

Dental Anthropology Newsletter

A PUBLICATION OF
THE DENTAL ANTHROPOLOGY ASSOCIATION

Laboratory of Dental Anthropology Department of Anthropology
Arizona State University Tempe, AZ 85287-2402

Volume 8, Number 1

October 1993

Presidential Address

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It is the sad duty to inform the Dental Anthropology Association members of the passing of two of our foremost dental anthropologists, Albert A. Dahlberg and Richard M.S. Taylor. Tributes to Dr. Dahlberg and Dr. Taylor can be found on pages 1 through 4.

Albert Dahlberg, a founding member of the Dental Anthropology Association and a member of the editorial board of the *Dental Anthropology Newsletter*, died on July 30, 1993, at the farm south of Chicago, that had been his home since his retirement. His many contributions to dentistry, anthropology, and biology in a long productive career have exerted a profound influence on scholars in many fields related to craniofacial studies. Dental anthropologists will especially miss this man, who for so long was the leading figure responsible for bringing together many diverse disciplines to focus on the dental variability and evolution of our species.

Dr. Dahlberg began his dental career in 1933 with the receipt of the D.D.S. degree and the start of an active and distinguished dental practice, which he continued for many years. Concurrently, he was involved in a variety of innovative research projects, first in applied clinical questions, then more frequently turning to broader questions of dental evolution. His early and enduring association with the Anthropology Department of the University of Chicago soon led to more attention to anthropological topics. Field projects began about this time with surveys of Native Americans of the American Southwest and continued for many years, eventually expanding to include populations from several parts of the world. Dental surveys, casts, and genealogies were collected in large numbers and have benefitted many students of dental anthropology.

The results of Al Dahlberg's dental studies have been in many publications over the years with increasing emphasis on anthropological topics. Papers like *The Changing Dentition of Man* in 1945 and *The Dentition of the American Indian* in 1951 were precursors to a long series of significant papers on dental anthropological variability, genetics, and evolution throughout the following decades. By the time of his seventieth birthday on November 20, 1978, as noted in the 1979 *Festschrift* volume (*Ossa 6*), Al Dahlberg had authored, edited, and co-authored over a hundred publications. From this point until 1992, he continued to publish and was often called upon to write introductions and summaries of edited collections. These papers and the numerous symposia stand as major research contributions and are a foundation for the growing field of dental anthropology.

In addition to dental practice and active research, Al Dahlberg taught for years in the Department of Anthropology of the University of Chicago. These years overlapped the major phases of development in physical anthropology at that institution. His teaching skills opened the minds of generations of students to the importance of dental anthropology studies. His efforts were expanded considerably with a National Institute of Dental Research Training grant award in 1964, a project on which he worked for many years preparing many of today's senior dental anthropologists. His influence as a teacher must be added to his achievements along with his research accomplishments.

Because he was generous with his time and responded readily to those who sought his advice, Al Dahlberg's impact on the expanding field of physical anthropology, especially during the decades of the 70's

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and 80's, extended far beyond the classroom and laboratory. He was an active member of the American Association of Physical Anthropologists and was one of the major figures responsible for the spread of dental research among its members, especially the younger ones who were just becoming exposed to the breadth of research challenges. I can recall from my own experience, when in 1971, I was brash enough to organize symposia for the national meetings. Dr. Dahlberg was there to help when I needed extra commentary to fill in for missing discussants in the program. He remained in the audience throughout the long morning session, offering questions and comments and, most important, encouragement. Nearly twenty years later, he was there again at a national meeting of the American Association of Physical Anthropologists. This time he had to divide his time and support between three simultaneous dental anthropology symposia, since interest in dental research had grown so much. About this time our Dental Anthropology Association was beginning to swell in membership and our newsletter increase in content.

Space is insufficient to list the many achievements of our late colleague; his work spans such a range of accomplishments made during more than half of a century. The field work among Native Americans, the dental genetic studies, the growth studies, insightful articles on variation and evolution, and the many commentaries stand out as major contributions.

The life and work of Al Dahlberg will be celebrated in a special issue of the *Dental Anthropology Newsletter* in January. Until then, this issue is offered in tribute to a fine scholar and teacher. We shall miss him.

Albert A. Dahlberg (1908-1993)

JIM DAHLBERG

Albert A. Dahlberg died of a heart attack early Friday afternoon, July 30, 1993. He was doing what he loved to do: working outside at his farm. He always said that he wished to live to the end of his life on the farm, and his wish was granted. His ashes will remain on the land that he loved so much.



Albert A. Dahlberg

Born in Chicago on November 20, 1908, Al spoke Swedish until he went to school. All of his life he enjoyed this background, often going back to the Swedish neighborhood at Christmas and at other special times.

In 1933 Al received his DDS degree and started a long, fruitful association with the University of Chicago Dental Clinic. He later established a very successful dental practice. In spite of his interest in teeth and their care, he had a great sweet-tooth of his own.

Al's intellect and curiosity led him to ask how teeth came to have the size and shape that they do. Reading on his own, and with the tireless support of his wife, Thelma, he learned about human genetics and physical anthropology. Starting in the late 1940's, the team of Al and Thelma went on many field trips to study the dentitions of various human populations, including American Indians of the Southwest, Eskimos, and groups in Iran, Iraq, and Japan.

As a professor in the Department of Anthropology and Program of Evolutionary Biology at the University of Chicago, Al obtained great pleasure from his anthropological work. He shared his enthusiasm with his friends and family.

The significance of this work was widely recognized, and Al received many awards including the Order of the Rising Sun 3rd Degree (the highest honor bestowed on a non-Japanese by the emperor of Japan), an honorary doctorate

from Turku University in Finland, and the 1992 Award from the International Society of Dental Research.

Al and Thelma were married on January 2, 1934. To celebrate, the two newly-weds had a hamburger, which was all they could afford at the time. Ever since then, they marked their anniversaries by treating themselves to a hamburger. They had three children, Corki, Al, and Jim, who were blessed by growing up

in a supportive, loving, and stimulating home. Al and Thelma devoted themselves to their three children and eight grandchildren.

In 1950, while the children were all at camp, Al and Thelma bought their home on Stone Barn Road. The kids were told about the purchase during a picnic on the big hill. Many years of happiness followed, and The Farm became home. Every Friday evening in Chicago the family would pack the car with food, clothes, dog, etc. and set off to spend the weekend at The Farm to hike, feed horses, mow the lawn, fix fences, and do the things that continually needed to be done. Summers were spent at The Farm. As soon as the kids' school ended, Al would commute into Chicago to work at his dental practice and at the University.

When the pace of life slowed a bit, Al and Thelma were able to spend more and more time at the farm. But even in retirement, Al did not lose his interest in dental anthropology. He continued his association with the University of Chicago as a professor emeritus and set up a laboratory in a newly constructed garage on the farm. Al spent many happy hours working there, analyzing some of the thousands of teeth of individuals that he had immortalized as plaster casts and writing scientific articles. Al's most recent article was published just a few months ago.

During their almost 60 years of marriage, Al and Thelma were fortunate to become close friends with many wonderful people who lived around the world, in Chicago, and near The Farm. Al valued these friendships very much and Thelma still does. The support of family and friends at this time of transition has been great and is very much appreciated.

Richard M.S. Taylor (1903-1992)

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The association's only New Zealand member, Richard M.S. Taylor, died in his 89th year, on August 30, 1992. His major contributions to dental anthropology spanned a period of more than 50 years. His last work, published in Auckland, was completed at the age of 87. It earned his second degree of Doctor of Science, conferