECA ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Sex: Female 51, Male 49

Mean Age: 28 yrs.

Mean Temporomandibular Joint Score: 1.27

Sample: SENECA 1500-1650AD n = 100

Activity-induced Condition		Mean Profile Score	Mean Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4.36	1.32	.53	2.34	.17
Postmortem Edentia	A2	2.50	.62	.72	.44	.73
Dentition	A3	24.35	8.05	4.76	7.23	4.32
Occlusal Demineralization	B1	.15	.20	.06	.25	.04
Coronal Demineralization	B2	.11	.12	.04	.18	.04
Interproximal Demineralization	B3	.14	.17	.09	.20	.04
Root Surface Demineralization	B4	.13	.17	.06	.19	.04
Dental Demineralization	B5	.14	.16	.06	.21	.04
Alveolar Crest	C1	2.25	2.20	2.34	2.19	2.29
Periapical Alveolar Defect	C2	.06	.06	.08	.07	.03
Interdental Alveolar Defect	C3	.05	.09	.02	.06	.02
Abrasion	D	.13	.08	.30	.09	.06
Attrition	E	3.45	2.85	4.22	3.06	4.03

The mean temporomandibular joint score for the Seneca sample is 1.27, indicating that, in general, the sample had very little degenerative joint disease.

Antemortem edentia, for each individual, was tabulated by totaling the number of missing teeth determined by visual and radiographic assessment to have been lost prior to the death of the individual (Table V-3). The mean score for the Seneca sample indicates that at the time of death the average individual was missing four teeth in a maxillary and mandibular compliment of thirty-two adult teeth. Most antemortem edentia occurred in the mandibular posterior segment followed by the maxillary posterior and anterior segments. The mandibular anterior segment demonstrated the least amount of antemortem edentia.

Table V-3. Seneca sample antemortem edentia scores, n = 100

	Mean Segment Scores			
Mean Profile Score	Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
4.36	1.32	.53	2.34	.17

The skeletal material was, for the most part, intact or easily approximated to reconstruct dental and skeletal relationships. However, in particular locations postmortem tooth dislocation, inappropriate replacement of teeth or postmortem tooth loss was present in the sample. Postmortem edentia was determined by visual and radiographic examination and tabulated for each individual as the number of teeth missing after death (Table V-4). The segment scores demonstrate a higher tendency of postmortem edentia in the anterior segments. This was likely the result of the thin layers of cortical bone in the anterior segments of the maxilla and mandible which were lost either during the life of the individual or lost to soil erosion. The loss of cortical bone and the root form of anterior teeth allowed the dislocation of the dentition during excavation or storage. The dense cortical bone in the mandibular posterior segment decreased the likelihood of dislocation in that area.

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For the average individual in the Seneca sample, the mean score indicates that there were two or three teeth missing postmortem.

Table V-4. Seneca sample postmortem edentia scores, n = 100

	Mean Segment Scores			
Mean Profile Score	Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
2.50	.62	.72	.44	.73

The dentition present and examined on each individual was established by subtracting the sum of teeth lost antemortem, postmortem and the number of indeterminate entries for each category from the expected adult dentition of thirty-two teeth. In the Seneca sample the average number of teeth available for examination, in an individual, is twenty-four (Table V-2)

The presence of dental demineralization in each individual was tabulated in four surface categories and a dental demineralization profile score (Table V-2). The resulting profile score for each surface was generated by dividing the sum of positive surfaces per individual by thirty-two minus the dentition score. As previously noted, the profile score is the percent of surfaces positive for the condition of demineralization. This assumes that the teeth missing in the individual are without dental demineralization and therefore the profile score generated is a minimum score. The same formula was used to generate the demineralization segment scores with appropriate segment denominators (Appendix B).

The mean profile score for occlusal demineralization of the Seneca sample is .15 or fifteen percent of the occlusal surfaces in the average individual with twenty-four teeth present with recognizable demineralization (Table V-5). By segment, the posterior segments scores demonstrate a higher percentage of occlusal surface demineralization.

Table V-5. Seneca sample mean occlusal demineralization scores, n=100

Mean Profile Score	Mean Segment Scores			
	Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
.15	.20	.06	.25	.04

Coronal demineralization scores are similar to occlusal demineralization (Table V-2). Coronal demineralization has slightly lower percentages but follows the same profile pattern with higher frequencies of positive surfaces in the posterior segments. Interproximal and root surface scores also demonstrate similar profiles and are consistent with the posterior-anterior difference in frequency (Table V-2). The dental demineralization profile for the Seneca sample presents a mean score of 0.14. This is a relative score for the minimal amount of dental demineralization by surface in the average individual. For the Seneca sample most of the demineralization occurred on posterior teeth with the mandibular posterior presenting the highest score of 0.21. The mandibular anterior teeth had the least amount of demineralization with a score of 0.04. In practical terms, the demineralization profile scores indicate that the average individual in the Seneca sample was likely to exhibit two teeth missing antemortem in the posterior segments with the remaining posterior teeth demonstrating two demineralized occlusal surfaces, two demineralized interproximal surfaces, two demineralized coronal surfaces and two demineralized root surfaces.

The distribution of posterior demineralization by age in the profile scores of the Seneca sample indicates that the presence of demineralization of the dentition was greatest for occlusal surfaces of the mandibular segment early in an individual's life (Figure V-6). Occlusal demineralization of the mandible and maxilla was relatively equal in the middle decades and that in the later decades the mandible was surpassed by increasing maxillary occlusal demineralization. The sample for the age category 40-44 years is small (n=6) and therefore difficult to interpret.

But, as noted on the bar graph (Figure V-6), the consistency of the mandibular demineralization score indicates that regardless of antemortem edentia, demineralization occurred in the sample at a fairly constant rate relative to age.

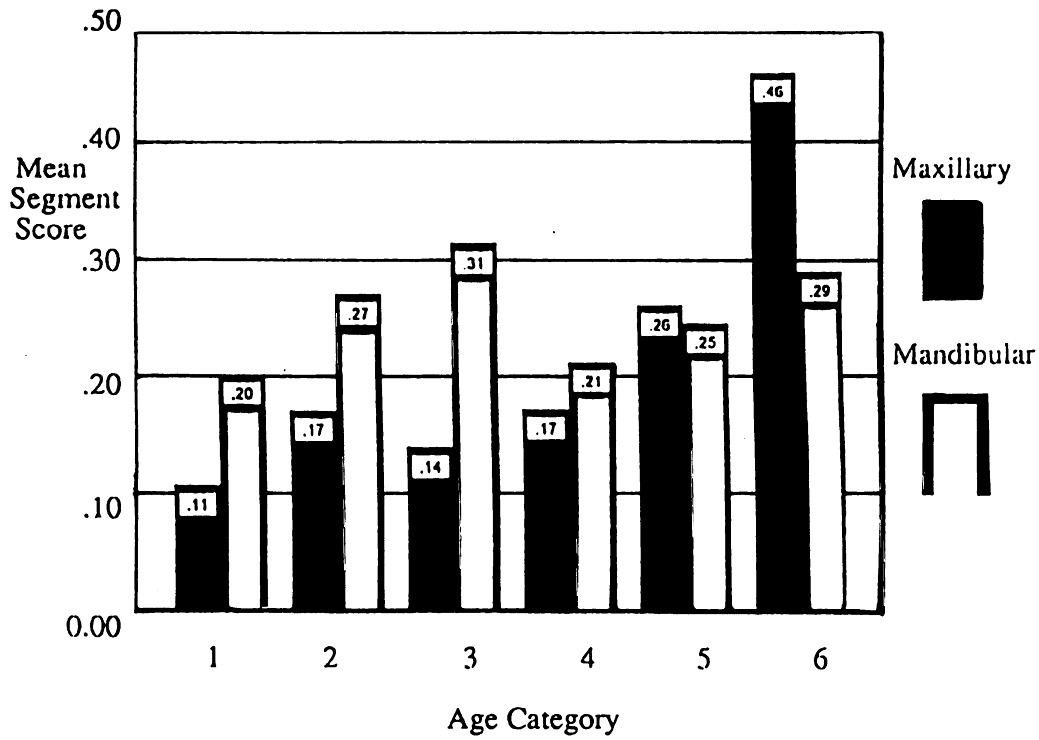

Figure V-6. Seneca sample occlusal demineralization of maxillary and mandibular posterior segments by age.

The comparison between the maxillary and mandibular coronal demineralization scores, relative to age, reflects a greater frequency in the mandible early in life (Figure V-7). However, the scores become more equal in the later stages. This is probably an indication of mandibular buccal pit demineralization early, and a more equal demineralization pattern associated with interproximal demineralization later in life.

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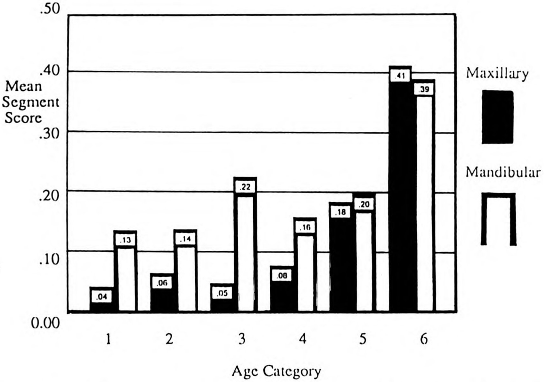

Figure V-7. Sequence sample coronal demineralization of maxillary and mandibular posterior segments by age.

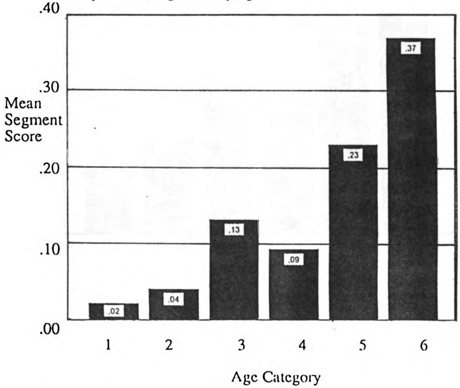

Figure V-8. Seneca sample root surface demineralization mean profile score by age.

Root surface demineralization scores reflect a different pattern, relative to age, in the Seneca sample (Figure V-8). As might be expected, the frequency of root surface demineralization increases in older individuals.

Following the formulas outlined in the methodology, the alveolar crest profile scores were determined by totaling the alveolar crest entries for each location and dividing by the dentition of the individual minus the sum of indeterminate entries. A mean alveolar crest score for the Seneca sample of 2.75 indicates that the average alveolar crest was altered vertically less than one-third the root length of the tooth in the area examined.

As expected, alveolar crest scores increase with age and correlate positively with an increase in the root surface demineralization profile

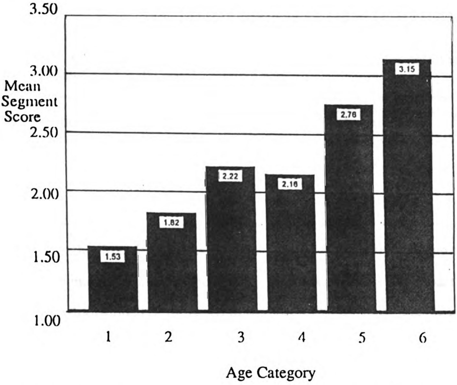

Figure V-9. Seneca sample alveolar crest mean profile score by age.

score (Pearson's r = .675; P<0.001) (Appendix D, Table D-85). However, if considered by segment, the mandibular anterior alveolar crest segment score (Pearson's r = .193) is not significant when correlated to the root surface demineralization score of the mandibular anterior segment (Appendix D, Table D-85). Although the alveolar crest score for the mandibular anterior segment is similar to other alveolar segment scores, demineralization was not occurring on the mandibular anterior root surfaces to the same extent as other segments of the Seneca sample (Table V-2).

The mean periapical alveolar defect profile score for the Seneca sample is .06 or six percent of the possible areas of alveolar bone present with periapical alveolar defects. The average individual of the sample had two periapical alveolar defects. The area with the fewest defects was the mandibular anterior with a score .03 and the greatest number of defects was in the maxillary anterior (Table V-6).

Table V-6. Seneca sample mean profile and segment scores for periapical alveolar defect, C2 and interdental alveolar defect, C3

		Mean Segment Scores			
Mean Profile Score		Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
C2	.06	.06	.08	.07	.03
C3	.05	.09	.02	.06	.02

The higher interdental alveolar defect score for the maxillary and mandibular posterior segments, relative to the anterior segments, reflects the impact of the erupting, malpositioned or impacted third molars (Table V-6). The mean profile score of .05 reflects the considerable impact of younger individual's posterior segments with involved third molars. The interdental alveolar defect score for the Seneca sample indicates an average of approximately two areas of alveolar involvement. This score, along with the mean profile alveolar crest score of 2.25, indicates alveolar bone alterations were occurring in living individuals of the Seneca protohistoric period but the changes were minimal.

The abrasion score was generated by totaling the positive findings for the condition of abrasion in each individual and dividing by the dentition score. The abrasion segment score was determined by totaling the positive findings in the segment and dividing by the dentition score of the segment (Appendix B). The mean profile abrasion score for the Seneca sample was 0.13.

Table V-7. Seneca sample mean profile and segment abrasion scores

	Mean Segment Scores			
Mean Profile Score	Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
.13	.08	.30	.09	.06

The maxillary anterior segment has a higher abrasion score than the other three segments (Table V-7). This is attributed to more than one type of abrasive condition present on the maxillary anterior teeth. The higher abrasion score for the segment implies that a material other than food was introduced intraorally. The material and the activities performed other than mastication resulted in an abrasive alteration of the maxillary anterior teeth.

The attrition score is a relative score for the teeth examined. It was tabulated by totaling the dental surface attrition values for each individual and dividing by the individual's dentition score. A segment score for attrition was determined by the segment attrition sum divided by the segment dentition score (Appendix B). The profile for the Seneca sample is a mean attrition score of 3.45 (Table V-8). There is a significant difference in the anterior and posterior attrition scores (Appendix D, Table D-75 and D-76).

Table V-8. Seneca sample mean profile and segment attrition scores

Mean Profile Score	Mean Segment Scores			
	Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
3.45	2.85	4.22	3.06	4.03

The significantly higher anterior score is consistent for progression of Seneca individuals from a Class I to a Class IV occlusion. The Seneca anterior attrition score is also positively correlated with antemortem posterior edentia, (Pearson's r = .533; P<0.001). The relationship between occlusal demineralization and attrition, in the posterior segments, was expected to have a negative correlation; that is, as posterior occlusal attrition increased, the occlusal demineralization would decease. However, although this was a tendency in the mandibular posterior, the correlation between occlusal demineralization and attrition scores is not significant (Appendix D, Table D-69). The mean profile attrition score of the Seneca sample, applying a relative ordinal scale from zero to eight with eight the maximum, is 3.45. This implies that, although attrition was occurring in the Seneca sample, the relative amount present based on the profile score was mild to moderate.

The mean scores of the dental and osseous conditions of the Seneca sample profile a group of individuals with moderate antemortem edentia. The low mean postmortem edentia score indicates the sample is in good condition with a suitable complement of teeth and associated osseous tissue available for examination. The scores indicate that the presence of dental surface demineralization is in a relatively moderate range with the alveolar process also demonstrating, in a general view, moderate change. Periapical alveolar defects and interdental defects are present in the sample but their frequency relative to the total possible is low. Evidence of dental abrasion is also present in the sample with the greatest occurrence in the maxillary anterior segment. The dental attrition profile is consistent with the minimal

Table V-9. Seneca sample activity-induced dental and osseous condition mean profile scores

Sample: SENECA 1500-1650 n=100

Activity-induced Dental and Osseous Condition	Mean Profile Score
Antemortem Edentia	4.36
Postmortem Edentia	2.50
Dentition	24.35
Occlusal Demineralization	.15
Coronal Demineralization	.11
Interproximal Demineralization	.14
Root Demineralization	.13
Dental Demineralization	.14
Alveolar Crest	2.25
Peraprical Alveolar Defect	.06
Interdental Alveolar Defect	.05
Abrasion	.13
Attrition	3.45

amount of temporomandibular joint degeneration and the acquired Class IV occlusal pattern that predominates the Seneca sample (Table V-9).

CHAPTER VI

RESULTS AND DISCUSSION

Testing the Primary Hypothesis

The categorization of protohistoric Seneca by gender reflects a social structure in which activities were performed with a specific identification by gender. Performers of particular activities cluster by gender in a fashion consistent with the theoretical proposals of Burton and White (Burton et al., 1981; White et al., 1977). The dental and osseous conditions identified in the Seneca skeletal sample are by definition signs in teeth and bone of activities performed throughout the life of an individual. The profile of the activity-induced dental and osseous conditions of the Seneca sample reflects the general pattern of the skeletal signs in evidence. In the context of the well defined division of activity by gender which existed in Seneca society during the protohistoric period, the primary hypothesis of this research states that there is a significant difference between males and females in the activity-induced dental and osseous conditions of the Seneca skeletal sample.

This hypothesis was tested for each of the dental and osseous conditions described in the methodology and scored in the Seneca skeletal profile. A t-test for Equality of Means between the mean scores of males and females for each variable was tested at a $P<0.05$ level of confidence (Appendix D). The t-test for Equality of Means was selected because the comparison of males and females in the Seneca sample is by mean profile and mean segment score for each variable. As previously discussed, the t-test for independent samples by sex is considered the best instrument to determine the sampling distribution of the differences between means. Table VI-1 presents the mean score and the mean segment score of males and females for each activity-induced dental and osseous condition. All the scores were generated, as previously described in the condition profile presented in Chapter IV, with formulas for each variable outlined in Appendix B. All of the variable scores were initially tested independently and total mean profile scores are presented in Table VI-2. Additional statistical analysis was performed in the context of a complex of activity-induced dental and osseous conditions. The interactive relationship of the variables is to follow the independent analysis.

The mean temporomandibular joint scores for fifty-one females of 1.17 and forty-nine males of 1.36 are not significantly different. The degenerative changes in the right and left glenoid foci and condylar heads of males and females are very similar. Males demonstrate a greater amount of degenerative change on the left condylar head, a condition which is not evident in females. The apparent difference may reflect a predominant right working functional occlusion for males in a pattern consistent with handiness. However, this is speculative and requires further investigation.

Antemortem edentia mean profile scores and mean segment scores for fifty-one females and forty-nine males are not significantly different. On average both sexes of the Seneca sample lost approximately four teeth during the course of their lives. The edentia was consistent by segment. Males and females lost the most teeth in the mandibular posterior and least in the mandibular anterior in equal fashion (Appendix D, Tables D-1 through D-5).

Postmortem edentia follows a similar pattern. The specimens by sex demonstrate no significant difference in the numbers of teeth lost during interment,

Table VI-1. Seneca sample profile by sex

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE BY SEX

Sex	Female n = 51	Male n = 49
Mean Age	26 yrs	28 yrs
Mean TMJ Profile Score	1.17	1.36

Sample: SENECA 1500-1650AD n=100

Activity-Induced Condition		Mean Profile Score		Mean Segment Scores: Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
Antemorten Edentia	A1	4.24	4.47	1.33	1.30	.53	.53	2.18	2.47	.20	.14
Postmortem Edentia	A2	2.45	2.55	.65	.59	.73	.71	.43	.45	.65	.80
Dentition	A3	24.49	24.20	8.00	8.10	4.75	4.76	7.41	7.04	4.33	4.31
Occlusal Demineralization.	B1	.17	.14	.23	.17	.06	.05	.26	.23	.04	.03
Coronal Demineralization	B2	.11	.10	.13	.10	.04	.04	.18	.18	.04	.03
Interproximal Demineralization	B3	.14	.13	.18	.15	.08	.09	.19	.20	.05	.03
Root Demineralization	B4	.13	.13	.18	.15	.06	.05	.17	.21	.04	.03
Dental Demineralization	B5	.14	.13	.18	.14	.06	.06	.20	.21	.04	.03
Alveolar Crest	C1	2.23	2.26	2.16	2.23	2.33	2.34	2.15	2.22	2.31	2.26
Periapical Alveolar Defect	C2	.07	.05	.06	.06	.08	.07	.07	.06	.05	.01
Interdental Alveolar Defect	C3	.06	.04	.09	.08	.02	.01	.07	.05	.02	.01
Abrasion	D	.08	.18	.03	.12	.18	.42	.06	.11	.05	.07
Attrition	E	3.33	3.57	2.59	3.11	4.11	4.33	2.93	3.19	3.90	4.16
	Sex	F	M	F	M	F	M	F	M	F	M

Table VI-2 Seneca sample mean profile scores t-test for equality of means

Activity-induced Condition	Variable	Number of Cases	Mean	SD	SE	t-value	df	2-tail sig.
Antemortem Edentia	F	51	4.235	6.117	.857	.30	98	.768
	M	49	4.469	5.828	.833			
Postmortem Edentia	F	51	2.451	2.928	.410	-.17	98	.863
	M	49	2.551	2.836	.405			
Dentition	F	51	24.440	6.411	.898	.23	98	.821
	M	49	24.20	6.211	.837			
Occlusal Demineralization	F	51	.168	.150	.021	.90	98	.372
	M	49	.143	.141	.020			
Coronal Demineralization	F	51	.110	.141	.020	.75	98	.457
	M	49	.104	.137	.020			
Interproximal Demineralization	F	51	.137	.180	.025	-.07	98	.944
	M	49	.135	.161	.023			
Root Surface Demineralization	F	51	.128	.166	.023	.87	98	.385
	M	49	.131	.160	.023			
Alveolar Crest	F	51	2.213	.689	.096	.38	98	.706
	M	49	2.248	.569	.081			
Periapical Alveolar Defect	F	51	.066	.087	.012	.76	98	.447
	M	49	.054	.058	.008			
Interdental Alveolar Defect	F	51	.059	.066	.009	1.34	98	.182
	M	49	.043	.052	.007			
Abrasion	F	51	.075	.116	.016	-3.19	98	.002*
	M	49	.166	.167	.024			
Attrition	F	51	3.331	1.125	.158	-1.49	98	.140
	M	49	3.572	1.094	.156			

excavation or archival storage. The location of postmortem edentia for arches and frequency is extremely similar by sex.

These two findings present a profile of Seneca individuals with no significant difference by sex in number of teeth or their arch distribution. The mean score for males and females is approximately twenty-four teeth with very similar distributions for each segment score. The closeness of the mean profile and segment scores indicates a profile of skeletal material which when divided by sex still retains equal and satisfactory physical properties for further activity-induced dental and osseous comparison.

The mean profile score and the mean segment scores (Table VI-3) demonstrate no significant difference in occlusal demineralization (Appendix D, Tables D-6 through D-10). There are slightly higher occlusal demineralization scores in females for each segment. Some authors have attributed this difference to an earlier female dental eruption sequence (Carlos and Gittlesohn, 1965; Klein and Palmer, 1941; Sloman, 1941). If this factor does have any impact on the presence of occlusal demineralization, it appears to be negated in the Seneca sample by female and male age differences. The female mean age at death is slightly lower than the male age at death. It is assumed that this difference in age compensates for the slightly earlier eruption sequences in females.

Table VI-3. Seneca sample mean profile and segment occlusal demineralization scores by sex

Mean Profile Score		Mean Segment Scores							
		Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
.17	.14	.23	.17	.06	.05	.26	.23	.04	.03

The coronal demineralization profiles scores compared by sex are even more similar than the occlusal and therefore present no significant difference between females and males (Appendix D, Tables D-11 through D-15). The maxillary anterior and mandibular posterior segments are identical scores for fifty-one females and forty-nine males (Table VI-4). The increased frequency in the mandibular posterior is consistent with anatomical pits and grooves in the tooth surface. The similarity of this score reflects that such dental characteristics are not sex specific.

Table VI-4. Seneca sample mean profile and segment coronal demineralization scores by sex

Mean Profile Score		Mean Segment Scores: Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
.11	.10	.13	.10	.04	.04	.18	.18	.04	.03

The interproximal demineralization profile scores are not significantly different by sex and again reflect a consistently similar pattern in demineralization for males and females (Appendix D, Tables D-16 through D-20). The association between the interproximal and root surface demineralization is evident in the scores for root surface demineralization (Table VI-5). The anterior and posterior segments show like frequencies of the activity-induced interproximal and root surface conditions.

Table VI-5 Seneca sample mean profile and segment interproximal and root surface demineralization by sex

	Mean Profile Score		Mean Segment Scores: Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
	F	M	F	M	F	M	F	M	F	M
B3	.14	.13	.18	.15	.08	.09	.19	.20	.05	.03
B4	.13	.13	.18	.15	.06	.05	.17	.21	.04	.03

In sum, the mean scores for the demineralization profile of males and females in the Seneca sample demonstrate remarkable similarity for the dental condition of demineralization (Table VI-6). There is no significant difference in the presence of the condition through the various surfaces of the dentition of the protohistoric Seneca sample (Appendix D, Tables D-26 through D-30). The activities which resulted in the alteration of tooth structure identified as dental demineralization had an almost equal impact on females and males.

Table VI-6. Seneca sample mean profile and segment dental demineralization scores by sex.

Mean Profile Score		Mean Segment Scores							
		Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
.14	.13	.18	.14	.06	.06	.20	.21	.04	.03

Mean profile alveolar crest scores for the sample are not significantly different between males and females (Appendix D, Tables D-31 through D-35). The average vertical change in the alveolar crest, within the coronal one third of the root length, is consistent and similar between males and females throughout the segments. The mean profile scores of 2.23 and 2.26 for females and males respectively demonstrate very nearly the same alveolar changes for each sex (Table V-7, C1).

Interdental alveolar defects follow a pattern consistent with alveolar crest scores (Table VI-7, C3). There is no significant difference between males and females in the interdental alveolar defect profile scores (Appendix D, Tables D-41 through D-45). As might be expected and as previously noted, there is a higher incidence of interdental alveolar degeneration in the posterior segments associated with third molar eruption and position. However, males and females present with basically the same profile of the osseous condition (Table VI-7).

Table VI-7. Seneca sample mean profile and segment alveolar crest and interdental alveolar defect scores by sex

	Mean Profile Score		Mean Segment Scores							
			Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
	F	M	F	M	F	M	F	M	F	M
C1	2.23	2.26	2.16	2.23	2.33	2.34	2.15	2.22	2.31	2.26
C3	.06	.04	.09	.08	.02	.01	.07	.05	.02	.01

The mean profile scores for periapical alveolar defects are not significantly different between males and females (Table VI-8). However, in the mandibular anterior segment, females have a noticeably higher score than males, 0.05 females and 0.01 males (Appendix D, Tables D-36 through D-40). Periapical alveolar defects are associated with demineralization alveolar crest degeneration and attrition. This is the result of a relationship between these conditions and periapical degeneration during the life of the individual. The periapical alveolar defect .05 mean segment score in

Table VI-8. Seneca sample mean and segment periapical alveolar defect scores by sex.

Mean Profile Score		Mean Segment Scores							
		Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
.07	.05	.06	.06	.08	.07	.07	.06	.05	.01

females demonstrates a noticeably higher difference between the mean scores of males and females for the segment than for any other of the related dental and osseous conditions (Table VI-1). However, even though there appears to be a difference between males and females for periapical alveolar defects in the mandibular anterior segment, it is not significant or consistent with other associated condition segment scores (Table VI-2).

For the fifty-one females and forty-nine males the mean profile score in the activity-induced condition of dental abrasion is significantly different by sex (Table VI-9). Using a t-test for Equality of Means, P<0.05, there is a 2-tail significance of .002 with a female mean profile score of .075 and a male mean profile score of .166 (Table VI-2). The segment scores show a significant difference between females and males in the maxillary anterior and posterior segments (Appendix D, Tables D-46 through D-50). The mandibular anterior scores for abrasion are similar by sex. The mandibular posterior scores demonstrate some apparent difference by sex with higher scores in males. Controlling for age, by excluding the youngest and oldest age groups in the sample, the thirty-eight remaining females and forty-one remaining males yield abrasion scores which are significantly different in the mandibular posterior segment by sex (Appendix D, Table D-56). It is noteworthy that when the introduction of a foreign material into the oral cavity is considered as a function of abrasion, there is a significant difference between males and females in the maxillary anterior scores and not in the mandibular anterior scores. The pattern of abrasion scores indicates that the differences between males and females resulted from activities which had a significant impact on the maxillary anterior, maxillary posterior and mandibular posterior teeth. The mandibular anterior mean scores for the segment are almost identical for males and females. The mean scores for the maxillary anterior segment demonstrate the greatest difference between females and males with scores of .18 and .42 respectively (Table VI-9).

Table VI-9. Seneca sample mean profile and segment abrasion scores by sex.

Mean Profile Score		Mean Segment Scores: Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
.08	.18	.03	.12	.18	.42	.06	.11	.05	.07

The rational for eliminating the youngest and oldest group in the age categories is based on the premise that activity-induced conditions are not manifest in the youngest group. The signs of abrasion in the oldest group are likely to have undergone alteration by attrition or elimination by antemortem edentia of the posterior segments. The age groups representing individuals approximately twenty to forty years of age are the section of the sample most likely to reflect the activity-induced condition of abrasion.

The consideration of age plays an important role in comparison of mean profiles by sex in the condition of attrition. The apparent direction of the mean profile attrition scores and segment scores is to a higher score in males than females (Table VI-10).

Table VI-10 Seneca sample mean profile and segment attrition scores by sex.

Mean Profile Score		Mean Segment Scores							
		Maxillary Posterior		Maxillary Anterior		Mandibular Posterior		Mandibular Anterior	
F	M	F	M	F	M	F	M	F	M
3.33	3.57	2.59	3.11	4.11	4.33	2.93	3.19	3.90	4.16

The only statistically significant score difference is in the maxillary posterior segment (Appendix D, Tables D-51 through D-55). Because attrition has been demonstrated to correlate positively with age, to exclude the oldest age group as was previously done in abrasion analysis, would adversely effect the findings by eliminating a period which reflects considerable change. Alternatively, controlling for age by deleting the two youngest groups which results in a sample twenty-five years or older, still yields a significant difference by sex in the maxillary posterior. It also yields scores which are more similar by sex in the other three segments. The sample of forty-one females and forty-four males demonstrate similar amounts of attrition in the maxillary and mandibular anterior segments as well as the mandibular posterior segment (Appendix D, Tables D-58 through D-62). The significant difference between males and females, as well as the suggestion of higher attrition scores in males, appears to occur in middle adult life. In the later stages of adult life similar attrition scores exist between the sexes.

All of the conditions discussed were evaluated in the context of a skeletal and dental occlusal relationship. As described in the methodology, the occlusion was classified into four categories by articulating the mandible with the maxilla and the base of the skull. The shift from a Class I occlusion to an acquired Class IV occlusion occurs with age. The frequencies for the sample are presented in Figure VI-1.

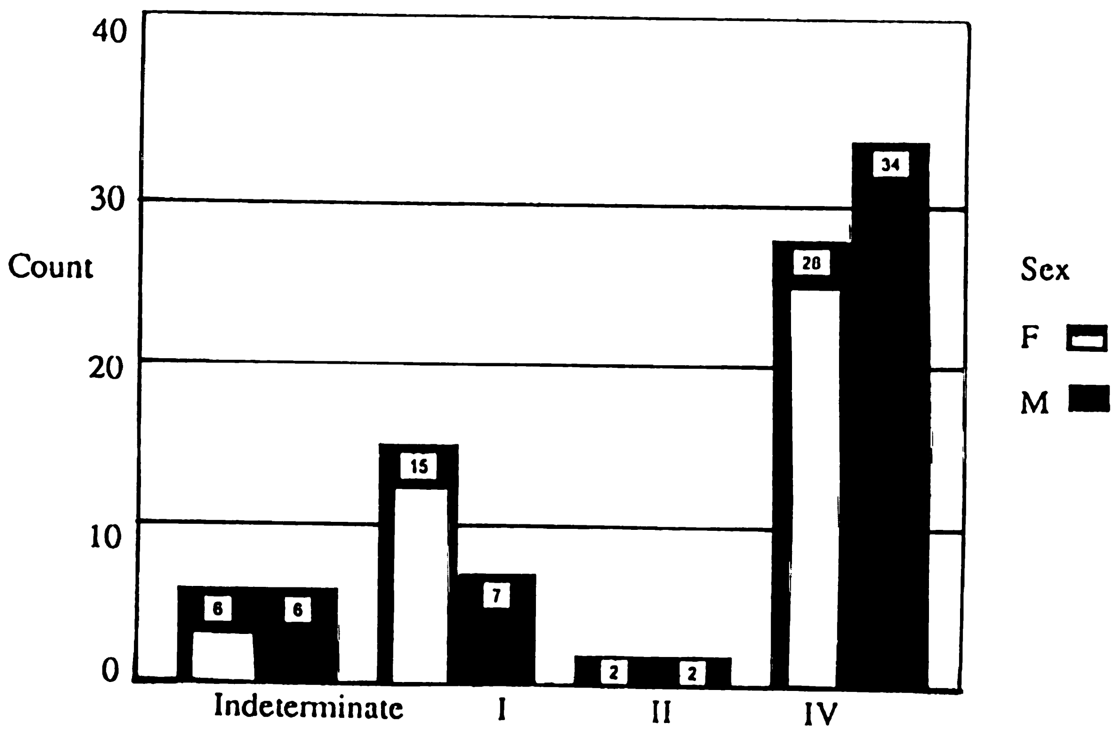

Figure VI-1. Seneca sample distribution of Occlusal Classification by sex

The high frequency of female Class I is attributed to the younger age of females in the sample. Occlusion is only an indicator of activity in the Seneca sample by the presence of a Class IV occlusion. The Class IV occlusion is acquired as a result of function. There is no significant difference by sex in Class IV occlusion. The presence of a Class IV occlusion does affect the evaluation of other conditions which are activity-induced. For example, the attrition profile scores in the maxillary posterior are significantly different by sex in the Seneca sample. However, when controlling for occlusion and assessing only those individuals with a Class IV occlusal relationship, there is not a significant difference in attrition profile scores by sex. The occlusal pattern is an important and necessary relationship to identify and consider in evaluating activity-induced conditions by sex.

Complex of Dental and Osseous Conditions

Testing the primary hypothesis demonstrates the similarities and significant differences in the protohistoric Seneca activity-induced dental and osseous conditions. Each variable has been tested for differences in profile scores by sex. As described in the preceding section, on occasion, the sample has been controlled for age or occlusion in testing. The statistical analysis of the primary hypothesis did not include the interaction of variables in a complex of dental and osseous conditions.

The concept of an interactive complex of dental and osseous conditions is an important one. As described in the initial Seneca skeletal profile, there is no significant difference in the mean number of teeth lost antemortem by profile score or segment score in males and females. This variable is considered first in the condition categories because of the impact a significant difference would have on demineralization, alveolar crest, attrition and abrasion comparisons. The pattern of antemortem edentia in the Seneca sample is greatest in the mandibular posterior. This is followed by the maxillary posterior, maxillary anterior and the least edentia in the mandibular anterior. The pattern is similar for both males and females (see Table VI-1). There is a significant positive correlation (Pearson's $r = .725$; $P<0.001$) between attrition profile scores and antemortem edentia (Appendix D, Table D-73). The assumption is that with less functional dental surface area attrition increases on remaining surfaces. In the Seneca sample there is also a significant difference in the anterior-posterior attrition scores for both sexes. The anterior segments have a significantly higher mean attrition profile score than the posterior. Controlling for antemortem edentia and using a t-test for pairs ($P<0.05$), there is a significant difference in anterior attrition profile scores when antemortem edentia is less than four in one group and greater than four in the other. Therefore, if in a sample the antemortem edentia profile scores are significantly different between males and females and the sample does not afford the opportunity for statistical control of antemortem edentia, a comparison of anterior attrition profile scores by sex is subject to misinterpretation. What appears to be a significant difference by sex in the activity-induced condition of attrition may in fact be simply the difference in antemortem edentia (Appendix D, Tables D-75 and D-76).

A misinterpretation of antemortem edentia and attrition will also affect alveolar bone and demineralization comparisons. Periapical alveolar defect profile scores correlate positively with attrition scores in the anterior segments. In this sample, it is interpreted that periapical alveolar defects are more likely to be the result of high attrition rather than dental demineralization or alveolar bone degeneration. If there is a significant difference in the antemortem edentia scores or attrition scores, the necessary controls must occur in the periapical alveolar defect analysis for accurate comparison and interpretation.

Demineralization profile scores also interact with the variables tested. A general assumption is that the frequency of occlusal demineralization is affected by the amount and rate of attrition. Attrition alters the pits and grooves on the surfaces of the dentition. If the amount and rate of attrition is high early in life, the individuals are less likely to have a high frequency of occlusal demineralization. As discussed, in the Seneca, the attrition scores are significantly higher in the anterior segments than the posterior. There are significantly higher demineralization scores in the posterior segments than the anterior, which may be more a function of anatomical susceptibility rather than attrition. However, when correlating attrition and demineralization in the Seneca sample, there is a positive correlation in the maxillary posterior segment, the maxillary anterior segment and mandibular anterior segment. In those three segments, as attrition increased so did demineralization (Appendix D, Table D-68). In the mandibular posterior segment there is a negative relationship, but not a significant one between attrition and demineralization (Pearson's $r = -0.173$; $P = 0.093$). Interestingly, the attrition scores in the mandibular posterior for males and females are very similar and higher than the maxillary posterior (Table VI-1).

Alveolar bone degeneration alters root exposure by increasing surface area available for demineralization. In the Seneca sample, the degenerative alveolar crest profile scores are not significantly different between males and females. This is consistent with the very similar root surface demineralization profile scores between males and females. There is a very strong positive correlation between an increase in alveolar crest scores and an increase in root surface demineralization scores in all segments but the mandibular anterior. Both, as expected, increase with age. The lack of significant correlation between mandibular anterior alveolar crest and mandibular anterior demineralization of the root surface is a curious one. The mandibular anterior in the Seneca sample displays a character different from the other three segments. It is the segment with the lowest antemortem edentia score for both sexes. The segment also has the lowest demineralization, periapical alveolar defect and interdental defect scores. However, it has relatively high alveolar crest and attrition segment scores (see Table VI-1) and no significant differences between males and females for the Seneca sample (Table VI-2).

The profile demineralization score correlates positively with the antemortem edentia score; in effect, as tooth loss increases so does demineralization (Appendix D, Table D-70). The implication for the Seneca sample is that demineralization was occurring at a fairly constant surface frequency through life and about equally for males and females. As described in the Seneca dental and osseous condition profile, the scores generated compensated for antemortem edentia (see appendix B) and yielded a base demineralization score. The implication for demineralization involvement in teeth lost antemortem is strong. It has been frequently used as a rationale for including missing teeth in scoring caries incidence (Lukacs, 1992; Moore and Corbett, 1973). However, it is important to note also the relationship between attrition, alveolar bone degeneration, periapical alveolar defects and demineralization when considering the possible etiology of antemortem edentia.

In the context of an interactive complex of dental and osseous conditions, does the interaction of the variables affect the outcome by sex? Using the three related variables of antemortem edentia profile score, dental demineralization profile score and periapical alveolar defect profile score and controlling for age with groups four, five and six, a new variable has been constructed. The scores for each of the contributing variables in the mandibular posterior segment, when tested separately, (see Table, VI-1 and VI-2 for antemortem edentia, demineralization and periapical alveolar defect mandibular posterior segment) are not significantly different by sex. They are, in fact, quite similar segment scores for males and females. The older half of the sample, groups four, five and six, consists of twenty-five females and thirty-two males and is presumed to represent a segment of the life cycle when the interaction of each variable is most pronounced. Testing the difference between females and males of the new combined variable scores controlled for age results in no significant difference by sex $P<0.05$ but an apparently higher scores for females (Appendix D, Tables D-63 through D-67). This maybe attributed to a tendency toward divergence with increasing age or it maybe due to chance.

The profile of the Seneca sample demonstrates areas in antemortem edentia, demineralization and alveolar bone of remarkably similar scores between males and females. Because of the lack of significant differences in these scores and the interrelationships in a complex of dental and osseous conditions, the clarity of significant difference in the abrasion and attrition scores by sex carries considerable weight. The result is statistically significant difference in profile scores between males and females in 1) a skeletal sample of a known and relatively short time period; 1500AD to 1650AD, 2) a sample from within limited geographic boundaries, and 3) a sample whose social structural differences are identified in the ethnographically documented division of activity by gender. Attaining these criteria with protohistoric Seneca sample affords the opportunity to align a known division of activity by gender with an activity-induced dental and osseous condition profile.

The Division of Activity by Gender and the Activity-Induced Dental and Osseous Condition Profile of the Protohistoric Seneca

The Seneca sample is distributed over a period of approximately one hundred and fifty years with reasonable frequencies of individuals spread throughout the time span. The geographical area of the sample is limited and environmentally similar in character for each burial site. The ethnographic history provides a description of Iroquois subsistence, manufacturing technologies and social organization which either describes directly or can be applied to the Seneca protohistoric period. Because of these aspects of the Seneca sample, it is possible generally to define activity by gender, cluster the activities by performer and relate the activity pattern to the dental and osseous activity-induced conditions present in the individuals who comprise the sample profile.

The protohistoric Seneca division of activity, as identified in the categorization Figures III-1 through III-7 demonstrates well-defined social organization by gender. Clusters of protohistoric Seneca activities are aligned by gender in Figure VI-2.

The clusters for both men and women are groups of related or sequential activities which, when identified and defined in the ethnographic literature, construct a clear division of activity by gender in protohistoric Seneca society. The level of identification for the Seneca division of activity is one of general clusters of activity by gender. It is not the identification of particular action by an individual described to align with specific skeletal finding as a potential etiology for a condition. This general level of reconstructing a Seneca activity is intentional and designed to complement a general profile of the activity-induced dental and osseous conditions of the protohistoric Seneca skeletal material. The activities of women cluster into gathering, crop production through to food distribution and food preparation through to cooking. Manufacturing for women clusters as activities related to producing products which function in other clusters of activity by women. Activities which cluster around child rearing are also within the domain of Seneca women.

	WOMEN		MEN
A	gathering food and wood child rearing	A	hunting, fishing, trapping
B	soil preparation, planting, tending, harvesting, preparing for storage, storage, distribution, child rearing	B	land clearing for crops and village site, house construction, palisade construction
C	preparation of food, butchering, preservation of meat and fish, cooking, child rearing	C	diet based in both stored and short-term resources
D	diet based in stored resources, child rearing	D	quarrying stones, chopping wood, stripping bark, stone chipping, bone cutting, metal working, woodworking, stone polishing, canoe building, bone carving, net making, weapons production
E	preparation of skin, cordage, clay and basket fiber, basket weaving, mat making, pottery, firing pots, sewing clothes, ornament production, child rearing	E	long distance trade, politics, warfare and athletic contests
F	child rearing, intertribal ceremonies and politics		

Figure VI-2. Seneca clusters of activity by gender

Dietary selection and food consumption, are based primarily on stored resources for women and on both stored and short-term acquisition resources for men.

The activities of men related to food and shelter cluster into two groups: a) hunting, fishing and trapping, and b) clearing land and construction. The extraction of raw materials through to the production of the finished artifact is a large cluster of male activities. Long distance travel involving trade warfare or politics is also a male cluster.

The analysis of the Seneca activity-induced dental and osseous conditions demonstrates some similarities and differences by sex. The conditions are signs of dental and osseous changes which occurred during the life of the individual. In this sample, some of the condition profile scores increased with age. Antemortem edentia, dental demineralization and alveolar bone degenerative changes all have increasingly higher profile scores in progressively older individuals. The mean profile condition scores show no significant difference between males and females. However, even though the mean scores demonstrate no significant differences, it is important to retain a perspective of the conditions in the analysis. The apparently similar condition scores between males and females represent the mean score of a chronic process. The sample includes specimens from six age categories between fifteen and forty-four years. Because the temporal and environmental factors of the skeletal material allow the analysis of multiple burial sites as one sample, it is possible to consider the chronicity of the condition process profiled in the sample as a reflection of the process in one individual. In other words, as the conditions become more pronounced by age in the sample, so too would conditions become more pronounced in an individual had death not occurred at an earlier age. If this assumption is true, the conditions present in younger individuals impact the mean profile scores of antemortem edentia, demineralization and alveolar bone degeneration in ways which mask the scores divergence in older individuals. This also limits the perspective of the long-term implications and the chronic aspects of the activity-induced conditions. As previously discussed, in combining the three variables of antemortem edentia, demineralization and alveolar degeneration, controlling for age by using only the older half of the sample and testing for a significant difference in the conditions by sex, there is none. However, there are apparently higher scores in females than males. In this context, it is important to recognize and consider how the activity-induced conditions will manifest relative to age throughout the life of the individual. Antemortem edentia, demineralization and alveolar degeneration are conditions which, based on the signs of the process, are chronic and progressive. They are conditions which may not diverge statistically until the latter portion of the life cycle. In a larger sample, this possibility is worth further investigation.

In a different fashion, abrasion, as an activity-induced condition, demonstrates profile scores which are significantly different by sex. Abrasion scores are not as strongly associated with age as antemortem edentia, demineralization and alveolar bone degenerative changes. This is interpreted as a significant difference between males and females which occurred relatively early in the adult individual life cycle. Abrasion profile scores, as a sign of varied activities requiring the use of the dentition as a tool, remain consistently different throughout the life cycle of males and females.

Attrition is a condition present in the Seneca sample which manifests a significant difference in a higher score for the male maxillary posterior segment and a trend to higher scores for males in all other segments. However, attrition also increases with age, the result of which is scores that, rather than diverge with increasing age, actually begin to merge. This occurs to such a degree that the difference between the scores of males and females in the maxillary posterior segment are no longer significant when controlling for age in the older half of the sample. Therefore, it appears that the greatest divergence in activities which result in a significant difference in the attrition scores between males and females occurs in early and middle adult life and is less pronounced in later adult life.

The merging of attrition scores is consistent with the chronic progression of the acquired Class IV occlusal relationship in an aging individual. Again, the sample reflects by age the assumed individual process throughout the life cycle. That is, the sample reflects that individuals who encountered an early death present with Class I occlusions and the sample progresses by age of death to Class IV occlusions in the oldest segment. The frequency of Class IV occlusion is not significantly different between males and females in the sample. The Class IV occlusion is skewed in frequency toward the older half; the sample which is consistent with the merging attrition scores in the same group.

The skeletal profile of the activity-induced dental and osseous conditions demonstrates both a slice of the sample expressed in the mean scores and a perspective of chronic change in dental and osseous condition based on activity throughout the life cycle of protohistoric Seneca society.

The activity clusters of Figure V-2 present a pattern of organization for the Seneca with well defined, gender-specific groups of related activities. The clusters of activity for women reflect the priority of action to be in or near the village site, relatively safe and to afford the opportunity to integrate the activity with child care. The clusters of activity for men reflect actions away from the village site, often dangerous pursuits and for extended periods of time. The clusters also demonstrate a general pattern of sedentary horticulture. Child care and rearing is a key component in clustering of activities of Seneca women. Each activity performed by women incorporated or had the potential for the presence of children during the activities of the cluster. The activities of Seneca men did not include children and only included adolescent boys as apprentices to the activities performed. The cluster patterns of women performing activities at or near the village site with children and the cluster patterns of men performing activities both at the village site and away from it are consistent with the activity-induced dental and osseous condition profile.

The diet at the village site was primarily based in corn. Fish, meat, other gathered or domesticated fruits and vegetables supplemented the primary staple of corn. Children were present and remained with the women of protohistoric Seneca at the village site. It is reasonable to assume that infants and children of each gender consumed the same diet and were subjected to similar environments. Women premasticated food for consumption by very young children (Sagard 1931). The pattern of scores between males and females for demineralization, antemortem edentia and alveolar bone degeneration in the younger half of the sample are nearly identical. As the sample matures chronologically, a divergence in the conditions begins to occur. The period of early to middle adulthood is an interval during which the activity clusters demonstrate well-defined differences by gender. This divergence of clusters includes dietary selection as a component of the activities of those individuals focused at the village site, predominantly women, or those individuals focused in long distance travel, warfare and resources acquisition, predominantly men. The diet of those who remained at the village throughout adulthood was based on corn. The diet of those who traveled extensively was both corn, to whatever degree it could be transported or obtained, along with other resources acquired along the journey. Acquired resources, presumably, were foraged, gathered in season or the high protein substrates of meat and fish. This variation in activity between men and women of early and middle adulthood is reflected in the attrition scores of the Seneca sample. There is a generally higher score for males in all segments and a significant difference between males and females in the maxillary posterior segment. This finding is consistent with previous studies of the differences in attrition between hunter-gatherers and horticulturists (Smith, 1983: 39). Hunter-gatherers traditionally have higher amounts of dental attrition. The apparent gradual progression toward no significant differences attrition scores for the older adults of the sample is consistent with the more progressively sedentary activities of older men and a shift back to a diet based more on cultivated and stored resources.

The abrasion profile scores are significantly different for the Seneca sample. Abrasion, as a condition present in the dentition resulting from the introduction of a material other than food, is associated with manufacturing. The clusters of activity by gender related to manufacturing vary, not only in the acquisition of the raw material, which is predominately an activity of men, but also in the processing and the character of the material. Women cluster with the raw materials of clay, cordage and skin. Men cluster with the raw materials of stone, metal, bone and wood. Assuming that, for both men and women, the dention was used for purposes other than mastication of food, the abrasive activities performed by men in the production of tools, weapons, equipment and ornamentation varied significantly from the activities performed by women in production of tools, utensils, clothes and ornamentation .

The division of activity by gender in the protohistoric Seneca society yields a profile of dental osseous conditions which includes a pattern of antemortem edentia that is distributed almost equally between males and females. The sample presents a profile of demineralization which is not significant by sex and progresses from occlusal demineralization in early adults to root surface demineralization in older adults. The alveolar changes for the sample are associated with age and are not significantly different by sex. The significant differences by gender in the attrition segment score and the abrasion profile score, as activity-induced conditions, are attributable to the division of activity by gender in protohistoric Seneca and associated with the variation of clusters of activity by gender in Seneca society.

Discussion of Skeletal Sample Analysis

The alignment of the dental and osseous condition profile with the ethnographic record of protohistoric Seneca society describes a general interrelationship of skeletal conditions and a known social organization. It does not attempt to reconstruct social organization and subsistence from identified conditions. The dental and osseous profile and ethnographic overlay not associate particular dental findings in individuals to specific activities. The analysis is designed to test a difference by sex in the sample of identifiable dental and osseous conditions and align the findings with the ethnographic history of the sample. There is, however, an abrasive sign which requires specific description.

As presented in the methodology, a positive abrasive score is recorded for an alteration of the functional outer aspect or functional inner aspect of a tooth when the pattern in evidence is not attributed to occlusion. An example of this abrasive pattern occurs if an individual, using the dentition as a clamp, places material between the anterior teeth and pulls the material outward and downward through the teeth. This action results in alteration of the lingual surface of the maxillary teeth, the functional inner aspect and the labial or facial surface of the mandibular anterior teeth, the functional outer aspect. The positive abrasive sign for each arch would be the alteration of enamel and dentin which was determined to have occurred outside the plane of occlusion. This particular finding, as described above, was recorded by Lukacs in two individuals for the Neolithic period from Mehrgarh, Pakistan (Lukacs and Pastor, 1988). A similar but not identical finding is observed in the Seneca sample. There is an important difference. The Seneca individuals, although displaying maxillary lingual inner aspect enamel and dentine alteration, show no alteration or relationship with the mandibular anterior teeth. The maxillary lingual abrasion occurs in a Class IV edge-to-edge occlusal relationship. The implication is that the abrasion did not occur as a result of drawing material through clenched anterior teeth. If material was drawn through clenched teeth, the functional outer aspect of the mandibular anterior teeth would be rounded and not have a flat incisal edge with a sharp Class IV edge-to-edge line angle (Figure VI-3). This abrasive finding is present in fifteen individuals spread chronologically throughout the sample. The highest frequency occurs in the Harsher site (n=9) with the total consisting of ten males and five females (Figure VI-4).

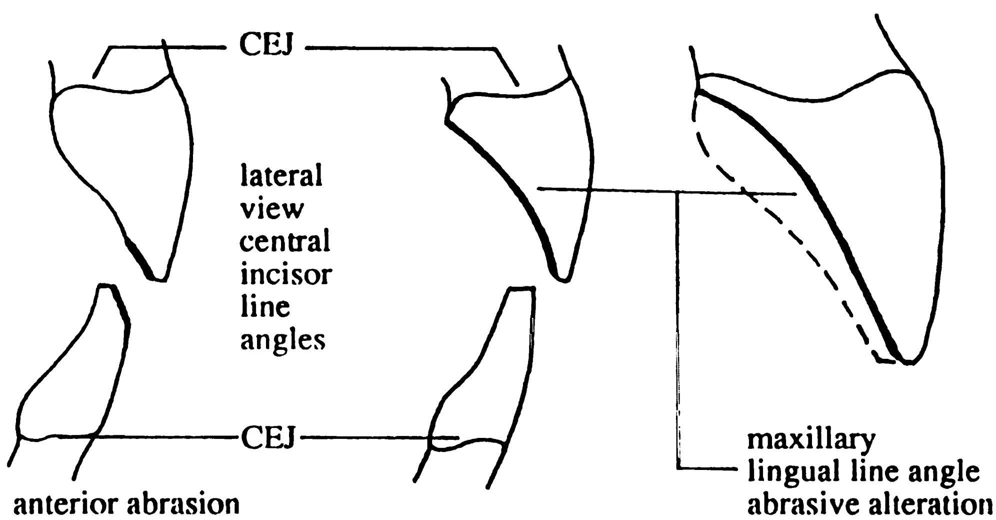

Figure VI-3. Anterior abrasion and maxillary anterior lingual abrasion

Lukacs, Larsen, Turner, Schultz and Merbs have attempted to associate particular findings with known task activities (Larsen, 1985; Lukacs and Pastor, 1988; Merbs, 1983; Schulz, 1977; Turner and Cadien, 1970). It is difficult to reconstruct the specific activities of individuals of prehistoric and protohistoric skeletal samples. It is also difficult to identify activities in living populations which are associated with similar dental and osseous conditions for comparison with skeletal samples. Specific paraoral functional references in the primary documents for the Seneca are limited. Sagard observed women premasticating corn by chewing raw kernels prior to pounding with a mortar (Sagard, 1936: 105). Sagard also noted that women groomed children by picking lice from their hair and cracking the lice with their front teeth before eating them (Sagard, 1936: 228). Teeth used as an

Male	Female
Harscher #5	Harscher #2
Harscher #12	Harscher #13
Harscher #17	Harscher #20
Harscher #18	Harscher #24
Adams #286	Harscher #25
Adams #287	
Tram #9	
Cameron #23	
Dutch Hollow #349	
Power house #160	

Figure VI-4. Distribution of maxillary lingual anterior abrasion by specimen

implement of torture is also recorded in the Jesuit Relations as both men and women have been described crushing prisoners fingers between their front teeth (Thwaites, 1901: 43; 183). The pipes present with other grave goods of the protohistoric Seneca suggest men smoked ritually and possibly with habitual frequency (Wray et al., 1991: 142). However, in the Iroquois ethnographic literature there is no evidence to date of a recorded activity which accounts for the maxillary lingual abrasion identified in the sample. Therefore, the specificity of the maxillary lingual conditions has been integrated into the abrasion scores for the sample and the general alignment of the dental and osseous activity-induced conditions with the division of activity by gender for the protohistoric Seneca.

There are aspects of the dental osseous analysis which emphasize the chronic character of the degenerative processes. The Class IV edge-to-edge acquired occlusion is a condition which impacts the evaluation and interpretation of other associated conditions, such as attrition, abrasion, antemortem edentia, temporomandibular joint degeneration and alveolar bone. The shift in young adults from a Class I occlusion to a Class IV edge-to-edge in older adults will directly effect or secondarily alter the signs present of the complex of dental and osseous conditions listed above. Skeletal collections selected for analysis require the ability to articulate the mandible and maxilla, or portions thereof, to establish and identify the occlusal relationship. Without control of the occlusal classification, the interpretation of findings is weakened and limited in scope.

Another aspect of skeletal analysis, which is often ambiguous in the literature, is the use of radiographs in the identification of demineralized dental surfaces (Fishman, 1976; Haugejorden and Black, 1975; Katz, 1980, 1984,: Linn et al., 1987; Stoner, 1972; Zamier et al., 1976). Studies will often neglect to clarify whether radiographs have been used in frequency scoring methods or whether x-ray techniques which are less than satisfactory for surface alteration identification have been used (Harwick, 1960; Lukacs, 1989, 1992; Molnar and Molnar, 1985; Sledzik and Moore-Gansen, 1991). Initially, the Seneca sample was examined for dental demineralization by macroscopic visual exam only. Each surface was scored for positive or negative demineralization signs as previously described in Chapter IV. Dental periapical radiographs were taken of each specimen and scored independently from the visual exam for demineralization. The comparison of the visual exam and the radiographic exam yields significant differences. Using a Z score test of proportion and a confidence-level of $P<0.05$, sets of each tooth for the entire sample are compared. The comparison identifies sets of teeth in which the visual finding was negative for demineralization and the radiographic finding positive.

Interproximal and root surface demineralization scores demonstrate seven teeth in which there is a significant difference in the frequency of positive demineralization signs. The teeth on which the interproximal and root surface demineralization was missed six or more times on visual examination are listed in Table VI-11.

There are higher positive radiographic identification scores but not significantly so in the other maxillary and mandibular molars and the maxillary anteriors. The mandibular anterior segment is identical in scoring demineralization visually and radiographically.

Table VI-11. Visual and radiographic examination comparison of interproximal and root surface demineralization

Tooth	# of positive radiographic differences
Maxillary Right Third Molar	6
Maxillary Right Second Molar	8
Maxillary Left Canine	6
Maxillary Left Second Premolar	6
Maxillary Left First Molar	8
Maxillary Left Second Molar	6
Mandibular Right First Molar	8

Applying the same Z test to periapical alveolar defects also results in a significant difference between the visual and the radiographic examinations. The area of alveolar bone adjacent to the mandibular first molar has a significantly higher number of positive findings radiographically than visually. A general trend in greater recognition of periapical alveolar defects throughout the maxillary and mandibular alveolar bone is demonstrated in the comparison.

The recognition and analysis of dental and osseous conditions can only be effectively performed with dental periapical radiographs. A chronic degenerative process such as dental demineralization has been described in this analysis as a progressive condition which changes in frequency and dental location with increased age. A radiographic examination has significant impact on the confirmation of such a statement. For studies to consider the chronic nature of dental and osseous conditions, it is essential that dental periapical radiographs be utilized in the method.

CHAPTER VII

SUMMARY AND CONCLUSION

The protohistoric Seneca skeletal material provided an excellent opportunity for the application of the methodology developed and designed to integrate activity-induced dental and osseous condition and the division of activity by gender. The Seneca sample fulfilled the selection criteria as a sample of at least one hundred individuals with a balanced sex and age distribution. The geographic region of the burial sites was also favorable, with cemetery locations in a radius of approximately ten miles and sites of similar soil characteristics. The temporal span for the sites was one hundred and fifty years with an archeological record that established a chronology of burial locations. The substantial ethnographic material reviewed for the period was particular to Iroquois groups of the region and afforded the opportunity to describe protohistoric Seneca subsistence and identify the Seneca division of activity by gender. The protohistoric Seneca skeletal material provided an excellent sample upon which to apply the methodological objectives and test the primary hypothesis. The condition profiles and the activity categorizations of the Seneca established a framework for examining the relationship between activity-induced dental and osseous conditions and the division of activity by gender.

Fourteen physical signs of dental and osseous skeletal material were defined and identified as activity-induced conditions. Each individual of the Seneca sample was analyzed with the microvideo examination protocol for the presence of activity-induced conditions. An activity-induced dental and osseous condition profile was generated for each member. The profile included identification by sex and age.

A universally accepted pattern of social organization in horticultural societies, the division of labor by sex, was expanded and categorized as the division of activity by gender. Gender-specific clusters of activity were identified for the protohistoric Seneca with the application of the division of activity by gender categorization to the Iroquois ethnographic literature.

The primary hypothesis, which was expected to identify a significant difference in profile scores between males and females in activity-induced dental and osseous conditions of the protohistoric Seneca sample, was statistically tested for each condition. There were no significant differences found in the frequency of a Class IV acquired occlusion or the temporomandibular joint scores in the males and females of the sample. However, as expected the number of individuals with a Class IV occlusion increased with age. The Class IV occlusion is an acquired occlusal relationship which, based on the temporomandibular joint scores, was apparently a physiologic functional accommodation. There was also no significant difference identified in the scores of antemortem edentia, postmortem edentia and dental demineralization between males and females. The lack of a significant difference in the demineralization scores is noteworthy, in that the expectation of a difference in demineralization was based on the differences in diet as documented in the literature. However, although the difference in profile scores was not statistically substantiated, there were apparently higher frequencies of surface demineralization in females. This was associated with women spending the dominant portion of their lives in or near the village and therefore consuming a diet based in corn. On the other hand, men spent only a portion of their adult life in the village and relied on a diet both of stored resources and those acquired by hunting, fishing and foraging while traveling. It appears that a substantial amount of the demineralization may have occurred prior to the men's departure. A significant difference in scores may only be apparent in the older half of the sample. For the Seneca sample this group was too small to test. The prospect of a difference by sex in demineralization scores in the older age groups requires further study on a larger horticultural sample.

Alveolar bone alteration scores for periapical alveolar defects, alveolar crest and interdental alveolar defects demonstrated no significant differences by sex in the protohistoric Seneca. However, as expected, abrasion scores for the maxilla and the mandibular posterior segment exhibited a significant difference between males and females in the Seneca sample. The lack of a significant difference in the mandibular anterior segment between males and females is somewhat perplexing and remains unexplained. If the pattern is repeated in additional samples of both horticulturists and hunter-gatherers, it is an area of future research which requires specific investigation.

The maxillary posterior attrition score also proved to be significantly different by sex for the sample and as expected followed a pattern consistent with men pursuing activities which were associated more closely with a hunter-gatherer subsistence pattern. The apparent difference, although not significant, in attrition scores which occurred between males and females in middle adults is an interesting one. This pattern is consistent with the period in which men were spending the most time away from the village and performing activities which clustered as exclusively those of men.

The division of activity by gender categorization for the Seneca sample resulted in the recognition of clusters of gender-specific activities for a horticultural society. In the protohistoric Seneca, women's activities related to food production, preparation and distribution as well as manufacturing activities near or in the village. All of the activity clusters of women were integrated with child care. Children remained together until early adolescence when boys were included in expedition hunting, fishing, trading and warfare while girls, for the most part, remained in the village. The activity-induced condition profiles of antemortem edentia, dental demineralization and alveolar alteration presented scores which were not significantly different in young adults, slowly diverging between males and females as middle adults and converging to a similar pattern in older adults. That these scores began to merge in older adults is something that was not anticipated but requires further consideration in the diachronic aspect of sample analysis. The ultimate application of the method is intended to identify and reconstruct a division of activity by gender based on the activity-induced dental and osseous conditions. This requires the recognition of expected periods of heightened condition manifestation. For example, the peak period for assessing abrasion scores and aligning findings with the activities of men and women is middle to late adult when the signs of the condition are most likely to be in evidence. Attrition is assessed more efficiently at a slightly earlier age, middle adult, when the difference between males and females is less likely to be affected by antemortem edentia. These periods of peak analysis are greatly facilitated by large sample sizes, a luxury which was not available in the Seneca analysis but one which is an important consideration for future research.

The manufacturing clusters of activity demonstrated a division by gender which was associated with raw materials acquisition, away from village for men and near or in village for women. The clusters also indicated a division by gender in the use of implement by manufacturer. Women produced implements associated with their activities in food production, preparation, storage, cooking and domestic maintenance, and men produced the implements necessary for hunting, fishing, traveling, warfare and athletic contests. The production of objects by men resulted in a significantly higher activity-induced abrasion score than the activities performed in manufacturing by women. A temptation, which required resisting by this researcher throughout this method of abrasion analysis, was the search for direct cause and effect relationships and the attempt to link one activity with one abrasive condition. It is important to keep in mind that it is possible for a dental condition identified as abrasion to be caused by more than one type of activity; so too, may one activity cause more than one type of dental abrasion. The lingual abrasion of the maxillary anterior teeth in the Seneca sample was a very tempting specific finding ripe for naming a speculative activity as the causative agent. There were, however, no particular relationships of abrasion expected for the Seneca sample and none emerged.

A feature of the methodology developed for this research which may prove to have applications for other areas of study in anthropology is the microvideo examination. The microvideo examination component of this method affords the opportunity to study skeletal collections noninvasively, efficiently, and store calibrated images for additional research on the sample outside the archives or laboratory housing the collection. The application of microvideo documentation makes it possible to analyze multiple samples from varied locations in a central facility. The examination method also makes it possible to retrieve information for future research on skeletal collections as new technologies become available. This is also particularly timely for the documentation of collections which in the current political structure are scheduled for reburial.

In order to address the comparative aspects of skeletal analysis, the methodology developed and employed in this sample examination emphasizes the scoring of conditions for each specimen. This is distinct from previous skeletal studies in which either a percentage of individuals or a tooth count has been the primary methodological approach. The comparison of activity-induced dental and osseous conditions is a comparison of the mean condition profile scores between males and females in the sample. The individual profile methodology generates an accurate representation of the extent to which the conditions are present and distributed in the sample. The recognition of the similarities and differences between males and females in a sample is also the approach for intersample comparison. In this method intersample comparisons are made, not by comparing activity-induced condition profile scores between samples, but rather by comparing intrasample similarities and differences of condition profiles in the context of the division of activity by gender. By comparing in an intersample comparison the similarities and differences of male and female profile scores from within each sample, many of the variables of skeletal analysis which have been so difficult to control in previous intersample comparisons are of no consequence. It is the intrasample similarities and differences between males and females which are of primary importance in the activity-induced condition profile methodology of intersample comparison.

The exploration of the relationship between activity-induced dental and osseous conditions and the division of activity by gender has been demonstrated with the protohistoric Seneca skeletal sample by utilizing the method of a condition profile for individuals and an activity by gender categorization of the ethnographic literature. The examination of the Seneca does not generate enough information to result in a satisfactory understanding of the dental and osseous conditions necessary to reconstruct the social organization of an unknown prehistoric skeletal sample. It does, however, as outlined in the goal of this research, establish a method applicable to other collections for the identification of activity-induced dental and osseous conditions and the generation of activity-induced condition profile scores for each of the individual in the sample. The application of this method of skeletal analysis to other collections produces information comparable to the Seneca sample. The research has also established a method of identification of the division of activity by gender in a horticultural society. The categorization of activities into clusters of performer by gender is applicable to other bodies of horticultural ethnographic literature specific to the skeletal material being analyzed.

This research, for the immediate future, is expected to continue in the analysis of skeletal collections associated with substantial ethnographic documentation. It is anticipated that, with each additional sample and intersample comparison, a greater understanding of the activity-induced condition profiles and the division of activity by gender will be acquired. Ultimately, the construction of a corpus of skeletal material integrated with the appropriate ethnographic histories will yield the opportunity to reconstruct the lifeways of skeletal collections with no known ethnographic records.

Appendix A

Appendix A

Seneca Activity-Induced Dental and Osseous Condition Profiles

Appendix A, Division of Acitivity by Gender Categorization Forms

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Food Collection	gathering	non-domesti-cated plants					
		eggs					
		insects					
		shellfish					
		honey					
		maple sap					
		nuts and berries					
	hunting	small land fauna					
		small aquatic fauna					
		large land fauna					
		birds					
		expedition					
	fishing	nets and spears					
		line and hooks					
		expedition					
	trapping	expedition					
		local small fauna					
		fish					

Figure A-1. Division of activity by gender categorization; food collection

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Food Production	land clearing	collective village field					
		garden plots					
	soil preparation	fields					
		gardens					
	crop planting	fields					
		gardens					
	crop tending	fields					
		gardens					
	harvesting	fields					
		garden					
	preparation for storage of vegetables						
	storage of vegetables						
	distribution	daily					
		ceremonial					

Figure A-2. Division of activity by gender categorization; food production

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Food Preparation	preparation prior to cooking	hulling					
		milling					
	butchering	kill site					
		village site					
	preservation of meat	drying					
		smoking					
	preservation of fish	drying					
		smoking					
	preparing and cooking	village long house					
		campsite					
	food consumption	diet based on short-term					
		acquisition of resources					
		diet based on stored					
		resources					

Figure A-3. Division of activity by gender categorization; food preparation

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Domicile and Domestic Maintenance	house construction	long house					
		hunting lodges					
		sweat houses					
		palisades					
	laundry						
	fetching water						
	burden carrying	village site					
		expedition					
	wood gathering						
	generation of fire						
	maintenance of fire						
	caring for domestic animals						

Figure A-4. Seneca division of activity by gender categorization; domicile and domestic maintenance

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Extraction of Raw Materials	digging clay						
	quarrying stones/copper						
	chopping wood						
	stripping bark						
Processing Raw Materials	preparation of skins						
	preparation of cordage						
	pottery						
	basket fiber						
	stonechipping						
	bone cutting						
	metal working						

Figure A-5. Division of acitivty by gender categorization; extraction of raw materials and processing raw materials

Activity	Category	Specification	Performer pW	mW	E	mM	pM
Producing Finished Artifact	basket weaving						
	mat making						
	firing pots						
	clothing leather products	sewing decorating					
	woodworking	furniture					
		utensils, dishes					
	canoe building						
	g. stone polishing						
	bone carving						
	net making						
	weapons production						
	ornament production	beads					
		wood					
	ceremonial artifacts production						

Figure A-6. Division of activity by gender categorization; producing finished artifact

Activity			Performer				
	Category	Specification	pW	mW	E	mM	pM
Child Rearing	care						
	grooming						
Trading	vegetable	intratribal					
		intertribal					
	furs	intratribal					
		intertribal					
	manufactured products	intratribal					
		intertribal					
War	battle						
	torture						
Athletic Contest	snowsnake						
	lacrosse						
Political Practices	intratribal						
	intertribal						
Medical Practice	medicine production						
	treatment procedures						
Ceremonial Practice	smoking						
	dancing						

Figure A-7. Division of activity by gender categorization

Appendix B

Appendix B

Activity-Induced Dental and Osseous Condition Profile Formulas Tabulated from the Merged Visual and Radiographic Data Sheets

A1 = sum of positives for antemortem edentia
A1 segment = sum of positives by segment

A2 = sum of positives for postmortem edentia
A2 segment = sum of positives by segment

A3 = 32 -(A1 + A2 + sum of indeterminante)
A3 segment (anterior) = 6- (A1 segment + A2 segment + indeterminante of segment)
A3 segment (posterior) = 10- (A1 segment + A2 segment + indeterminante of segment)

$$B1 = \frac{\text{sum of positives for ossclusal demineralization}}{A3}$$

$$B1 \text{ segment} = \frac{\text{sum of positives for occlusal demineralization of segment}}{A3 \text{ of segment}}$$

$$B2 = \frac{\text{sum of positives for ossclusal demineralization}}{A3}$$

$$B2 \text{ segment} = \frac{\text{sum of positives coronal demineralization of segment}}{A3 \text{ of segment}}$$

$$B3 = \frac{\text{sum of positives for interproximal demineralization}}{A3}$$

$$B3 \text{ segment} = \frac{\text{sum of positives for interproximal demineralization of segment}}{A3 \text{ of segment}}$$

$$B4 = \frac{\text{sum of positives for root surface demineralization}}{A3}$$

$$B4 \text{ segment} = \frac{\text{sum of positives for root surface demineralization of segment}}{A3 \text{ of segment}}$$

$$B5 = \frac{B1+B2+B3+B4}{4}$$

$$B5 \text{ segment} = \frac{B1 \text{ segment} + B2 \text{ segment} + B3 \text{ segment} + B4 \text{ segment}}{4}$$

Appendix B

$$C1 = \frac{\text{sum of alveolar crest scores}}{A3}$$

$$C1\ \text{segment} = \frac{\text{sum alveolar crest segment scores}}{A3\ \text{of segment}}$$

$$C2 = \frac{\text{sum of positives for periapical alveolar defect}}{32}$$

$$C2\ \text{segment} = \frac{\text{sum of positives for periapical alveolar defect of segment}}{6\ \text{for anterior segments or}\ 10\ \text{for posterior segment}}$$

$$C3 = \frac{\text{sum of positives for interdental alveolar defect}}{30}$$

$$C3\ \text{segment} = \frac{\text{sum of positives for interdental alveolar defect of segment}}{5\ \text{for anterior segments or}\ 10\ \text{for posterior segments}}$$

$$D = \frac{\text{sum of scores for abrasion}}{A3}$$

$$D\ \text{segment} = \frac{\text{sum of scores for abrasion of segment}}{A3\ \text{of segment}}$$

$$E = \frac{\text{sum of scores for attrition}}{A3}$$

$$E\ \text{segment} = \frac{\text{sum of scores for attrition of segment}}{A3\ \text{of segment}}$$

Appendix C

Table C-1. Harscher 1

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 1
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 1 consists of a maxilla articulating with the the base of the skull and an intact mandible. Both maxilla and mandible demonstrate multiple missing teeth. The occlusal relationship is established by the facet pattern. The remaining dentition is satisfactory for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	11	1	2	8	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	21	9	4	2	6
Occlusal Demineralization	B1	.48	.78	.75	.00	.00
Coronal Demineralization	B2	.19	.11	.75	.00	.00
Interproximal Demineralization	B3	.24	.11	1.00	.00	.00
Root Surface. Demineralization	B4	.29	.22	1.00	.00	.00
Dental Demineralization	B5	.30	.31	.88	.00	.00
Alveolar Crest	C1	3.19	3.67	3.00	3.00	2.67
Periapical Alveolar Defect	C2	.13	.10	.50	.00	.00
Interdental Alveolar Defect	C3	.31	.90	.17	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.94	2.88	8.00	5.50	4.17

Table C-2. Harscher 2

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 2
Sex	1
Age	4
Temporomandibular Joint Score	1.75
Occlusal Classification	IV

Description: Harscher 2 consists of an intact maxilla articulating with the base of the skull. The mandible is also intact. Despite multiple missing teeth the occlusal facets dictate an occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	9	6	1	2	0
Postmortem Edentia	A2	2	0	1	1	0
Dentition	A3	21	4	4	7	6
Occlusal Demineralization	B1	.30	.25	.00	.75	.00
Coronal Demineralization	B2	.22	.00	.00	.63	.00
Interproximal Demineralization	B3	.26	.25	.00	.63	.00
Root Surface Demineralization	B4	.30	.25	.00	.75	.00
Dental Demineralization	B5	.27	.19	.00	.69	.00
Alveolar Crest	C1	2.24	2.00	2.00	2.57	2.17
Periapical Alveolar Defect	C2	.16	.10	.33	.20	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.20	.00	1.00	.00	.00
Attrition	E	3.88	3.25	5.00	2.67	4.17

Table C-3. Harscher 3

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 3
Sex	1
Age	5
Temporomandibular Joint Score	1.33
Occlusal Classification	0

Description: Harscher 3 consists of an almost completely edentulous maxilla and a partially edentulous mandible. There is no discernible occlusal relationship. The remaining mandibular dentition is fragmentary, repositioned and artificially stabilized.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	21	8	6	7	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	11	2	0	3	6
Occlusal Demineralization	B1	1.00	1.00	0	1.00	1.00
Coronal Demineralization	B2	.91	1.00	0	1.00	.83
Interproximal Demineralization	B3	1.00	1.00	0	1.00	1.00
Root Surface Demineralization	B4	1.00	1.00	0	1.00	1.00
Dental Demineralization	B5	.98	1.00	0	1.00	.96
Alveolar Crest	C1	3.55	4.00	0	4.33	3.00
Periapical Alveolar Defect	C2	.31	.10	.00	.30	1.00
Interdental Alveolar Defect	C3	.25	.10	.00	.30	.67
Abrasion	D	.00	.00	0	.00	.00
Attrition	E	4.00	0	0	0	4.00

Table C-4. Harscher 4

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 4
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 4 consists of an intact maxilla articulating with the base of the skull. The mandible is also intact and satisfactory for establishing an occlusal relationship. The dentition is in satisfactory condition for analysis. However, in some areas, the dentition has been repositioned and stabilized by artificial means.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	12	5	0	7	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	20	5	6	3	6
Occlusal Demineralization	B1	.30	.60	.17	.67	.00
Coronal Demineralization	B2	.20	.40	.17	.33	.00
Interproximal Demineralization	B3	.30	.60	.17	.67	.00
Root Surface Demineralization	B4	.20	.40	.17	.33	.00
Dental Demineralization	B5	.25	.50	.17	.50	.00
Alveolar Crest	C1	2.25	2.40	2.17	2.67	2.00
Periapical Alveolar Defect	C2	.13	.10	.33	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.11	.00	.33	.00	.00
Attrition	E	4.50	3.60	5.40	3.50	4.83

Table C-5. Harscher 5

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 5	Desription:	Harscher 5 consists of an intact mandible and maxilla. The maxilla articulates with the base of the skull and the mandible may be positioned to establish an occlusal relationship. The dentition, in some areas, has been repositioned and artifically retained in the alveolus. The dentition is in satisfactory condition for analysis.
Sex	1		
Age	6		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	10	2	0	8	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	22	8	6	2	6
Occlusal Demineralization	B1	.27	.50	.17	.00	.17
Coronal Demineralization	B2	.18	.25	.17	.00	.17
Interproximal Demineralization	B3	.32	.25	.33	1.00	.17
Root Surface Demineralization	B4	.23	.25	.17	.50	.17
Dental Demineralization	B5	.25	.31	.21	.38	.17
Alveolar Crest	C1	2.59	2.88	2.00	2.00	3.00
Periapical Alveolar Defect	C2	.44	.20	.50	.30	1.00
Interdental Alveolar Defect	C3	.22	.40	.33	.00	.17
Abrasion	D	.38	.00	.67	1.00	.40
Attrition	E	5.28	3.00	5.60	7.00	7.00

Table C-6. Harscher 6

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 6
Sex	2
Age	5
Temporomandibular Joint Score	0
Occlusal Classification	IV

Description: Harscher 6 consists of an intact maxilla and mandible. There are multiple missing teeth. The remaining dentition demonstrates the facets necessary to establish an occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	9	5	0	4	0
Postmortem Edentia	A2	3	0	3	0	0
Dentition	A3	20	5	3	6	6
Occlusal Demineralization	B1	.22	.20	.00	.67	.00
Coronal Demineralization	B2	.13	.20	.00	.33	.00
Interproximal Demineralization	B3	.26	.40	.00	.67	.00
Root Surface Demineralization	B4	.17	.20	.00	.50	.00
Dental Demineralization	B5	.20	.25	.00	.54	.00
Alveolar Crest	C1	2.50	2.80	2.33	2.67	2.00
Periapical Alveolar Defect	C2	.13	.00	.33	.20	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	4.21	3.75	7.00	2.50	4.83

Table C-7. Harscher 7

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Harscher 7

Sex 1

Age 3

Temporomandibular Joint Score 1.00

Occlusal Classification IV

Desription: Harscher 7 consists of an intact maxilla and mandible which articulate to reproduce the occlusal relationship. The dentition is in excellent condition for visual examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	1	0	1	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	30	9	6	9	6
Occlusal Demineralization	B1	.17	.11	.00	.44	.00
Coronal Demineralization	B2	.07	.11	.00	.11	.00
Interproximal Demineralization	B3	.17	.44	.00	.11	.00
Root Surface Demineralization	B4	.27	.44	.00	.44	.00
Dental Demineralization	B5	.17	.28	.00	.28	.00
Alveolar Crest	C1	2.30	2.33	2.50	2.33	2.00
Periapical Alveolar Defect	C2	.16	.20	.33	.10	.00
Interdental Alveolar Defect	C3	.19	.50	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	4.61	4.00	7.33	2.88	5.00

Table A-8. Harscher 10

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Harscher 10

Sex: 1

Age: 4

Temporomandibular Joint Score: 1.00

Occlusal Classification: IV

Description: Harscher 10 consists of an intact mandible and maxilla. The mandible, when articulated with the base of the skull, establishes an occlusal relationship. The dentition is in satisfactory condition for examination. In various locations, the teeth have been artificially stabilized.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Segment Scores: Maxillary Anterior	Segment Scores: Mandibular Posterior	Segment Scores: Mandibular Anterior
Antemortem Edentia	A1	4	2	0	2	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	28	8	6	8	6
Occlusal Demineralization	B1	.21	.63	.00	.13	.00
Coronal Demineralization	B2	.18	.50	.00	.13	.00
Interproximal Demineralization	B3	.21	.63	.00	.13	.00
Root Surface Demineralization	B4	.29	.75	.00	.25	.00
Dental Demineralization	B5	.22	.63	.00	.16	.00
Alveolar Crest	C1	2.32	2.88	2.00	2.25	2.00
Periapical Alveolar Defect	C2	.13	.30	.00	.10	.00
Interdental Alveolar Defect	C3	.09	.20	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.32	2.40	4.00	2.88	4.00

Table C-9. Harscher 12

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 12
Sex	2
Age	5
Temporomandibular Joint Score	1.75
Occlusal Classification	IV

Description: Harscher 12 consists of an intact maxilla and mandible which, when articulated, reproduce the occlusal relationship. The maxilla is attached to the base of the skull. The dentition is in satisfactory condition for evaluation.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	3	0	3	0
Postmortem Edentia	A2	1	0	0	1	0
Dentition	A3	25	7	6	6	6
Occlusal Demineralization	B1	.12	.14	.00	.29	.00
Coronal Demineralization	B2	.08	.00	.00	.29	.00
Interproximal Demineralization	B3	.19	.29	.00	.43	.00
Root Surface Demineralization	B4	.15	.14	.00	.43	.00
Dental Demineralization	B5	.13	.14	.00	.36	.00
Alveolar Crest	C1	2.80	3.14	2.83	3.17	2.00
Periapical Alveolar Defect	C2	.19	.10	.33	.20	.17
Interdental Alveolar Defect	C3	.16	.10	.17	.30	.00
Abrasion	D	.17	.00	.67	.00	.00
Attrition	E	4.65	3.86	5.50	3.75	5.33

Table C-10. Harscher 13

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 13
Sex	1
Age	2
Temporomandibular Joint Score	1.25
Occlusal Classification	I

Description: Harscher 13 consists of an intact mandible and maxilla with a discernible occlusal pattern. Some of the dentition has been artificially stabilized. The dentition is in excellent condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.06	.20	.00	.00	.00
Coronal Demineralization	B2	.13	.00	.17	.30	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.05	.04	.08	.00
Alveolar Crest	C1	1.50	1.20	2.00	1.20	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.16	.10	.67	.00	.00
Attrition	E	2.13	2.00	2.67	2.00	2.00

Table C-11. Harscher 14

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 14
Sex	1
Age	6
Temporomandibular Joint Score	1.00
Occlusal Classification	0

Description: Harscher 14 is in multiple fragments. The maxilla is disarticulated from the base of the skull with displaced teeth. The occlusal relationship is indeterminate. The existing dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	16	3	4	8	1
Postmortem Edentia	A2	9	2	1	2	4
Dentition	A3	7	5	1	0	1
Occlusal Demineralization	B1	.06	.14	.00	.00	.00
Coronal Demineralization	B2	.06	.14	.00	.00	.00
Interproximal Demineralization	B3	.19	.43	.00	.00	.00
Root Surface Demineralization	B4	.13	.29	.00	.00	.00
Dental Demineralization	B5	.11	.25	.00	.00	.00
Alveolar Crest	C1	3.50	3.25	4.00	0	4.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.29	.40	.00	0	.00
Attrition	E	4.83	4.00	7.00	0	6.00

Table C-12. Harscher 15

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 15	Description:	Harscher 15 consists of an intact mandible and maxilla which, when articulated, demonstrate an occlusal relationship. The dentition is in excellent condition for examination.
Sex	1		
Age	2		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.09	.00	.00	.30	.00
Coronal Demineralization	B2	.03	.00	.00	.10	.00
Interproximal Demineralization	B3	.06	.00	.00	.20	.00
Root Surface Demineralization	B4	.06	.00	.00	.20	.00
Dental Demineralization	B5	.06	.00	.00	.20	.00
Alveolar Crest	C1	1.78	1.70	1.67	1.80	2.00
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.03	.10	.00	.00	.00
Attrition	E	2.81	2.40	4.00	2.20	3.33

Table C-13. Harscher 17

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 17
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 17 consists of an intact mandible and maxilla. The occlusal relationship is established by the mandibular and maxillary facet pattern. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	0	0	6	0
Postmortem Edentia	A2	5	1	1	2	1
Dentition	A3	21	9	5	2	5
Occlusal Demineralization	B1	.15	.20	.17	.25	.00
Coronal Demineralization	B2	.15	.20	.17	.25	.00
Interproximal Demineralization	B3	.19	.30	.17	.25	.00
Root Surface Demineralization	B4	.19	.30	.17	.25	.00
Dental Demineralization	B5	.17	.25	.17	.25	.00
Alveolar Crest	C1	2.32	2.56	2.20	2.00	2.20
Periapical Alveolar Defect	C2	.09	.20	.17	.00	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.40	.22	1.20	.00	.00
Attrition	E	4.47	3.57	5.40	5.50	4.40

Table C-14. Harscher 18

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 18
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 18 consists of an intact mandible and maxilla which articulate with the base of the skull. The maxilla contains debris and some artificially stabilized teeth. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	5	1	0	4	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	26	9	5	6	6
Occlusal Demineralization	B1	.33	.44	.50	.33	.00
Coronal Demineralization	B2	.19	.33	.00	.33	.00
Interproximal Demineralization	B3	.33	.33	.50	.50	.00
Root Surface Demineralization	B4	.30	.33	.33	.50	.00
Dental Demineralization	B5	.29	.36	.33	.42	.00
Alveolar Crest	C1	2.65	3.22	2.00	2.67	2.33
Periapical Alveolar Defect	C2	.19	.30	.17	.20	.00
Interdental Alveolar Defect	C3	.09	.30	.00	.00	.00
Abrasion	D	.20	.00	1.00	.00	.00
Attrition	E	4.25	3.00	5.00	4.33	5.00

Table C-15. Harscher 19

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Harscher 19

Sex 1

Age 5

Temporomandibular Joint Score 2.50

Occlusal Classification IV

Description: Harscher 19 consists of an intact mandible. The maxilla articulates with the base of the skull and demonstrates multiple missing teeth in the anterior segment. Surface facets establish an occlusal relationship. The remaining dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	15	4	4	7	0
Postmortem Edentia	A2	1	0	1	0	0
Dentition	A3	16	6	1	3	6
Occlusal Demineralization	B1	.18	.33	.50	.00	.00
Coronal Demineralization	B2	.18	.33	.50	.00	.00
Interproximal Demineralization	B3	.29	.67	.50	.00	.00
Root Surface Demineralization	B4	.35	.83	.50	.00	.00
Dental Demineralization	B5	.25	.54	.50	.00	.00
Alveolar Crest	C1	3.06	3.67	4.00	3.33	2.17
Periapical Alveolar Defect	C2	.03	.10	.00	.00	.00
Interdental Alveolar Defect	C3	.16	.50	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.93	2.40	0	4.67	4.83

Table C-16. Harscher 20

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 20
Sex	1
Age	3
Temporomandibular Joint Score	2.00
Occlusal Classification	IV

Desription: Harscher 20 consists of a maxilla articulating with the base of the skull. The mandible has been artificially joined at the midline to correct a postmortem fracture. Multiple teeth have been repositioned and stabilized artificially. Despite the repositioning an occlusal relationship is discernible. The teeth are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	2	1	0	0	1
Dentition	A3	29	9	6	9	5
Occlusal Demineralization	B1	.19	.30	.00	.33	.00
Coronal Demineralization	B2	.03	.00	.00	.11	.00
Interproximal Demineralization	B3	.03	.00	.00	.11	.00
Root Surface Demineralization	B4	.10	.00	.00	.33	.00
Dental Demineralization	B5	.09	.08	.00	.22	.00
Alveolar Crest	C1	2.59	2.22	2.83	2.78	2.60
Periapical Alveolar Defect	C2	.13	.10	.50	.00	.00
Interdental Alveolar Defect	C3	.13	.00	.00	.40	.00
Abrasion	D	.32	.00	1.33	.11	.00
Attrition	E	3.45	3.44	5.00	2.33	3.60

Table C-17. Harscher 21

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 21
Sex	1
Age	1
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Harscher 21 is a specimen in excellent condition. The intact mandible and maxilla articulate to establish the occlusal relationship. There is a full complement of teeth available for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.19	.30	.00	.30	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.03	.00	.17	.00	.00
Dental Demineralization	B5	.05	.08	.04	.00	.00
Alveolar Crest	C1	1.94	1.70	2.17	1.60	2.67
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.16	2.20	2.33	2.00	2.20

Table C-18. Harscher 24

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 24
Sex	1
Age	5
Temporomandibular Joint Score	1.50
Occlusal Classification	IV

Description: Harscher 24 has undergone considerable osseous distortion and despite an intact mandible and maxilla the articulation of components is disrupted. The facet pattern indicates the occlusal relationship. The remaining dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	17	5	3	6	3
Postmortem Edentia	A2	1	0	0	0	1
Dentition	A3	14	5	3	4	2
Occlusal Demineralization	B1	.40	.40	.33	.50	.33
Coronal Demineralization	B2	.33	.40	.33	.25	.33
Interproximal Demineralization	B3	.53	.60	.33	.75	.33
Root Surface Demineralization	B4	.27	.40	.00	.25	.33
Dental Demineralization	B5	.38	.45	.25	.44	.33
Alveolar Crest	C1	3.14	3.80	3.33	2.50	2.50
Periapical Alveolar Defect	C2	.19	.20	.17	.20	.17
Interdental Alveolar Defect	C3	.13	.40	.00	.00	.00
Abrasion	D	.43	.00	2.00	.00	.00
Attrition	E	4.89	3.00	6.00	5.00	7.00

Table C-19. Harscher 25

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 25
Sex	2
Age	3
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 25 consists of a maxilla articulating with the base of the skull and an intact mandible. When articulated, the components establish the occlusal relationship. The dentition is in excellent condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.06	.20	.00	.00	.00
Coronal Demineralization	B2	.06	.20	.00	.00	.00
Interproximal Demineralization	B3	.06	.10	.17	.00	.00
Root Surface Demineralization	B4	.09	.20	.17	.00	.00
Dental Demineralization	B5	.07	.18	.08	.00	.00
Alveolar Crest	C1	2.06	1.90	2.50	2.00	2.00
Periapical Alveolar Defect	C2	.03	.00	.17	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.26	.00	1.33	.00	.00
Attrition	E	3.78	3.20	5.67	3.00	4.17

Table C-20. Harscher 27

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 27
Sex	1
Age	1
Temporomandibular Joint Score	1.25
Occlusal Classification	I

Description: Harscher 27 is a specimen in excellent condition. Some of the dentition has been repositioned and artificially stabilized. An occlusal pattern is discernible and the dentition is in excellent condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.13	.10	.00	.30	.00
Coronal Demineralization	B2	.09	.00	.00	.30	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.03	.00	.15	.00
Alveolar Crest	C1	1.38	1.10	2.00	1.50	1.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.34	1.80	3.17	2.00	3.00

Table C-21. Harscher 29

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 29
Sex	1
Age	1
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Harscher 29 presents with cranial distortion in the right temporal area. The maxilla articulates with the base of the skull and the mandible is intact. The occlusal relationship is established by facet pattern. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	4	1	0	3	0
Dentition	A3	27	9	6	6	6
Occlusal Demineralization	B1	.19	.40	.00	.22	.00
Coronal Demineralization	B2	.10	.10	.00	.22	.00
Interproximal Demineralization	B3	.10	.10	.00	.22	.00
Root Surface Demineralization	B4	.06	.10	.00	.11	.00
Dental Demineralization	B5	.11	.18	.00	.19	.00
Alveolar Crest	C1	2.41	2.11	2.00	2.67	3.00
Periapical Alveolar Defect	C2	.03	.10	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.44	2.00	3.00	2.00	2.83

Table C-22. Harscher 30

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Harscher 30
Sex	1
Age	3
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Harscher 30 consists of an intact maxilla and mandible. The maxilla articulates with the base of the skull and the occlusal relationship is reproducible. There appears to be an extensive amount of soil erosion on the maxillary anterior segment. The maxillary anterior teeth have been repositioned and stabilized by artificial means.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	30	10	6	8	6
Occlusal Demineralization	B1	.17	.10	.00	.50	.00
Coronal Demineralization	B2	.10	.00	.00	.38	.00
Interproximal Demineralization	B3	.17	.10	.00	.50	.00
Root Surface Demineralization	B4	.13	.10	.00	.38	.00
Dental Demineralization	B5	.14	.08	.00	.44	.00
Alveolar Crest	C1	2.22	2.00	0	2.38	2.40
Periapical Alveolar Defect	C2	.09	.10	.00	.10	.17
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.07	.10	.17	.00	.00
Attrition	E	3.79	3.20	4.83	2.86	4.83

Table C-23. Alhart 297

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Alhart 297
Sex	1
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Alhart 297 consist of a maxilla articulating with the base of the skull and a fragmented mandible. The occlusal relationship is established by the facet pattern. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	0	0	4	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	28	10	6	6	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.04	.10	.00	.00	.00
Dental Demineralization	B5	.01	.03	.00	.00	.00
Alveolar Crest	C1	2.00	2.00	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.62	2.25	4.00	2.67	4.00

Table C-24. Alhart E

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Alhart E
Sex	2
Age	3
Temporomandibular Joint Score	1.67
Occlusal Classification	IV

Description: Alhart E is a specimen in which there has been considerable postmortem fracture and artificial reconstruction. There are numerical notations on both dental and osseous surfaces. The occlusal relationship is discernible and the dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	0	0	4	0
Postmortem Edentia	A2	4	1	0	0	3
Dentition	A3	24	9	6	6	3
Occlusal Demineralization	B1	.11	.10	.00	.33	.00
Coronal Demineralization	B2	.07	.10	.00	.17	.00
Interproximal Demineralization	B3	.04	.10	.00	.00	.00
Root Surface Demineralization	B4	.04	.10	.00	.00	.00
Dental Demineralization	B5	.06	.10	.00	.13	.00
Alveolar Crest	C1	1.30	1.22	1.00	1.33	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.54	1.89	3.33	2.00	3.50

Table C-25. Alhart F

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Alhart F
Sex	1
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Alhart F consists of an intact mandible and maxilla with considerable distortion. The occlusal relationship is established by facet pattern. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	7	2	1	0	4
Dentition	A3	24	8	5	9	2
Occlusal Demineralization	B1	.03	.00	.17	.00	.00
Coronal Demineralization	B2	.03	.00	.17	.00	.00
Interproximal Demineralization	B3	.03	.00	.17	.00	.00
Root Surface Demineralization	B4	.03	.00	.17	.00	.00
Dental Demineralization	B5	.03	.00	.17	.00	.00
Alveolar Crest	C1	1.95	1.86	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.22	1.88	2.50	2.22	3.00

Table C-26. Adams X

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams X
Sex	1
Age	3
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Adams X consists of an intact mandible and maxilla. The maxilla has been reconstructed and distorted. The maxilla and mandible articulate to establish a molar relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	31	10	6	9	6
Occlusal Demineralization	B1	.19	.30	.00	.33	.00
Coronal Demineralization	B2	.03	.00	.00	.11	.00
Interproximal Demineralization	B3	.10	.20	.00	.11	.00
Root Surface Demineralization	B4	.10	.20	.00	.11	.00
Dental Demineralization	B5	.10	.18	.00	.17	.00
Alveolar Crest	C1	1.67	1.11	1.25	1.88	2.50
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.10	.00	.00	.33	.00
Attrition	E	2.45	2.10	2.67	2.29	3.00

Table C-27. Adams 76

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 76	Description:	Adams 76 is an intact maxilla and mandible with general evidence of artificial restabilization. The alignment of the two components demonstrates the occlusal relationship. The dentition is in satisfactory condition for examination.
Sex	1		
Age	5		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	7	3	0	4	0
Postmortem Edentia	A2	3	0	1	2	0
Dentition	A3	21	6	5	4	6
Occlusal Demineralization	B1	.12	.14	.00	.33	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.12	.14	.00	.33	.00
Root Surface Demineralization	B4	.12	.14	.00	.33	.00
Dental Demineralization	B5	.09	.11	.00	.25	.00
Alveolar Crest	C1	2.52	2.33	3.00	3.00	2.00
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.22	2.83	3.20	3.00	3.67

Table C-28. Adams 1-118

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Adams 1-118

Description: Adams 1-118 consists of intact mandible and maxilla. When articulated, the components demonstrate the occlusal relationship. The dentition is in excellent condition for examination.

Sex: 1

Age: 1

Temporomandibular Joint Score: 1.00

Occlusal Classification: I

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	1.00	1.00	1.00	1.00	1.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.31	1.89	2.83	2.11	2.80

Table C-29. Adams 286

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Adams 286

Sex: 2

Age: 4

Temporomandibular Joint Score: 1.75

Occlusal Classification: 0

Description: Adams 286 consists of an intact mandible and maxilla articulating with the base of the skull. The maxilla and mandible align to demonstrate the occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	0	0	0	1
Dentition	A3	31	10	6	10	5
Occlusal Demineralization	B1	.16	.20	.00	.30	.00
Coronal Demineralization	B2	.03	.00	.00	.10	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.03	.00	.00	.10	.00
Dental Demineralization	B5	.05	.05	.00	.13	.00
Alveolar Crest	C1	2.10	2.10	2.17	2.10	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.26	.00	1.33	.00	.00
Attrition	E	2.70	2.30	2.83	2.50	4.00

Table C-30. Adams 287

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 287
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Classification	IV

Description: Adams 287 consists of an intact mandible and a maxilla which articulates with the base of the skull. The maxillary and mandibular components align to demonstrate an occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	2	0	4	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	26	8	6	6	6
Occlusal Demineralization	B1	.04	.13	.00	.00	.00
Coronal Demineralization	B2	.04	.13	.00	.00	.00
Interproximal Demineralization	B3	.04	.13	.00	.00	.00
Root Surface Demineralization	B4	.08	.25	.00	.00	.00
Dental Demineralization	B5	.05	.16	.00	.00	.00
Alveolar Crest	C1	2.08	2.25	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.28	.00	.67	.50	.00
Attrition	E	4.32	3.57	4.67	4.33	4.83

Table C-31. Adams 288

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 288	Description:	Adams 288 consists of an intact mandible and a maxilla articulating with the base of the skull. The alignment of the two components demonstrates the occlusal relationship. The dentition is in satisfactory condition for analysis.
Sex	1		
Age	2		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	3	2	1	0	0
Dentition	A3	28	8	5	9	6
Occlusal Demineralization	B1	.19	.20	.00	.44	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.05	.00	.11	.00
Alveolar Crest	C1	1.75	1.75	2.20	1.14	2.25
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.04	.00	.20	.00	.00
Attrition	E	2.86	2.13	3.20	2.56	4.00

Table C-32. Adams 289

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 289
Sex	2
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 289 presents as an intact maxilla articulating with the base of the skull and an intact mandible. When the components are aligned the occlusal relationship is demonstrated. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.09	.00	.00	.30	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.03	.00	.00	.10	.00
Root Surface Demineralization	B4	.03	.00	.00	.10	.00
Dental Demineralization	B5	.05	.00	.00	.18	.00
Alveolar Crest	C1	2.29	2.20	2.50	2.44	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.10	.00	.00	.30	.00
Attrition	E	3.13	2.80	3.67	2.38	4.17

Table C-33. Adams 290

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 290
Sex	1
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 290 consists of a mandible and a maxilla articulating with the base of the skull. The occlusal relationship is determined by facet pattern. The dentition has been repositioned and stabilized artificially in a number of areas incorrectly. The remaining dentition is satisfactory for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	4	3	0	1	0
Dentition	A3	26	7	6	7	6
Occlusal Demineralization	B1	.07	.10	.00	.13	.00
Coronal Demineralization	B2	.10	.10	.00	.25	.00
Interproximal Demineralization	B3	.17	.10	.33	.25	.00
Root Surface Demineralization	B4	.03	.00	.00	.13	.00
Dental Demineralization	B5	.09	.08	.08	.19	.00
Alveolar Crest	C1	2.00	2.20	2.00	1.33	2.25
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.04	.00	.17	.00	.00
Attrition	E	2.73	2.00	3.33	2.00	3.33

Table C-34. Adams 291

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Adams 291

Sex 2

Age 4

Temporomandibular Joint Score 2.00

Occlusal Classification IV

Description: Adams 291 consists of an intact mandible and a maxilla articulating with the base of the skull. The mandible and maxilla, demonstrate the occlusal relationship. The dentition has been artificially stabilized and is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	2	0	2	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	28	8	6	8	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	2.13	2.13	2.25	2.00	2.25
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.44	.88	.00	.63	.00
Attrition	E	3.39	2.75	3.83	3.00	4.33

Table c-35. Adams 292

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 292
Sex	2
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Adams 292 consists of an artificially stabilized mandible which articulates with the maxilla to demonstrate the occlusal relationship. The dentition is in satisfactory condition for analysis despite extensive soil erosion in the anterior segments.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	3	0	0	3	0
Postmortem Edentia	A2	1	1	0	0	0
Dentition	A3	28	9	6	7	6
Occlusal Demineralization	B1	.28	.40	.00	.57	.00
Coronal Demineralization	B2	.14	.30	.00	.14	.00
Interproximal Demineralization	B3	.10	.20	.00	.14	.00
Root Surface Demineralization	B4	.07	.10	.00	.14	.00
Dental Demineralization	B5	.15	.25	.00	.25	.00
Alveolar Crest	C1	2.38	2.25	0	2.50	2.50
Periapical Alveolar Defect	C2	.06	.20	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.69	2.13	3.33	2.33	3.17

Table C-36. Adams 293

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 293
Sex	2
Age	4
Temporomandibular Joint Score	1.25
Occlusal Classification	IV

Description: Adams 293 consists of an intact mandible and maxilla. The maxilla articulates with the base of the skull and when aligned with the mandible demonstrates the occlusal relationship. The dentition is in satisfactory condition for the analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	1	0	0	0	1
Dentition	A3	29	10	6	8	5
Occlusal Demineralization	B1	.10	.20	.00	.13	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal . Demineralization	B3	.07	.00	.00	.25	.00
Root Surface Demineralization	B4	.07	.00	.00	.25	.00
Dental Demineralization	B5	.06	.05	.00	.16	.00
Alveolar Crest	C1	2.07	2.10	2.00	2.13	2.00
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.17	.10	.67	.00	.00
Attrition	E	2.59	2.30	2.83	2.50	3.00

Table C-37. Adams 295

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 295
Sex	2
Age	5
Temporomandibular Joint Score	1.50
Occlusal Classification	IV

Description: Adams 295 consists of an intact mandible and maxilla articulating with the base of the skull. The alignment of the components demonstrates the occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	5	0	0	2	3
Dentition	A3	26	10	6	7	3
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.03	.00	.00	.11	.00
Dental Demineralization	B5	.01	.00	.00	.03	.00
Alveolar Crest	C1	2.15	2.40	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.28	.20	.67	.00	.50
Attrition	E	4.07	3.80	4.33	4.00	4.67

Table C-38. Adams 299

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 299
Sex	2
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 299 consists of a maxilla articulating with the base of the skull and an intact mandible. When aligned, the maxilla and mandible demonstrate the occlusal relationship. The dentition is in excellent condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	31	10	6	9	6
Occlusal Demineralization	B1	.16	.10	.00	.44	.00
Coronal Demineralization	B2	.03	.00	.00	.11	.00
Interproximal Demineralization	B3	.03	.00	.00	.11	.00
Root Surface Demineralization	B4	.06	.00	.00	.22	.00
Dental Demineralization	B5	.07	.03	.00	.22	.00
Alveolar Crest	C1	1.91	1.75	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.03	.00	.00	.00	.20
Attrition	E	2.86	2.20	3.67	2.29	3.83

Table C-39. Adams 301

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 301
Sex	1
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 301 consists of an intact maxilla and mandible. The maxilla articulates with the base of the skull and has considerable soil erosion in the anterior segment. The alignment of the two components demonstrates an occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	5	1	0	4	0
Postmortem Edentia	A2	3	1	1	1	0
Dentition	A3	24	8	5	5	6
Occlusal Demineralization	B1	.07	.11	.00	.17	.00
Coronal Demineralization	B2	.07	.11	.00	.17	.00
Interproximal Demineralization	B3	.04	.00	.00	.17	.00
Root Surface Demineralization	B4	.04	.00	.00	.17	.00
Dental Demineralization	B5	.06	.06	.00	.17	.00
Alveolar Crest	C1	3.13	2.38	3.80	3.00	3.67
Periapical Alveolar Defect	C2	.06	.00	.33	.00	.00
Interdental Alveolar Defect	C3	.06	.00	.17	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	4.70	3.88	6.00	4.50	4.83

Table C-40. Adams 302

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 302
Sex	1
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 302 consists of an intact maxilla and mandible which articulate to demonstrate the occlusal relationship. Portions of the dentition have been artificially stabilized. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	7	0	3	2	2
Dentition	A3	23	10	3	6	4
Occlusal Demineralization	B1	.17	.20	.00	.38	.00
Coronal Demineralization	B2	.10	.10	.00	.25	.00
Interproximal Demineralization	B3	.17	.20	.17	.25	.00
Root Surface Demineralization	B4	.17	.30	.00	.25	.00
Dental Demineralization	B5	.15	.20	.04	.28	.00
Alveolar Crest	C1	1.88	1.83	2.00	1.83	2.00
Periapical Alveolar Defect	C2	.06	.10	.00	.10	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.75	2.10	4.00	2.50	4.00

Table C-41. Adams 303

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Adams 303

Sex: 2

Age: 5

Temporomandibular Joint Score: 1.25

Occlusal Classification: IV

Description: Adams 303 consists of an intact mandible and maxilla which demonstrate the occlusal relationship. The dentition is in satisfactory condition for analysis despite artifical stabilization.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	3	3	0	0	0
Postmortem Edentia	A2	12	2	1	6	3
Dentition	A3	17	5	5	4	3
Occlusal Demineralization	B1	.03	.14	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.01	.04	.00	.00	.00
Alveolar Crest	C1	2.18	2.60	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.12	.00	.40	.00	.00
Attrition	E	4.88	4.40	4.80	5.50	5.00

Table C-42. Adams 304

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Adams 304

Sex: 2

Age: 5

Temporomandibular Joint Score: 3.75

Occlusal Classification: IV

Description: Adams 304 consists of an intact mandible and maxilla. The maxilla articulates with the base of the skull and when aligned with the mandible demonstrates an occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	2	0	2	0
Postmortem Edentia	A2	3	1	2	0	0
Dentition	A3	25	7	4	8	6
Occlusal Demineralization	B1	.14	.13	.00	.38	.00
Coronal Demineralization	B2	.04	.00	.00	.13	.00
Interproximal Demineralization	B3	.07	.00	.00	.25	.00
Root Surface Demineralization	B4	.07	.13	.00	.13	.00
Dental Demineralization	B5	.08	.06	.00	.22	.00
Alveolar Crest	C1	2.50	2.50	2.67	2.17	2.80
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.06	.10	.00	.10	.00
Abrasion	D	.04	.00	.00	.13	.00
Attrition	E	3.75	3.29	4.75	2.57	5.00

Table C-43. Adams 310

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Adams 310

Sex 1

Age 5

Temporomandibular Joint Score 1.50

Occlusal Classification IV

Description: Adams 310 consists of an intact maxilla and mandible which demonstrate the occlusal relationship. Some members of the dentition have been artifically stabilized. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	4	1	2	1	0
Dentition	A3	25	7	4	8	6
Occlusal Demineralization	B1	.26	.10	.00	.56	.33
Coronal Demineralization	B2	.19	.00	.00	.44	.33
Interproximal Demineralization	B3	.26	.00	.50	.44	.17
Root Surface Demineralization	B4	.29	.10	.33	.56	.17
Dental Demineralization	B5	.25	.05	.21	.50	.25
Alveolar Crest	C1	3.04	2.71	2.50	3.29	3.50
Periapical Alveolar Defect	C2	.22	.00	.33	.40	.17
Interdental Alveolar Defect	C3	.13	.00	.00	.20	.33
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	4.53	3.57	5.75	4.33	5.00

Table C-44. Adams 317

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Adams 317 Description:

Table C-44. Adams 317

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 317
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 317 consists of an intact mandible and a maxilla articulating with the base of the skull. The alignment of the two components demonstrates an occlusal relationship. The dentition is in satisfactory condition for analysis despite artificial stabilization of some mandibular teeth.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	0	0	6	0
Postmortem Edentia	A2	1	0	0	1	0
Dentition	A3	25	10	6	3	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.19	.20	.50	.00	.00
Root Surface Demineralization	B4	.08	.20	.00	.00	.00
Dental Demineralization	B5	.07	.10	.13	.00	.00
Alveolar Crest	C1	2.64	2.80	2.00	3.00	2.83
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.17	.00	.67	.00	.00
Attrition	E	4.32	3.30	5.50	4.00	5.00

Table C-45. Adams 595

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Table C-45. Adams 595

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 595
Sex	2
Age	3
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Adams 595 consists of an intact mandible and a maxilla which articulates with the base of the skull. The components establish an occlusal relationship. The dentition is in excellent condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	31	10	6	9	6
Occlusal Demineralization	B1	.13	.20	.00	.22	.00
Coronal Demineralization	B2	.06	.10	.00	.11	.00
Interproximal Demineralization	B3	.06	.00	.00	.22	.00
Root Surface Demineralization	B4	.06	.00	.00	.22	.00
Dental Demineralization	B5	.08	.08	.00	.19	.00
Alveolar Crest	C1	1.89	1.86	1.80	1.78	2.17
Periapical Alveolar Defect	C2	.06	.00	.00	.20	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.37	.40	.50	.33	.20
Attrition	E	3.32	2.89	4.00	2.71	4.00

Table C-46. Adams 596

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Adams 596 Description: Adams 596

Table C-46. Adams 596

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 596
Sex	2
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Adams 596 consists of an intact mandible and maxilla. The maxilla articulates with the base of the skull. The mandible and maxilla demonstrate the occlusal relationship. The dentition is in excellent condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	31	9	6	10	6
Occlusal Demineralization	B1	.03	.00	.00	.10	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.01	.00	.00	.03	.00
Alveolar Crest	C1	1.45	1.56	1.50	1.00	2.00
Periapical Alveolar Defect	C2	.03	.00	.17	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.03	.00	.17	.00	.00
Attrition	E	2.42	2.00	3.00	2.10	3.00

Table C-47. Adams 597

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFI

Specimen Adams 597

Table C-47. Adams 597

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Adams 597
Sex	2
Age	4
Temporomandibular Joint Score	2.00
Occlusal Classification	II

Description: Adams 597 consists of an intact mandible and maxilla which articulate to demonstrate the occlusal relationship. There is an extensive amount of soil erosion in the maxillary anterior segment. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	0	0	4	0
Postmortem Edentia	A2	1	0	0	0	1
Dentition	A3	27	10	6	6	5
Occlusal Demineralization	B1	.11	.30	.00	.00	.00
Coronal Demineralization	B2	.04	.10	.00	.00	.00
Interproximal Demineralization	B3	.14	.40	.00	.00	.00
Root Surface Demineralization	B4	.18	.40	.00	.17	.00
Dental Demineralization	B5	.12	.30	.00	.04	.00
Alveolar Crest	C1	2.54	3.00	3.00	2.50	2.00
Periapical Alveolar Defect	C2	.03	.10	.00	.00	.00
Interdental Alveolar Defect	C3	.09	.30	.00	.00	.00
Abrasion	D	.35	.10	1.00	.33	.00
Attrition	E	3.42	2.89	4.00	3.17	4.00

Table C-48. Cameron 23

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Table C-48. Cameron 23

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Cameron 23

Sex 2

Age 3

Temporomandibular Joint Score 1.50

Occlusal Classification IV

Description: Cameron 23 consists of a fragmentary maxilla disarticulated from the base of the skull and a mandible. The occlusal relationship is established by the facet pattern of the dentition. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	1	0	3	0
Postmortem Edentia	A2	3	2	0	1	0
Dentition	A3	25	7	6	6	6
Occlusal Demineralization	B1	.21	.00	.33	.57	.00
Coronal Demineralization	B2	.21	.00	.33	.57	.00
Interproximal Demineralization	B3	.18	.00	.33	.43	.00
Root Surface Demineralization	B4	.25	.22	.17	.57	.00
Dental Demineralization	B5	.21	.06	.29	.54	.00
Alveolar Crest	C1	2.95	2.75	4.17	2.17	2.33
Periapical Alveolar Defect	C2	.16	.00	.33	.30	.00
Interdental Alveolar Defect	C3	.09	.10	.17	.10	.00
Abrasion	D	.38	.14	1.33	.00	.00
Attrition	E	3.86	3.14	4.60	3.33	4.33

Table C-49. Tram 1

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 1	Description

Table C-49. Tram 1

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 1
Sex	1
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Tram 1 consists of a maxilla articulating with the base of the skull and an intact mandible with evidence of laboratory reconstruction. The articulation of the mandible and maxilla establishes an occlusal relationship. There are several teeth missing postmortem with the remaining dentition in satisfactory condition for visual examination.

Activity-induced Condition	Profile	Maxillary Score	Segment Scores: Maxillary Posterior	Segment Scores: Mandibular Anterior	Segment Scores: Mandibular Posterior	Segment Scores: Anterior
Antemortem Edentia	A1	20	9	2	8	1
Postmortem Edentia	A2	4	1	3	0	0
Dentition	A3	8	0	1	2	5
Occlusal Demineralization	B1	.25	.00	.00	.50	.40
Coronal Demineralization	B2	.25	.00	.00	.50	.40
Interproximal Demineralization	B3	.50	.00	.25	1.00	.60
Root Surface Demineralization	B4	.17	.00	.25	.00	.20
Dental Demineralization	B5	.29	.00	.13	.50	.40
Alveolar Crest	C1	4.00	0	5.00	4.00	3.80
Periapical Alveolar Defect	C2	.09	.00	.17	.10	.17
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.14	0	.00	.00	.25
Attrition	E	6.75	0	8.00	7.00	6.40

Table C-50. Tram 4

Table C-50. Tram 4

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 4
Sex	1
Age	1
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Tram 4 presents with the maxilla disarticulated from the base of the skull but remaining intact. The mandible is in two segments with condyls present. The facet pattern makes the establishment of an occlusal relationship possible. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	3	1	0	2	0
Dentition	A3	29	9	6	8	6
Occlusal Demineralization	B1	.13	.20	.00	.20	.00
Coronal Demineralization	B2	.13	.20	.00	.20	.00
Interproximal Demineralization	B3	.13	.20	.00	.20	.00
Root Surface Demineralization	B4	.06	.10	.00	.10	.00
Dental Demineralization	B5	.11	.18	.00	.18	.00
Alveolar Crest	C1	1.07	1.25	1.00	1.00	1.00
Periapical Alveolar Defect	C2	.06	.10	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.46	.22	.17	.63	1.00
Attrition	E	2.39	2.22	3.00	1.75	3.00

Table C-51. Tram 9

Table C-51. Tram 9

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 9
Sex	2
Age	2
Temporomandibular Joint Score	2.00
Occlusal Classification	IV

Description: Tram 9 consists of a maxilla disarticulated from the base of the skull and in three segments. The mandible is also in three segments. The facets present on the dentition establish the occlusal relationship. Despite the fragmentary condition of the specimen the dentition is satisfactory for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	2	0	0	0
Postmortem Edentia	A2	2	0	0	2	0
Dentition	A3	28	8	6	8	6
Occlusal Demineralization	B1	.10	.00	.00	.30	.00
Coronal Demineralization	B2	.10	.00	.00	.30	.00
Interproximal Demineralization	B3	.03	.00	.00	.10	.00
Root Surface Demineralization	B4	.07	.00	.00	.20	.00
Dental Demineralization	B5	.08	.00	.00	.22	.00
Alveolar Crest	C1	1.92	1.75	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.41	.50	.83	.00	.40
Attrition	E	3.36	2.88	4.00	2.88	4.00

Table C-52. Tram 11

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITIO

Table C-52. Tram 11

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 11
Sex	1
Age	4
Temporomandibular Joint Score	1.33
Occlusal Classification	0

Description: Tram 11 consists of maxilla articulating with the base of the skull. The mandibular right side is the only remaining fragment and partially edentulous. It is not possible to establish an occlusal relationship. The missing section of the mandible makes a portion of the dental examination indeterminate.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	2	1	3	0
Postmortem Edentia	A2	6	1	3	1	1
Dentition	A3	11	7	2	1	1
Occlusal Demineralization	B1	.15	.38	.20	.00	.00
Coronal Demineralization	B2	.08	.13	.20	.00	.00
Interproximal Demineralization	B3	.23	.50	.40	.00	.00
Root Surface Demineralization	B4	.27	.63	.40	.00	.00
Dental Demineralization	B5	.18	.41	.30	.00	.00
Alveolar Crest	C1	2.50	2.50	2.50	2.00	3.00
Periapical Alveolar Defect	C2	.09	.20	.17	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.17	.00
Abrasion	D	.05	.00	.00	.17	.00
Attrition	E	4.89	4.33	6.00	6.00	6.00

Table C-53. Tram 16

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Table C-53. Tram 16

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 16
Sex	1
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Tram 16 consists of a maxilla disarticulated from the base of the skull and present in two fragments. The mandible is also in two fragments as a result of postmortem fracture. Despite the fragmentary condition of the specimen surface facets make the assessment of an occlusal relationship possible. The dentition is displaced in the fractured areas but repositionable for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	4	2	2	0	0
Dentition	A3	28	8	4	10	6
Occlusal Demineralization	B1	.16	.30	.00	.20	.00
Coronal Demineralization	B2	.09	.10	.00	.20	.00
Interproximal Demineralization	B3	.06	.10	.00	.10	.00
Root Surface Demineralization	B4	.06	.10	.00	.10	.00
Dental Demineralization	B5	.09	.15	.00	.15	.00
Alveolar Crest	C1	2.22	2.43	2.00	2.10	2.33
Periapical Alveolar Defect	C2	.06	.10	.00	.10	.00
Interdental Alveolar Defect	C3	.09	.10	.00	.20	.00
Abrasion	D	.04	.13	.00	.00	.00
Attrition	E	2.69	2.43	3.75	2.00	3.33

Table C-54. Tram 17L

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITIO

Table C-54. Tram 17L

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Tram 17L

Sex 2

Age 2

Temporomandibular Joint Score 0

Occlusal Classification IV

Description: Tram 17L consists of an intact maxilla articulating with the base of the skull and a mandible in two fragments. The condylar heads are absent. The dentition and surrounding bone are in satisfactory condition for visual examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	3	1	0	2	0
Postmortem Edentia	A2	3	1	1	0	1
Dentition	A3	26	8	5	8	5
Occlusal Demineralization	B1	.07	.00	.17	.13	.00
Coronal Demineralization	B2	.07	.00	.17	.13	.00
Interproximal Demineralization	B3	.07	.00	.17	.13	.00
Root Surface Demineralization	B4	.17	.33	.00	.25	.00
Dental Demineralization	B5	.09	.08	.13	.16	.00
Alveolar Crest	C1	2.30	2.11	3.17	2.10	2.00
Periapical Alveolar Defect	C2	.13	.10	00	.30	.00
Interdental Alveolar Defect	C3	.06	.10	.00	.10	.00
Abrasion	D	.16	.13	.60	.00	.00
Attrition	E	3.07	2.67	3.50	3.00	3.40

Table C-55. Tram 17R

ACTIVITY INDUCED DEN[...]

Table C-55. Tram 17R

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 17R
Sex	2
Age	4
Temporomandibular Joint Score	4.33
Occlusal Classification	IV

Description: Tram 17R consists of a maxilla in two fragments disarticulated from the base of the skull. The mandible is also in two fragments with the condylar heads absent. Despite the fragmentary properties of the material it is possible to intercuspate the sections to determine an occlusal relationship. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	0	1	0	0
Dentition	A3	31	10	5	10	6
Occlusal Demineralization	B1	.28	.50	.00	.40	.00
Coronal Demineralization	B2	.19	.30	.00	.30	.00
Interproximal Demineralization	B3	.16	.30	.00	.30	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.16	.28	.00	.22	.00
Alveolar Crest	C1	2.42	2.63	2.75	2.22	2.20
Periapical Alveolar Defect	C2	.06	.20	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.13	.40	.00	.00	.00
Attrition	E	3.16	2.75	4.00	2.63	4.00

Table C-56. Tram 21

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Table C-56. Tram 21

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 21
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Tram 21 consists of an intact maxilla articulating with the base of the skull and an intact mandible. The occlusal relationship is established by articulating the maxilla and mandible. The dentition and surrounding bone are in satisfactory condition for examination. The mandible demonstrates laboratory placement of a mandibular anterior tooth not associated with this specimen.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	5	0	0	5	0
Postmortem Edentia	A2	5	2	1	1	1
Dentition	A3	22	8	5	4	5
Occlusal Demineralization	B1	.11	.30	.00	.00	.00
Coronal Demineralization	B2	.19	.30	.33	.00	.00
Interproximal Demineralization	B3	.30	.40	.50	.20	.00
Root Surface Demineralization	B4	.33	.40	.50	.40	.00
Dental Demineralization	B5	.23	.35	.33	.15	.00
Alveolar Crest	C1	2.50	2.75	2.00	2.75	2.40
Periapical Alveolar Defect	C2	.16	.30	.33	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.09	.13	.00	.25	.00
Attrition	E	4.58	3.40	5.20	4.75	5.00

Table C-57. Tram 22

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION

Table C-57. Tram 22

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Tram 22

Sex: 1

Age: 1

Temporomandibular Joint Score: 1.00

Occlusal Classification: I

Description: Tram 22 consists of an intact maxilla articulating with the base of the skull and an intact mandible. There is no distortion of the specimen and the occlusal relationship is readily established. The maxilla demonstrates multiple areas of postmortem edentia. The remaining dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	5	2	3	0	0
Dentition	A3	27	8	3	10	6
Occlusal Demineralization	B1	.19	.00	.00	.60	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.00	.00	.15	.00
Alveolar Crest	C1	1.59	1.63	1.67	1.70	1.33
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.08	.00	.00	.00	.40
Attrition	E	1.89	1.88	2.00	1.80	2.00

Table C-58. Tram 23

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Tram 23

Sex 2

Age 2

Temporomandibular Joint Score 1.25

Occlusal Classification I

Description: Tram 23 consists of an intact maxilla articulating with base of the skull and an intact mandible. Articulation of the maxilla and mandible establishes the occlusal relationship. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	0	1	0	0
Dentition	A3	31	10	5	10	6
Occlusal Demineralization	B1	.25	.40	.00	.40	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.09	.00	.00	.30	.00
Root Surface Demineralization	B4	.06	.00	.00	.20	.00
Dental Demineralization	B5	.12	.10	.00	.28	.00
Alveolar Crest	C1	1.23	1.00	2.00	1.20	1.00
Periapical Alveolar Defect	C2	.03	.10	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.20	.10	.60	.00	.40
Attrition	E	2.71	2.90	2.40	2.40	3.17

Table C-59. Tram 24

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 24
Sex	2
Age	6
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Tram 24 consists of an intact maxilla articulating with the base of the skull. The mandible has a postmortem fracture of the left condylar head. The remaining dentition is in satisfactory condition for evaluation.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	20	8	6	6	0
Postmortem Edentia	A2	4	2	0	1	1
Dentition	A3	8	0	0	3	5
Occlusal Demineralization	B1	.50	.00	0	.25	.83
Coronal Demineralization	B2	.67	.00	0	.75	.83
Interproximal Demineralization	B3	.67	.00	0	.75	.83
Root Surface Demineralization	B4	.67	.00	0	.75	.83
Dental Demineralization	B5	.62	.00	0	.63	.83
Alveolar Crest	C1	3.00	0	0	3.33	2.80
Periapical Alveolar Defect	C2	.06	.00	.00	.00	.33
Interdental Alveolar Defect	C3	.03	.00	.00	.00	.17
Abrasion	D	.00	0	0	.00	.00
Attrition	E	5.00	0	0	5.00	0

Table C-60. Tram 26

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 26
Sex	1
Age	3
Temporomandibular Joint Score	1.00
Occlusal Classification	II

Description: Tram 26 consists of an intact maxilla articulating with the base of the skull and an intact mandible. There is evidence of laboratory reconstruction of the right glenoid fossa with distortion of condylar seating and repositioning of the dentition. It is possible, by facet articulation, to establish an occlusal relationship. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.09	.00	.00	.30	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.09	.00	.00	.30	.00
Root Surface Demineralization	B4	.06	.00	.00	.20	.00
Dental Demineralization	B5	.08	.00	.00	.25	.00
Alveolar Crest	C1	1.77	1.60	2.67	1.50	1.60
Periapical Alveolar Defect	C2	.16	.40	.17	.00	.00
Interdental Alveolar Defect	C3	.13	.20	.00	.20	.00
Abrasion	D	.13	.00	.67	.00	.00
Attrition	E	3.71	3.00	6.00	2.78	4.00

Table C-61. Tram 27

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 27	Description:	Tram 27 consists of a maxilla in multiple fragments and disarticulated from the base of the skull. The mandible is also fragmentary. The surface facets establish an occlusal relationship. There are multiple teeth displaced from the alveolar process which require examination separately.
Sex	2		
Age	1		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	9	2	0	1	6
Dentition	A3	22	8	6	8	0
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	1.00	1.00	1.00	1.00	0
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.09	.25	.00	.00	0
Attrition	E	1.95	2.00	2.00	1.88	2.00

Table C-62. Tram 42

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Tram 42

Sex: 2

Age: 5

Temporomandibular Joint Score: 3.00

Occlusal Classification: IV

Description: Tram 42 consists of an intact maxilla articulating with base of the skull and an intact mandible. The occlusal relationship is limited by the number and condition of the remaining dentition. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	20	4	5	6	5
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	12	6	1	4	1
Occlusal Demineralization	B1	.08	.17	.00	.00	.00
Coronal Demineralization	B2	.08	.17	.00	.00	.00
Interproximal Demineralization	B3	.33	.67	.00	.00	.00
Root Surface Demineralization	B4	.50	.83	.00	.25	.00
Dental Demineralization	B5	.25	.46	.00	.06	.00
Alveolar Crest	C1	2.92	2.83	3.00	3.00	3.00
Periapical Alveolar Defect	C2	.16	.50	.00	.00	.00
Interdental Alveolar Defect	C3	.09	.30	.00	.00	.00
Abrasion	D	.58	.33	.00	1.00	1.00
Attrition	E	6.33	7.17	8.00	5.00	5.00

Table C-63. Tram 44

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 44
Sex	2
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	0

Description: Tram 44 consists of a maxilla disarticulated from the base of the skull and in two fragments. There are three disarticulated maxillary right molar teeth. The mandible is in two fragments with disarticulated anterior teeth. It is not possible to establish an occlusal relationship. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	3	0	0	0	3
Dentition	A3	28	10	6	9	3
Occlusal Demineralization	B1	.23	.20	.00	.56	.00
Coronal Demineralization	B2	.10	.10	.00	.22	.00
Interproximal Demineralization	B3	.16	.00	.17	.44	.00
Root Surface Demineralization	B4	.13	.10	.00	.33	.00
Dental Demineralization	B5	.15	.10	.04	.39	.00
Alveolar Crest	C1	2.17	2.00	2.00	2.44	2.00
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.57	.40	.83	.67	.33
Attrition	E	2.77	2.70	3.17	2.22	3.40

Table C-64. Tram 45

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 45	Description: Tram 45 consists of an intact maxilla articulating with base of the skull and an intact mandible. The occlusal relationship is established by articulating the mandible and maxilla. The dentition and surrounding structures are in satisfactory condition for examination. The specimen demonstrates soil erosion in the maxillary left anterior segment.
Sex	1	
Age	1	
Temporomandibular Joint Score	1.33	
Occlusal Classification	II	

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	0	0	0	1
Dentition	A3	31	10	6	10	5
Occlusal Demineralization	B1	.19	.30	.00	.30	.00
Coronal Demineralization	B2	.13	.00	.00	.40	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.08	.08	.00	.18	.00
Alveolar Crest	C1	1.31	1.29	0	1.25	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.10	1.80	2.33	2.00	2.60

Table C-65. Tram 45N

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 45N
Sex	2
Age	1
Temporomandibular Joint Score	1.00
Occlusal Classification	I

Description: Tram 45N consists of a maxilla in two fragments disarticulated from the base of the skull. Dental surface facets allow for an occlusal assessment. The dentition is in satisfactory condition despite mandibular fragmentation into four segments.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	6	3	1	0	2
Dentition	A3	26	7	5	10	4
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	1.27	1.20	1.00	1.13	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	1.00	1.00	1.00	1.00	1.00

Table C-66. Tram 53

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Tram 53
Sex	2
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	0

Description: Tram 53 consists of a maxilla disarticulated from the base of the skull and a mandible in two fragments. The occlusion is not possible to establish with the fragmentary remains. The dentition and surrounding bone are in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	6	0	1	5	0
Postmortem Edentia	A2	7	5	2	0	0
Dentition	A3	17	5	3	5	4
Occlusal Demineralization	B1	.08	.10	.00	.20	.00
Coronal Demineralization	B2	.12	.10	.00	.40	.00
Interproximal Demineralization	B3	.08	.10	.00	.20	.00
Root Surface Demineralization	B4	.04	.10	.00	.00	.00
Dental Demineralization	B5	.08	.10	.00	.20	.00
Alveolar Crest	C1	2.69	1.80	4.33	2.20	3.33
Periapical Alveolar Defect	C2	.13	.00	.33	.20	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.56	.00	1.67	.80	.20
Attrition	E	3.76	3.40	4.00	3.80	4.00

Table C-67. Tram 54

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Tram 54

Sex 1

Age 1

Temporomandibular Joint Score 1.00

Occlusal Classification I

Description: Tram 54 consists of a maxilla in two fragments disarticulated from the base of the skull and a mandible in two segments. Surface facets establish the occlusal relationship. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	2	1	0	0	1
Dentition	A3	30	9	6	10	5
Occlusal Demineralization	B1	.06	.00	.00	.02	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.02	.00	.00	.05	.00
Alveolar Crest	C1	1.81	1.63	2.17	1.50	2.20
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	1.93	1.75	2.33	1.75	2.00

Table C-68. Dutch Hollow 337

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 337	Description:	Dutch Hollow 337 consists of an intact mandible and a maxilla articulating with the base of the skull. The facets establish an occlusal relationship. The dentition has been artifically stabilized and is in satisfactory condition for examination.
Sex	2		
Age	4		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	2	0	0	1	1
Dentition	A3	30	10	6	9	5
Occlusal Demineralization	B1	.13	.00	.00	.40	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.03	.00	.00	.10	.00
Root Surface Demineralization	B4	.03	.00	.00	.10	.00
Dental Demineralization	B5	.06	.00	.00	.20	.00
Alveolar Crest	C1	2.10	1.90	2.33	2.11	2.25
Periapical Alveolar Defect	C2	.06	.00	.17	.10	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.03	.00	.17	.00	.00
Attrition	E	3.59	3.10	4.50	2.88	4.60

Table C-69. Dutch Hollow 338

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Dutch Hollow 338

Description: Dutch Hollow 338 consists of an intact maxilla articulating with the base of the skull and a mandible. The occlusal relationship is discernible. The dentition is in excellent condition for examination.

Sex: 1

Age: 2

Temporomandibular Joint Score: 1.25

Occlusal Classification: I

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	1	0	0	0
Dentition	A3	31	9	6	10	6
Occlusal Demineralization	B1	.25	.40	.00	.40	.00
Coronal Demineralization	B2	.16	.20	.00	.30	.00
Interproximal Demineralization	B3	.16	.20	.00	.30	.00
Root Surface Demineralization	B4	.13	.20	.00	.20	.00
Dental Demineralization	B5	.17	.25	.00	.30	.00
Alveolar Crest	C1	1.70	2.44	1.33	1.44	1.33
Periapical Alveolar Defect	C2	.06	.02	.00	.00	.00
Interdental Alveolar Defect	C3	.16	.50	.00	.00	.00
Abrasion	D	.03	.11	.00	.00	.00
Attrition	E	2.71	2.00	3.50	2.11	3.67

Table C-70. Dutch Hollow 339

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 339
Sex	1
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Dutch Hollow 339 consists of an intact maxilla articulating with the base of the skull and a mandible. Articulation of the mandible and maxilla establishes the occlusal relationship. The dentition is in excellent condition for analysis.,

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	3	1	0	2	0
Postmortem Edentia	A2	1	0	0	1	0
Dentition	A3	28	9	6	7	6
Occlusal Demineralization	B1	.17	.33	.00	.25	.00
Coronal Demineralization	B2	.14	.22	.00	.25	.00
Interproximal Demineralization	B3	.10	.33	.00	.00	.00
Root Surface Demineralization	B4	.10	.33	.00	.00	.00
Dental Demineralization	B5	.13	.31	.00	.13	.00
Alveolar Crest	C1	1.63	1.25	1.33	2.00	2.00
Periapical Alveolar Defect	C2	.06	.20	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.38	2.57	4.00	3.14	4.00

Table C-71. Dutch Hollow 340

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 340	Description:	Dutch Hollow 340 consists of an intact mandible and maxilla articulating with the base of the skull. The occlusal relationship is discernible. The remaining dentition is in satisfactory condition for examination despite extensive artifical stabilization.
Sex	1		
Age	5		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	9	3	0	6	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	23	7	6	4	6
Occlusal Demineralization	B1	.13	.29	.17	.00	.00
Coronal Demineralization	B2	.04	.00	.17	.00	.00
Interproximal Demineralization	B3	.09	.00	.17	.25	.00
Root Surface Demineralization	B4	.22	.00	.50	.50	.00
Dental Demineralization	B5	.12	.07	.25	.19	.00
Alveolar Crest	C1	2.83	2.14	3.67	3.00	2.67
Periapical Alveolar Defect	C2	.09	.00	.05	.00	.00
Interdental Alveolar Defect	C3	.16	.10	.33	.20	.00
Abrasion	D	.05	.00	.00	.25	.00
Attrition	E	4.68	3.43	6.20	4.50	5.00

Table C-72. Dutch Hollow 341

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Dutch Hollow 341

Sex 2

Age 4

Temporomandibular Joint Score 1.00

Occlusal Classification IV

Description: Dutch Hollow 341 consists of an intact mandible and maxilla which articulate with the base of the skull. There is some distortion in the artificial stabilization of the dentition. The occlusion is established by the facet pattern. The dentition is in excellent condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	31	10	6	9	6
Occlusal Demineralization	B1	.03	.00	.00	.10	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.02	.00	.00	.08	.00
Alveolar Crest	C1	2.16	2.30	2.17	2.11	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.10	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.63	2.22	3.17	2.22	3.33

Table C-73. Dutch Hollow 342

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Dutch Hollow 342

Description: Dutch Hollow 342 consists of a maxilla articulating with the base of the skull and a fragmentary mandible. The occlusal relationship is established by the left mandibular molar fragment. The dentition is in satisfactory condition for examination.

Sex 1

Age 2

Temporomandibular Joint Score 1.00

Occlusal Classification I

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	28	8	6	8	6
Occlusal Demineralization	B1	.09	.20	.00	.10	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.02	.05	.00	.03	.00
Alveolar Crest	C1	1.63	1.63	1.83	1.63	1.40
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.61	2.00	3.17	2.13	3.50

Table C-74. Dutch Hollow 344

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen Dutch Hollow 344

Description: Dutch Hollow 344 consists of an intact mandible and a maxilla which articulates with the base of the skull. The occlusal relationship is reproduced by the facet pattern. The dentition is in satisfactory condition for examination.

Sex 1

Age 4

Temporomandibular Joint Score 1.00

Occlusal Classification IV

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	30	10	6	8	6
Occlusal Demineralization	B1	.10	.00	.00	.38	.00
Coronal Demineralization	B2	.03	.00	.00	.13	.00
Interproximal Demineralization	B3	.03	.00	.00	.13	.00
Root Surface Demineralization	B4	.03	.00	.00	.13	.00
Dental Demineralization	B5	.05	.00	.00	.19	.00
Alveolar Crest	C1	2.10	1.90	2.33	2.00	2.33
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.09	.10	.00	.20	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.82	2.10	4.00	2.29	3.60

Table C-75. Dutch Hollow 345

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 345
Sex	1
Age	2
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Dutch Hollow 345 consists of maxilla artificially stabilized at the base of the skull and a mandible. Articulating the maxilla and mandible establishes an occlusal relationship. The dentition is in excellent condition for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.06	.00	.00	.20	.00
Coronal Demineralization	B2	.03	.00	.00	.10	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.02	.00	.00	.08	.00
Alveolar Crest	C1	1.83	1.40	1.75	2.11	2.17
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.19	.30	.00	.30	.00
Attrition	E	3.03	2.80	3.50	2.80	3.33

Table C-76. Dutch Hollow 346

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 346	Description:	Dutch Hollow 346 consists of a specimen with marked postmortem distortion and soil erosion. The occlusal relationship is dictated by the facet pattern. The maxilla articulates with the base of the skull but the glenoid fossi are absent. The dentition is in satisfactory condition for examination.
Sex	2		
Age	1		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0.0	0.0	0.0	0.0	0.0
Postmortem Edentia	A2	1.0	0.0	0.0	0.0	1.0
Dentition	A3	31	10	6	10	5
Occlusal Demineralization	B1	.06	.00	.00	.20	.00
Coronal Demineralization	B2	.09	.10	.00	.20	.00
Interproximal Demineralization	B3	.06	.00	.00	.20	.00
Root Surface Demineralization	B4	.06	.00	.00	.20	.00
Dental Demineralization	B5	.07	.03	.00	.20	.00
Alveolar Crest	C1	1.54	1.60	0	1.50	0
Periapical Alveolar Defect	C2	.06	.00	.00	.20	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.06	.00	.00	.20	.00
Attrition	E	2.13	1.88	2.33	2.00	2.50

Table C-77. Dutch Hollow 348

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 348	Description:	Dutch Hollow 348 is a specimen with an almost completely edentulous maxilla and a partially edentulous mandible. The occlusion is not discernible. The remaining dentition is in satisfactory condition for examination.
Sex	1		
Age	6		
Temporomandibular Joint Score	1.50		
Occlusal Classification	0		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	20	9	6	5	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	12	1	0	5	6
Occlusal Demineralization	B1	.17	1.00	0	.20	.00
Coronal Demineralization	B2	.17	1.00	0	.20	.00
Interproximal Demineralization	B3	.17	1.00	0	.20	.00
Root Surface Demineralization	B4	.17	1.00	0	.20	.00
Dental Demineralization	B5	.17	1.00	0	.20	.00
Alveolar Crest	C1	2.92	4.00	0	3.20	2.50
Periapical Alveolar Defect	C2	.03	.00	.00	.10	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.09	.00	0	.00	.20
Attrition	E	5.20	0	0	5.75	4.83

Table C-78. Dutch Hollow 349

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch hollow 349	Description: Dutch Hollow 349 presents with anterior soil erosion and extensive reconstruction. The occlusion is dictated by the facet pattern. The remaining dentition is in satisfactory condition for examination.
Sex	1	
Age	5	
Temporomandibular Joint Score	2.00	
Occlusal Classification	IV	

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	16	4	0	8	4
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	16	6	6	2	2
Occlusal Demineralization	B1	.31	.50	.33	.00	.00
Coronal Demineralization	B2	.31	.50	.33	.00	.00
Interproximal Demineralization	B3	.50	.83	.50	.00	.00
Root Surface Demineralization	B4	.44	.67	.50	.00	.00
Dental Demineralization	B5	.39	.63	.42	.00	.00
Alveolar Crest	C1	4.00	4.50	4.50	3.50	3.00
Periapical Alveolar Defect	C2	.16	.20	.33	.10	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.13	.00	.33	.00	.00
Attrition	E	5.40	3.00	7.00	0	0

Table C-79. Dutch Hollow 353

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 353
Sex	1
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Dutch Hollow 353 consists of a dentition which has been artifically repositioned and stabilized. The maxilla and mandible are intact and articulate with the base of the skull. The molar surface facets establish the occlusal relationship. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	3	2	0	1	0
Dentition	A3	28	8	6	8	6
Occlusal Demineralization	B1	.42	.70	1.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.06	.00	.33	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.12	.18	.33	.00	.00
Alveolar Crest	C1	2.00	2.00	2.00	2.00	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.11	.00	.50	.00	.00
Attrition	E	4.37	4.29	5.17	3.38	5.00

Table C-80. Dutch Hollow 354

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 354	Description:	Dutch Hollow 354 consists of a maxilla and mandible. The maxilla is disarticulated from the base of the skull and in two artificially stabilized fragments. The mandibular facet pattern establishes the occlusal relationship. The dentition is in satisfactory condition for analysis.
Sex	2		
Age	1		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	1	0	0	0
Postmortem Edentia	A2	1	1	0	0	0
Dentition	A3	30	8	6	10	6
Occlusal Demineralization	B1	.16	.11	.00	.40	.00
Coronal Demineralization	B2	.03	.11	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.06	.00	.10	.00
Alveolar Crest	C1	1.00	1.00	1.00	1.00	1.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.03	.13	.00	.00	.00
Attrition	E	2.15	2.00	2.33	2.00	2.33

Table C-81. Dutch Hollow 355

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Dutch Hollow 355

Sex: 2

Age: 4

Temporomandibular Joint Score: 1.00

Occlusal Classification: I

Description: Dutch Hollow 355 presents with considerable postmortem distortion. The maxilla articulates with the base of the skull. The occlusal relationship is established by facet pattern and the dentition is in excellent condition for examintion.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	32	10	6	10	6
Occlusal Demineralization	B1	.16	.20	.00	.30	.00
Coronal Demineralization	B2	.06	.00	.00	.20	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.05	.05	.00	.13	.00
Alveolar Crest	C1	2.13	2.00	2.83	1.90	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.03	.00	.17	.00	.00
Attrition	E	2.41	2.00	3.00	2.10	3.00

Table C-82. Dutch Hollow 1165

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Dutch Hollow 1165	Description:	Dutch Hollow 1165 consists of an intact mandible and a maxilla articulating with the base of the skull. There are retained deciduous molars with apparent agenesis of the adult dentition in the corresponding areas. The occlusal relationship is established by the anterior dentition. The dentition is in excellent condition for examination.
Sex	2		
Age	1		
Temporomandibular Joint Score	1.00		
Occlusal Classification	II		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	22	6	5	5	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	1.56	1.40	0	1.40	1.83
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.36	2.33	2.00	2.40	2.67

Table C-83. Powerhouse 85

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 85	Description:	Powerhouse 85 consists of an intact maxilla and an artifically stabilized mandible. The occlusal relationship is established by the facet pattern. The dentition is in satisfactory condition for examination.
Sex	1		
Age	4		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	30	10	6	8	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.03	.00	.00	.13	.00
Root Surface Demineralization	B4	.03	.00	.00	.13	.00
Dental Demineralization	B5	.02	.00	.00	.06	.00
Alveolar Crest	C1	1.87	1.80	2.00	1.75	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.03	.00	.00	.13	.00
Attrition	E	2.73	2.30	3.33	2.25	3.50

Table C-84. Powerhouse 138

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 138	Description:	Powerhouse 138 consists of an intact mandible and maxilla which articulate with the base of the skull to establish the occlusal relationship. The dentition is in satisfactory condition for examination.
Sex	1		
Age	2		
Temporomandibular Joint Score	1.00		
Occlusal Classification	I		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	10	2	3	1	4
Dentition	A3	22	8	3	9	2
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.03	.00	.00	.00	.17
Root Surface Demineralization	B4	.03	.00	.00	.00	.17
Dental Demineralization	B5	.02	.00	.00	.00	.08
Alveolar Crest	C1	1.63	1.50	2.00	1.63	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.45	2.13	3.33	2.33	3.00

Table C-85. Powerhouse 156

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 156
Sex	1
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Powerhouse 156 consists of an intact mandible and a maxilla articulating with the base of the skull. The specimen has been artifically stabilized and the resulting distortion makes the occlusal relationship only discernible by the facet pattern. The dentition is in satisfactory for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	7	4	0	2	1
Postmortem Edentia	A2	2	0	0	0	2
Dentition	A3	23	6	6	8	3
Occlusal Demineralization	B1	.08	.17	.00	.13	.00
Coronal Demineralization	B2	.12	.17	.00	.25	.00
Interproximal Demineralization	B3	.16	.50	.00	.13	.00
Root Surface Demineralization	B4	.20	.33	.17	.25	.00
Dental Demineralization	B5	.14	.29	.04	.19	.00
Alveolar Crest	C1	2.73	3.17	2.83	2.13	3.50
Periapical Alveolar Defect	C2	.09	.10	.00	.20	.00
Interdental Alveolar Defect	C3	.19	.40	.33	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.86	3.50	4.67	3.43	4.00

Table C-86. Powerhouse 158

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 158
Sex	2
Age	5
Temporomandibular Joint Score	1.00
Occlusal Classification	0

Description: Powerhouse 158 is in multiple fragments and the maxilla is disarticulated from the base of the skull. The occlusal relationship is indeterminate. The remaining dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	5	1	0	4	0
Postmortem Edentia	A2	7	1	5	0	1
Dentition	A3	20	8	1	6	5
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.07	.00	.00	.33	.00
Interproximal Demineralization	B3	.15	.00	.00	.67	.00
Root Surface Demineralization	B4	.11	.00	.00	.50	.00
Dental Demineralization	B5	.08	.00	.00	.38	.00
Alveolar Crest	C1	2.37	2.43	3.00	2.17	2.40
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.10	.00	.10	.00
Abrasion	D	.05	.13	.00	.00	.00
Attrition	E	5.21	4.86	8.00	4.50	6.00

Table C-87. Powerhouse 160

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 160
Sex	2
Age	3
Temporomandibular Joint Score	1.50
Occlusal Classification	0

Description: Powerhouse 160 consists of multiple fragments disarticulated from the base of the skull. The occlusal pattern is indeterminate. The dentition is satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	2	0	0	2	0
Postmortem Edentia	A2	3	1	1	0	1
Dentition	A3	25	8	5	7	5
Occlusal Demineralization	B1	.10	.10	.0	.25	.00
Coronal Demineralization	B2	.07	.00	.00	.25	.00
Interproximal Demineralization	B3	.07	.00	.00	.25	.00
Root Surface Demineralization	B4	.10	.00	.00	.38	.00
Dental Demineralization	B5	.08	.03	.00	.28	.00
Alveolar Crest	C1	2.64	2.38	3.80	2.43	2.20
Periapical Alveolar Defect	C2	.06	.00	.00	.20	.00
Interdental Alveolar Defect	C3	.03	.00	.00	.10	.00
Abrasion	D	.31	.00	1.60	.00	.00
Attrition	E	3.30	2.75	4.00	2.80	4.00

Table C-88. Powerhouse 161

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Powerhouse 161

Sex: 2

Age: 3

Temporomandibular Joint Score: 1.00

Occlusal Classification: IV

Description: Powerhouse 161 consists of a mandible in two fragments and a maxilla articulating with the base of the skull. There is considerable distortion in the maxilla. The occlusion is determined by facet pattern. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	1	1	2	0
Postmortem Edentia	A2	4	1	2	1	0
Dentition	A3	24	8	3	7	6
Occlusal Demineralization	B1	.21	.22	.00	.50	.00
Coronal Demineralization	B2	.21	.11	.00	.63	.00
Interproximal Demineralization	B3	.32	.44	.20	.50	.00
Root Surface Demineralization	B4	.25	.33	.00	.50	.00
Dental Demineralization	B5	.25	.28	.05	.53	.00
Alveolar Crest	C1	2.38	2.50	2.00	2.43	2.33
Periapical Alveolar Defect	C2	.06	.10	.00	.10	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.17	2.75	3.67	2.67	4.00

Table C-89. Powerhourse 162

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 162	Description:	Powerhouse 162 is in multiple fragments with the maxilla disarticulated from the base of the skull. The occlusal relationship is indeterminate. The dentition is generally displaced postmortem. It is repositionable and sufficient for examination.
Sex	1		
Age	1		
Temporomandibular Joint Score	1.00		
Occlusal Classification	0		

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	12	2	4	0	6
Dentition	A3	19	7	2	10	6
Occlusal Demineralization	B1	.13	.20	.0	.20	.00
Coronal Demineralization	B2	.16	.10	.00	.40	.00
Interproximal Demineralization	B3	.09	.10	.00	.20	.00
Root Surface Demineralization	B4	.09	.10	.00	.20	.00
Dental Demineralization	B5	.12	.13	.00	.25	.00
Alveolar Crest	C1	2.20	1.80	2.50	2.38	0
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.00	.00	.00	.00	0
Attrition	E	2.00	2.00	2.00	2.00	0

Table C-90. Powerhouse 168

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 168	Description: Powerhouse 168 consists of a mandible in two segments and a maxilla articulating with the base of the skull. The glenoid fossi are absent. The occlusal relationship is established by facet pattern. The dentition is in satisfactory conditions for examination.
Sex	1	
Age	2	
Temporomandibular Joint Score	1.00	
Occlusal Classification	IV	

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	6	0	4	1	1
Dentition	A3	26	10	2	9	5
Occlusal Demineralization	B1	.09	.00	.00	.30	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.02	.00	.00	.08	.00
Alveolar Crest	C1	2.08	2.00	2.00	1.89	2.60
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	2.73	2.50	3.00	2.44	3.60

Table C-91. Powerhouse 170

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 170
Sex	1
Age	1
Temporomandibular Joint Score	0
Occlusal Classification	I

Description: Powerhouse 170 consists of multiple fragments with the maxilla disarticulated from the base of the skull. The occlusal relationship is determined by the facet pattern. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	1	1	0	0	0
Dentition	A3	31	9	6	10	6
Occlusal Demineralization	B1	.03	.00	.00	.10	.00
Coronal Demineralization	B2	.09	.00	.00	.30	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.03	.00	.00	.10	.00
Alveolar Crest	C1	1.89	2.00	0	1.75	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.000
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.07	.22	.00	.00	.00
Attrition	E	2.07	2.00	2.00	2.00	2.33

Table C-92. Powerhouse 191

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 191	Description:	Powerhouse 191 consists of an intact mandible and a maxilla articulating with the base of the skull. The occlusal relationship is discernible in the molar pattern. The dentition is in satisfactory condition for examination.
Sex	2		
Age	5		
Temporomandibular Joint Score	1.33		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	7	5	0	2	0
Postmortem Edentia	A2	5	0	3	0	2
Dentition	A3	20	5	3	8	4
Occlusal Demineralization	B1	.08	.00	.00	.25	.00
Coronal Demineralization	B2	.12	.00	.00	.38	.00
Interproximal Demineralization	B3	.16	.20	.00	.38	.00
Root Surface Demineralization	B4	.16	.20	.00	.38	.00
Dental Demineralization	B5	.13	.10	.00	.34	.00
Alveolar Crest	C1	3.10	3.20	3.33	3.00	3.00
Periapical . Alveolar Defect	C2	.09	.00	.17	.20	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.20	.40	.67	.00	.00
Attrition	E	5.65	5.20	7.33	4.33	7.33

Table C-93. Powerhouse 1377

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 1377	
Sex	2	
Age	6	
Temporomandibular Joint Score	1.50	
Occlusal Classification	IV	

Description: Powerhouse 1377 consist of a predominantly edentulous maxilla and mandible on which the condylar heads are absent the dental. The occlusion is established by facet pattern. The remaining dentition is satisfactory for examination.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	23	7	6	9	1
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	9	3	0	1	5
Occlusal Demineralization	B1	.67	.67	0	1.00	.60
Coronal Demineralization	B2	.67	.67	0	1.00	.60
Interproximal Demineralization	B3	.67	.67	0	1.00	.60
Root Surface Demineralization	B4	.67	.67	0	1.00	.60
Dental Demineralization	B5	.67	.67	0	1.00	.60
Alveolar Crest	C1	3.50	3.00	0	5.00	3.50
Periapical Alveolar Defect	C2	.16	.20	.00	.20	.17
Interdental Alveolar Defect	C3	.06	.00	.00	.00	.33
Abrasion	D	.00	.00	0	.00	.00
Attrition	E	5.33	6.00	0	0	5.00

Table C-94. Powerhouse 1379

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Powerhouse 1379

Description: Powerhouse 1379 consists of an intact mandible and maxilla. Postmortem fractures of the specimen have been artificially restored. There is some distortion in the occlusal relationship but it is discernible by the facet pattern. The dentition is in satisfactory condition for analysis.

Sex: 1

Age: 4

Temporomandibular Joint Score: 1.00

Occlusal Classification: IV

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	3	0	0	3	0
Postmortem Edentia	A2	6	2	2	2	0
Dentition	A3	23	8	4	5	6
Occlusal Demineralization	B1	.14	.20	.00	.29	.00
Coronal Demineralization	B2	.14	.30	.00	.14	.00
Interproximal Demineralization	B3	.07	.10	.00	.14	.00
Root Surface Demineralization	B4	.21	.40	.00	.29	.00
Dental Demineralization	B5	.14	.25	.00	.21	.00
Alveolar Crest	C1	2.39	2.75	2.00	2.40	2.17
Periapical Alveolar Defect	C2	.03	.10	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.14	.00	.75	.00	.00
Attrition	E	3.73	2.75	5.00	3.00	4.83

Table C-95. Powerhouse 1380

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Powerhouse 1380

Description: Powerhouse 1380 consists of a partially edentulous mandible and maxilla which articulates with one verticle stop to establish an occlusal relationship. The maxilla articulates with the base of the skull. The dentition is in satisfactory condition for examination.

Sex: 2

Age: 6

Temporomandibular Joint Score: 1.25

Occlusal Classification: IV

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	21	5	5	10	1
Postmortem Edentia	A2	4	0	0	0	4
Dentition	A3	7	5	1	0	1
Occlusal Demineralization	B1	.27	.60	.00	0	.00
Coronal Demineralization	B2	.27	.60	.00	0	.00
Interproximal Demineralization	B3	.36	.80	.00	0	.00
Root Surface Demineralization	B4	.36	.80	.00	0	.00
Dental Demineralization	B5	.32	.70	.00	0	.00
Alveolar Crest	C1	3.40	3.67	2.00	0	4.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.06	.20	.00	.00	.00
Abrasion	D	.00	.00	.00	0	.00
Attrition	E	3.71	2.60	6.00	0	7.00

Table C-96. Powerhouse 1382

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 1382
Sex	2
Age	5
Temporomandibular Joint Score	1.50
Occlusal Classification	IV

Description: Powerhouse 1382 is a specimen in which the dentition has been artifically stabilized in the maxilla. The occlusal relationship is distorted in arch alignment but discernible by facet pattern. The mandible has been fractured postmortem and stabilized. The dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	7	4	0	3	0
Postmortem Edentia	A2	6	0	3	0	3
Dentition	A3	19	66	3	7	3
Occlusal Demineralization	B1	.24	.50	.33	.14	.00
Coronal Demineralization	B2	.16	.50	.00	.14	.00
Interproximal Demineralization	B3	.40	.50	.50	.57	.00
Root Surface Demineralization	B4	.28	.50	.00	.57	.00
Dental Demineralization	B5	.27	.50	.21	.36	.00
Alveolar Crest	C1	2.47	1.80	3.00	2.83	2.33
Periapical Alveolar Defect	C2	.06	.20	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.16	.33	.33	.00	.00
Attrition	E	5.53	5.00	5.67	5.50	6.00

Table C-97. Powerhouse 1381

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 1381
Sex	2
Age	4
Temporomandibular Joint Score	1.00
Occlusal Classification	IV

Description: Powerhouse 1381 is a specimen with considerable postmortem distortion. The maxilla and mandible are intact and demonstrate an occlusal relationship by facet pattern. The dentition is in satisfactory condition for analysis.

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	2	1	0	1	0
Dentition	A3	30	9	6	9	6
Occlusal Demineralization	B1	.00	.00	.00	.00	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.00	.00	.00	.00	.00
Alveolar Crest	C1	1.97	1.67	2.00	1.89	2.50
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.07	.00	.33	.00	.00
Attrition	E	2.60	2.11	3.33	2.11	3.33

Table C-98. Powerhouse 1383

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Powerhouse 1383

Sex: 2

Age: 4

Temporomandibular Joint Score: 1.25

Occlusal Classification: IV

Description: Powerhouse 1383 consists of a specimen with postmortem fractures in the anterior segments. The occlusion is established by facet pattern. The remaining dentition is in satisfactory condition for examination.

Activity-induced Condition		Profile Score	Segment Scores			
			Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	0	0	0	0	0
Postmortem Edentia	A2	9	2	5	0	2
Dentition	A3	23	8	1	10	4
Occlusal Demineralization	B1	.03	.00	.00	.10	.00
Coronal Demineralization	B2	.00	.00	.00	.00	.00
Interproximal Demineralization	B3	.00	.00	.00	.00	.00
Root Surface Demineralization	B4	.00	.00	.00	.00	.00
Dental Demineralization	B5	.01	.00	.00	.03	.00
Alveolar Crest	C1	1.39	1.38	1.00	1.20	2.00
Periapical Alveolar Defect	C2	.00	.00	.00	.00	.00
Interdental Alveolar Defect	C3	.00	.00	.00	.00	.00
Abrasion	D	.27	.50	.00	.20	.00
Attrition	E	3.39	3.75	5.00	2.40	4.75

Table C-99. Powerhouse 1384

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen	Powerhouse 1384	Description:	Powerhouse 1384 consists of an intact mandible and a maxilla which articulates with the base of skull. The occlusal relationship is clearly discernible. The dentition is in excellent condition for examination.
Sex	1		
Age	4		
Temporomandibular Joint Score	1.00		
Occlusal Classification	IV		

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	4	1	0	3	0
Postmortem Edentia	A2	0	0	0	0	0
Dentition	A3	28	9	6	7	6
Occlusal Demineralization	B1	.25	.44	.00	.43	.00
Coronal Demineralization	B2	.21	.33	.00	.43	.00
Interproximal Demineralization	B3	.18	.22	.00	.43	.00
Root Surface Demineralization	B4	.18	.22	.00	.43	.00
Dental Demineralization	B5	.21	.31	.00	.43	.00
Alveolar Crest	C1	2.19	1.78	2.67	2.50	2.00
Periapical Alveolar Defect	C2	.13	.10	.00	.30	.00
Interdental Alveolar Defect	C3	.09	.00	.00	.30	.00
Abrasion	D	.04	.00	.17	.00	.00
Attrition	E	3.05	2.29	3.83	2.00	3.67

Table C-100. Powerhouse 1385

ACTIVITY-INDUCED DENTAL AND OSSEOUS CONDITION PROFILE

Specimen: Powerhouse 1385

Description: Powerhouse 1385 is a specimen in which the mandible and maxilla are intact. The occlusal relationship is discernible. The dentition is in satisfactory condition for analysis.

Sex: 1

Age: 4

Temporomandibular Joint Score: 1.00

Occlusal Classification: IV

Activity-induced Condition		Profile Score	Segment Scores: Maxillary Posterior	Maxillary Anterior	Mandibular Posterior	Mandibular Anterior
Antemortem Edentia	A1	1	0	0	1	0
Postmortem Edentia	A2	4	1	1	0	2
Dentition	A3	27	9	5	9	4
Occlusal Demineralization	B1	.13	.00	.00	.44	.00
Coronal Demineralization	B2	.06	.00	.00	.22	.00
Interproximal Demineralization	B3	.06	.00	.00	.22	.00
Root Surface Demineralization	B4	.06	.00	.00	.22	.00
Dental Demineralization	B5	.08	.00	.00	.28	.00
Alveolar Crest	C1	2.25	2.22	2.00	2.11	3.00
Periapical Alveolar Defect	C2	.06	.00	.00	.20	.00
Interdental Alveolar Defect	C3	.06	.00	.00	.20	.00
Abrasion	D	.00	.00	.00	.00	.00
Attrition	E	3.73	2.57	5.00	3.00	4.83

Appendix D

Appendix D

Appendix D
Statistical Analysis

Table D-1. Antemortem Edentia Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	1.3333	2.397	.336
Male 2	49	1.3061	2.053	.293

Mean Difference = .0272

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.06	98	.952	.447	(-.860, .915)
Unequal	.06	96.95	.951	.446	(-.858, .912)

Table D-2. Antemortem Edentia Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.5294	1.447	.203
Male 2	49	.5306	1.542	.220

Mean Difference = .0012

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.00	98	.997	.299	(-.595, .592)
Unequal	.00	96.95	.997	.299	(-.595, .593)

Table D-3. Antemortem Edentia Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	2.1765	2.567	.359
Male 2	49	2.4898	2.694	.385

Mean Difference = .3133

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.60	98	.553	.526	(-1.357, .731)
Unequal	-.60	97.24	.553	.527	(-1.359, .732)

Table D-4. Antemortem Edentia Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1961	.722	.101
Male 2	49	.1429	.736	.105

Mean Difference = .0532

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.37	98	.716	.146	(-.236, .343)
Unequal	.36	97.65	.716	.146	(-.236, .343)

Table D-5. Antemortem Edentia Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	4.2353	6.117	.857
Male 2	49	4.4694	5.828	.833

Mean Difference = .2341

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.20	98	.845	1.196	(-2.607, 2.139)
Unequal	-.20	97.99	.845	1.195	(-2.605, 2.137)

Table D-6. Occlusal Demineralization Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.2279	.236	.033
Male 2	49	.1791	.206	.029

Mean Difference = .0559

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.26	98	.210	.044	(-.032, .144)
Unequal	1.26	97.07	.209	.044	(-.032, .144)

Table D-7. Occlusal Demineralization Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.0585	.172	.025
Male 2	47	.0514	.147	.021

Mean Difference = .0071

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.22	94	.829	.033	(-.058, .072)
Unequal	.22	92.73	.829	.033	(-.058, .072)

Table D-8. Occlusal Demineralization Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.2579	.215	.030
Male 2	48	.2309	.232	.034

Mean Difference = .0269

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.60	97	.551	.045	(-.062, .116)
Unequal	.60	95.25	.552	.045	(-.063, .116)

Table D-9 Occlusal Demineralization Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0438	.162	.023
Male 2	49	.0293	.145	.021

Mean Difference = .0145

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.47	98	.638	.031	(-.047, .076)
Unequal	.47	97.54	.637	.031	(-.046, .076)

Table D-10 Occlusal Demineralization Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1687	.150	.021
Male 2	49	.1425	.141	.020

Mean Difference = .0262

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.90	98	.372	.029	(-.032, .084)
Unequal	.90	97.95	.371	.029	(-.032, .084)

Table D-11. Coronal Demineralization Segment 1

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1274	.223	.031
Male 2	49	.1046	.165	.024

Mean Difference = .0228

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.58	98	.564	.039	(-.055, .101)
Unequal	.58	92.13	.562	.039	(-.055, .101)

Table D-12. Coronal Demineralization Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.0415	.106	.015
Male 2	47	.0408	.131	.019

Mean Difference = .0007

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.03	94	.977	.024	(-.047, .049)
Unequal	.03	88.45	.977	.024	(-.048, .049)

Table D-13. Coronal Demineralization Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1790	.197	.028
Male 2	48	.1817	.217	.031

Mean Difference = .0027

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.07	97	.948	.042	(-.085, .080)
Unequal	-.07	94.62	.948	.042	(-.086, .080)

Table D-14. Coronal Demineralization Segment 4

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0405	.143	.020
Male 2	49	.0293	.145	.021

Mean Difference = .0113

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.39	98	.697	.029	(-.046, .068)
Unequal	.39	97.68	.697	.029	(-.046, .068)

Table D-15. Coronal Demineralization Total

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1100	.141	.020
Male 2	49	.1042	.137	.020

Mean Difference = .0058

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.21	98	.836	.028	(-.049, .061)
Unequal	.21	97.97	.836	.028	(-.049, .061)

Table D-16. Interproximal Demineralization Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1823	.269	.038
Male 2	49	.1456	.220	.031

Mean Difference = .0367

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.75	98	.457	.049	(-.061, .134)
Unequal	.75	95.59	.456	.049	(-.061, .134)

Table D-17. Interproximal Demineralization Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.0813	.157	.022
Male 2	47	.0929	.202	.030

Mean Difference = .0116

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.32	94	.753	.037	(-.085, .062)
Unequal	-.31	86.61	.755	.037	(-.085, .062)

Table D-18. Interproximal Demineralization Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1945	.266	.037
Male 2	48	.2083	.251	.036

Mean Difference = .0138

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.27	97	.791	.052	(-.117, .090)
Unequal	-.27	97.00	.791	.052	(-.117, .090)

Table D-19. Interproximal Demineralization Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0477	.170	.024
Male 2	49	.0293	.145	.021

Mean Difference = .0185

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.59	98	.561	.032	(-.044, .081)
Unequal	-.27	96.74	.560	.032	(-.044, .081)

Table D-20. Interproximal Demineralization Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1373	.180	.025
Male 2	49	.1349	.161	.023

Mean Difference = .0024

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.07	98	.944	.034	(-.065, .070)
Unequal	-.07	97.51	.944	.034	(-.065, .070)

Table D-21. Root Surface Demineralization Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1831	.270	.038
Male 2	49	.1523	.214	.031

Mean Difference = .0308

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.63	98	.530	.049	(-.066, .128)
Unequal	.63	94.61	.528	.049	(-.066, .127)

Table D-22. Root Surface Demineralization Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.0643	.144	.021
Male 2	47	.0532	.171	.025

Mean Difference = .0111

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.35	94	.731	.032	(-.053, .075)
Unequal	.34	89.99	.732	.032	(-.053, .075)

Table D-23. Root Surface Demineralization Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1704	.216	.030
Male 2	48	.2089	.233	.034

Mean Difference = .0385

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.85	97	.395	.045	(-.128, .051)
Unequal	-.85	95.27	.397	.045	(-.128, .051)

Table D-24. Root Surface Demineralization Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0399	.152	.021
Male 2	49	.0293	.145	.021

Mean Difference = .0106

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.36	98	.722	.030	(-.048, .070)
Unequal	.36	98.00	.722	.030	(-.048, .070)

Table D-25. Root Surface Demineralization Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1283	.166	.023
Male 2	49	.1314	.160	.023

Mean Difference = .0031

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.09	98	.925	.033	(-.068, .062)
Unequal	-.09	98.00	.925	.033	(-.068, .062)

Table D-26. Dental Demineralization Segment 1

Variable	Number of Cases	Mean	SD	SE of Mean
B51				
Female 1	51	.1801	.233	.033
Male 2	49	.1436	.181	.026

Mean Difference = .0366

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.87	98	.385	.042	(-.047, .120)
Unequal	.88	93.83	.383	.042	(-.046, .119)

Table D-27. Dental Demineralization Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.0614	.122	.017
Male 2	47	.0596	.151	.022

Mean Difference = .0018

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.07	95	.948	.028	(-.054, .057)
Unequal	.06	88.30	.948	.028	(-.054, .058)

Table D-28. Dental Demineralization Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.2004	.189	.026
Male 2	48	.2075	.210	.030

Mean Difference = .0070

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.18	97	.861	.040	(-.087, .073)
Unequal	-.17	94.45	.862	.040	(-.087, .073)

Table D-29. Dental Demineralization Segment 4

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0430	.154	.022
Male 2	49	.0293	.145	.021

Mean Difference = .0137

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.46	98	.648	.030	(-.046, .073)
Unequal	.46	97.96	.648	.030	(-.046, .073)

Table D-30. Dental Demineralization Total

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.1361	.151	.021
Male 2	49	.1282	.141	.020

Mean Difference = .0078

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.27	98	.789	.029	(-.050, .066)
Unequal	.27	97.92	.789	.029	(-.050, .066)

Table D-31. Alveolar Crest Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	2.1565	.819	.116
Male 2	48	2.2335	.651	.094

Mean Difference = .0770

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.51	96	.608	.150	(-.374, .220)
Unequal	-.52	92.80	.607	.149	(-.373, .219)

Table D-32. Alveolar Crest Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	46	2.3261	.887	.131
Male 2	44	2.3364	.749	.113

Mean Difference = .0103

Levene's Test for Equality of Variances: F= .598 P = .441

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.06	88	.953	.173	(-.355, .334)
Unequal	-.06	86.69	.953	.173	(-.354, .333)

Table D-33. Alveolar Crest Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	2.1500	.751	.106
Male 2	48	2.2144	.711	.103

Mean Difference = .0644

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.44	96	.664	.148	(-.358, .229)
Unequal	-.44	95.98	.664	.148	(-.358, .229)

Table D-34. Alveolar Crest Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	2.3120	.686	.097
Male 2	47	2.2589	.529	.077

Mean Difference = .0531

Levene's Test for Equality of Variances: F= 3.316 P = .072

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.43	95	.672	.125	(-.195, .301)
Unequal	.43	91.54	.669	.124	(-.193, .299)

Table D-35. Alveolar Crest Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	2.2132	.689	.096
Male 2	49	2.2476	.569	.081

Mean Difference = .0344

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.27	98	.786	.127	(-.286, .217)
Unequal	-.27	95.87	.786	.126	(-.285, .216)

Table D-36. Periapical Alveolar Defect Segment 1

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0647	.093	.013
Male 2	49	.0571	.106	.015

Mean Difference = .0076

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.38	98	.706	.020	(-.032, .047)
Unequal	.38	95.36	.706	.020	(-.032, .047)

Table D-37. Periapical Alveolar Defect Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0752	.150	.021
Male 2	49	.0748	.132	.019

Mean Difference = .0003

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.01	98	.991	.028	(-.056, .057)
Unequal	.01	97.24	.991	.028	(-.056, .056)

Table D-38. Periapical Alveolar Defect Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0686	.099	.014
Male 2	49	.0633	.093	.013

Mean Difference = .0054

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.28	98	.781	.019	(-.033, .043)
Unequal	.28	97.95	.780	.019	(-.033, .043)

Table D-39. Periapical Alveolar Defect Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0523	.199	.028
Male 2	49	.0136	.057	.008

Mean Difference = .0387

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	1.31	98	.193	.029	(-.020, .097)
Unequal	1.33	58.58	.187	.029	(-.019, .097)

Table D-40. Periapical Alveolar Defect Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0656	.087	.012
Male 2	49	.0542	.058	.008

Mean Difference = .0114

t-test for Equality of Means Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.76	98	.447	.015	(-.018, .041)
Unequal	.77	87.83	.444	.015	(-.018, .041)

Table D-41. Interdental Alveolar Defect Segment 1

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0902	.151	.021
Male 2	49	.0796	.150	.021

Mean Difference = .0106

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.35	98	.726	.030	(-.049, .070)
Unequal	.35	97.90	.726	.030	(-.049, .070)

Table D-42. Interdental Alveolar Defect Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0229	.082	.011
Male 2	49	.0102	.040	.006

Mean Difference = .0127

Levene's Test for Equality of Variances: F= 4.263 P = .042

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.98	98	.331	.013	(-.013, .038)
Unequal	.99	73.64	.326	.013	(-.013, .038)

Table D-43. Interdental Alveolar Defect Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0725	.104	.015
Male 2	49	.0469	.074	.011

Mean Difference = .0256

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.41	98	.161	.018	(-.010, .062)
Unequal	1.42	90.33	.158	.018	(-.010, .061)

Table D-44. Interdental Alveolar Defect Segment 4

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0229	.106	.015
Male 2	49	.0102	.053	.008

Mean Difference = .0127

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.75	98	.452	.017	(-.021, .046)
Unequal	.76	74.20	.447	.017	(-.020, .046)

Table D-45. Interdental Alveolar Defect Total

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0594	.066	.009
Male 2	49	.0434	.052	.007

Mean Difference = .0161

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.34	98	.182	.012	(-.008, .040)
Unequal	1.35	94.40	.180	.012	(-.008, .040)

Table D-46. Abrasion Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	.0336	.085	.012
Male 2	48	.1199	.190	.027

Mean Difference = .0863

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-2.92	96	.004	.030	(-.145, .028)
Unequal	-2.88	64.28	.005	.030	(-.146, .026)

Table D-47. Abrasion Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	.1793	.398	.057
Male 2	47	.4199	.498	.073

Mean Difference = .2406

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.62	94	.010	.092	(-.423, .058)
Unequal	-2.61	87.97	.011	.092	(-.424, .057)

Table D-48. Abrasion Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	.0582	.177	.025
Male 2	48	.1111	.235	.034

Mean Difference = .0529

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.26	96	.211	.042	(-.136, .030)
Unequal	-1.25	87.31	.214	.042	(-.137, .031)

Table D-49. Abrasion Segment 4

t-tests for independent sampels of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	50	.0450	.164	.023
Male 2	48	.0674	.184	.026

Mean Difference = .0224

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.64	96	.526	.035	(-.092, .047)
Unequal	-.63	93.84	.527	.035	(-.092, .048)

Table D-50. Abrasion Total

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	.0751	.116	.016
Male 2	49	.1664	.167	.024

Mean Difference = .0914

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-3.19	98	.002	.029	(-.148, .034)
Unequal	-3.16	85.34	.002	.029	(-.149, .034)

Table D-51. Attrition Segment 1

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	48	2.5881	.727	.105
Male 2	48	3.1097	1.119	.162

Mean Difference = .5216

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
	t-test for Equality of Means				
Equal	-2.71	94	.008	.193	(-.904, .139)
Unequal	-2.71	80.68	.008	.193	(-.905, -.138)

Table D-52. Attrition Segment 2

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	48	4.1139	1.545	.223
Male 2	47	4.3273	1.612	.235

Mean Difference = .2134

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
	t-test for Equality of Means				
Equal	-.66	93	.512	.324	(-.857, .430)
Unequal	-.66	92.65	.512	.324	(-.857, .430)

Table D-53. Attrition Segment 3

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	48	2.9323	1.346	.194
Male 2	47	3.1898	1.145	.167

Mean Difference = .2575

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.00	93	.318	.257	(-.767, .252)
Unequal	-1.01	91.23	.317	.256	(-.766, .251)

Table D-54. Attrition Segment 4

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	49	3.9007	1.215	.174
Male 2	48	4.1642	1.179	.170

Mean Difference = .2636

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.08	95	.281	.243	(-.746, .219)
Unequal	-1.08	94.99	.281	.243	(-.746, .219)

Table D-55. Attrition Total

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	3.3307	1.125	.158
Male 2	49	3.5720	1.094	.156

Mean Difference = .0272

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.09	98	.280	.222	(-.682, .199)
Unequal	-1.09	97.98	.280	.222	(-.682, .199)

t-test for Equality of Means

Table D-56. Abrasion Segment 3 Controlling for Age

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	38	.0338	.086	.014
Male 2	41	.1252	.251	.039

Mean Difference = .0914

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.13	77	.036	.043	(-.177, .006)
Unequal	-2.20	50.01	.033	.042	(-.175, .008)

t-test for Equality of Means

Table D-57. Age by Sex

t-tests for independent samples of sex

AGE

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	51	3.1961	1.600	.224
Male 2	49	3.7755	1.447	.207

Mean Difference = .5794

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.90	98	.061	.306	(-1.186, .027)
Unequal	-1.90	97.65	.060	.305	(-1.185, .026)

Table D-58. Attrition Score Total Controlling for Age 3,4,5 and 6

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	41	3.6155	1.072	.167
Male 2	44	3.7598	.978	.147

Mean Difference = .1443

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.65	83	.518	.222	(-.587, .298)
Unequal	-.65	80.85	.519	.223	(-.588, .300)

Table D-59. Attrition Segment 1 Controlling for Age

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	38	2.7551	.727	.118
Male 2	43	3.2571	1.079	.165

Mean Difference = .5020

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.42	79	.018	.207	(-.915, -.089)
Unequal	-2.48	74.03	.015	.202	(-.905, -.099)

Table D-60. Attrition Segment 2 Controlling for Age

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	38	4.5386	1.446	.235
Male 2	42	4.6123	1.451	.224

Mean Difference = .0737

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.23	78	.821	.324	(-.720, .572)
Unequal	-.23	77.26	.951	.324	(-.720, .572)

Table D-61. Attrition Segment 3 Controlling for Age

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	38	3.1931	1.400	.227
Male 2	42	3.3487	1.096	.169

Mean Difference = .1556

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.56	78	.580	.280	(-.713, .402)
Unequal	-.55	69.98	.585	.283	(-.721, .409)

Table D-62. Attrition Segment 4 Controlling for Age

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	40	4.2092	1.1119	.177
Male 2	43	4.4043	.973	.148

Mean Difference = .1951

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.85	81	.398	.230	(-.652, .262)
Unequal	-.84	77.55	.401	.231	(-.655, .265)

Table D-63. Variable C2B5A1 Total Controlling for Age Groups 4,5 and 6

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	25	8.4254	6.947	1.389
Male 2	32	6.3688	6.714	1.176

Mean Difference = 2.0566

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	1.13	55	.263	1.829	(-1.591, 5.704)
Unequal	1.13	50.85	.266	1.827	(-1.613, 5.726)

Table D-64. Variable C2B5A1 Segment 1

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	25	3.0514	3.052	.610
Male 2	32	2.0874	2.483	.439

Mean Difference = .9640

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	1.32	55	.194	.733	(-.505, 2.433)
Unequal	1.28	45.77	.206	.752	(-.550, 2.478)

Table D-65. Variable C2B5A1 Segment 2

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	23	.8953	1.362	.284
Male 2	30	.6111	1.358	.248

Mean Difference = .2842

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	.75	51	.454	.377	(-.472, 1.041)
Unequal	.75	47.41	.455	.377	(-.474, 1.043)

Table D-66. Variable C2B5A1 Segment 3

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	25	4.3285	2.571	.514
Male 2	31	3.3783	2.784	.500

Mean Difference = .9502

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.31	54	.195	.723	(-.501, 2.401)
Unequal	1.32	52.96	.191	.727	(-.489, 2.389)

Table D-67. Variable C2B5A1 Segment 4

t-tests for independent samples of sex

Variable	Number of Cases	Mean	SD	SE of Mean
Female 1	25	.5843	1.109	.222
Male 2	32	.2844	.949	.168

Mean Difference = .3000

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.10	55	.276	.273	(-.247, .847)
Unequal	1.10	47.31	.286	.278	(-.260, .860)

Table D-68. Correlation E with B1

CORRELATIONS: Attrition with Occlusal Demineralization

- - Correlation Coefficients - -

	B1T	B11	B12	B13	B14
ATT	.3177 (100) P = .001	.3030 (100) P = .002	.3079 (96) P = .002	.0460 (99) P = .651	.3223 (100) P = .001
AT1	.2342 (96) P = .022	.2107 (96) P = .039	.2060 (95) P = .045	.0406 (95) P = .696	.3028 (96) P = .003
AT2	.3115 (95) P = .002	.2583 (95) P = .011	.3168 (95) P = .002	-.0060 (94) P = .093	.2972 (95) P = .000
AT3	.3110 (95) P = .002	.3318 (95) P = .001	.4040 (93) P = .000	-.1735 (95) P = .093	.3943 (95) P = .000
AT4	.2420 (97) P = .017	.2728 (97) P = .007	.2666 (94) P = .009	.0436 (96) P = .673	.2167 (97) P = .033

(Coefficient / (Cases) / 2-tailed Significance)

Table D-69. Correlation C2 with E

CORRELATION: Peripical Alveolar Defect Segment 2 and 4 with Attrition Segment 2 and 4

-- correlation coefficient

	AT2AT4
C22C24	.4890 (93) P= .000

(Coefficient/Cases)/2-tailed Significance)

Table D-70. Correlation A1 with B5

CORRELATION: Antemortem Edentia with Dental Demineralization

- - Correlation Coefficients - -

	B5T	B51	B52	B53	B54
A1T	.7006 (98) P = .000	.6077 (98) P = .000	.4730 (98) P = .000	.2435 (98) P = .016	.4230 (98) P = .000
A11	.5893 (98) P = .000	.4514 (98) P = .000	.2497 (98) P = .013	.3981 (98) P = .000	.4357 (98) P = .000
A12	.4262 (98) P = .000	.4036 (98) P = .000	.3261 (98) P = .001	-.1072 (98) P = .867	.2970 (98) P = .003
A13	.6472 (98) P = .000	.5806 (98) P = .000	.5696 (98) P = .000	.2056 (98) P = .042	.3121 (98) P = .002
A14	.4366 (98) P = .000	.4182 (98) P = .000	.1717 (98) P = .091	-.0478 (98) P = .640	.2815 (98) P = .005

(Coefficient / (Cases) / 2-tailed Significance)

Table D-71. Correlation B4 with C1

CORRELATION: Root Surface Demineralization and Alveolar Crest

- - Correlation Coefficients - -

	C1T	C11	C12	C13	C14
B4T	.6754 (85) P = .000	.6816 (85) P = .000	.45767 (85) P = .000	.6635 (85) P = .000	.3656 (85) P = .001
B41	.5088 (85) P = .000	.5852 (85) P = .000	.3330 (85) P = .002	.4992 (85) P = .000	.2444 (58) P = .024
B42	.4856 (85) P = .000	.5014 (85) P = .000	.3387 (85) P = .002	.4206 (85) P = .000	.3091 (85) P = .004
B43	.4107 (85) P = .000	.3196 (85) P = .003	.2841 (85) P = .008	.4786 (85) P = .000	.2021 (85) P = .064
B44	.2054 (85) P = .059	.2403 (85) P = .027	.0939 (85) P = .393	.0956 (85) P = .384	.1928 (85) P = .077

(Coefficient / (Cases) / 2-tailed Significance)

Table D-72. B5 with C2

CORRELATION: Dental Demineralization and Periapical Alveolar Defect

- - Correlation Coefficients - -

	C2T	C21	C22	C23	C24
B5T	.7190 (98) P = .000	.6166 (98) P = .000	.4889 (98) P = .000	.4374 (98) P = .000	.2709 (98) P = .000
B51	.5090 (98) P = .000	.7105 (98) P = .000	.2661 (98) P = .008	.1396 (98) P = .170	.1191 (98) P = .243
B52	.3921 (98) P = .000	.2665 (98) P = .008	.4982 (98) P = .000	.1048 (98) P = .305	.1411 (9598 P = .166
B53	.5669 (98) P = .000	.2089 (98) P = .039	.3512 (98) P = .000	.6446 (98) P = .000	.2563 (98) P = .011
B54	.2420 (98) P = .000	.2728 (98) P = .649	.2666 (98) P = .020	.0436 (98) P = .001	.2167 (98) P = .000

(Coefficient / (Cases) / 2-tailed Significance)

Table D-73 A1 with E

CORRELATION: Antermortem Edentia and Attrition

- - Correlation Coefficients - -

	ATT	AT1	AT2	AT3	AT4
A1T	.7250 (90) P = .000	.6200 (90) P = .000	.6706 (90) P = .000	.6845 (90) P = .000	.6295 (90) P = .000
A11	.6223 (90) P = .000	.5713 (90) P = .000	.5327 (90) P = .000	.4767 (90) P = .000	.5619 (90) P = .000
A12	.3869 (90) P = .000	.4468 (90) P = .008	.3979 (90) P = .000	.3639 (90) P = .305	.2586 (90) P = .166
A13	.6415 (90) P = .000	.4432 (90) P = .000	.6171 (90) P = .000	.7070 (90) P = .000	.5903 (90) P = .000
A14	.3622 (90) P = .000	.4459 (90) P = .000	.3145 (90) P = .003	.2674 (90) P = .011	.2335 (90) P = .027

(Coefficient / (Cases) / 2-tailed Significance)

Table D-74 Dental and Osseous Conditions Correlated

Condition	df	SE	CI	N
Attrition	98	.222	(-.682, .199)	100
E-1	94	.193	(-.904, .139)	96
E-2	93	.324	(-.857, .430)	95
E-3	93	.257	(-.767, .252)	95
E-4	95	.243	(-.746, .219)	97
Occlusal Demineralization	98	.029	(-.032, 0.84)	100
B1-1	98	.044	(-.032, .144)	100
B1-2	94	.033	(-.058, .072)	96
B1-3	97	.045	(-.067, .116)	99
B1-4	98	.031	(-.047, .076)	100
Antemortem Edentia	98	1.196	(-2.607, 2.139)	100
A1-1	98	.447	(-.860, .915)	100
A1-2	98	.299	(-.595, .592)	100
A1-3	98	.526	(-1.357, .731)	100
A1-4	98	.716	(-.236, .343)	100
Dental Demineralization	98	.029	(-.050, .066)	100
B5-1	98	.042	(-.047, .120)	100
B5-2	95	.028	(-.054, .057)	96
B5-3	97	.040	(-.087, .073)	99
B5-4	98	.030	(-.046, .073)	100
Periapical Alveolar Defect	98	.020	(-.032, .047)	100
C2-2	98	.028	(-.056, .057)	100
C2-3	98	.019	(-.033, .043)	100
C2-4	98	.029	(-.020, .097)	100
Root Surface Demineralization	98	.033	(-.068, .062)	100
B4-1	98	.049	(-.066, .128)	100
B4-2	94	.032	(-.053, .075)	96
B4-3	97	.045	(-.128, .051)	99
B4-4	98	.030	(-.048, 070)	100
Alveolar Crest	98	.127	(-.286, .217)	100
C1-1	96	.150	(-.374, .220)	98
C1-2	88	.173	(-.355, .334)	90
C1-3	96	.145	(-.358, .229)	98
C1-4	95	.125	(-.195, .301)	97

Table D-75. Anterior-Posterior Attrition when Antemortem Edentia Less than 4

--- t-tests for paired samples

Variable	Number of pairs	Corr	2-tail Sig	Mean	SD	SE of Mean
AT1AT3	59	.817	.000	4.9264	1.274	.166
AT2AT4				6.9528	1.962	.255

Paired Differences Mean	SD	SE of Mean	t-value	df	2-tail Sig
-2.0264	1.179	.153	-13.20	58	.000
95% CI (-2.334, -1.719)					

Table D-76. Anterior-Posterior Attrition when Antemortem Edentia Greater than 4

--- t-tests for paired samples ---

Variable	Number of pairs	Corr	2-tail Sig	Mean	SD	SE of Mean
AT1AT3	31	.808	.000	7.3899	1.941	.349
AT2AT4				10.1156	2.121	.381

Paired Differences Mean	SD	SE of Mean	t-value	df	2-tail Sig
-2.7257	1.271	.228	-11.94	30	.000
95% CI (-3.192, -2.260)					

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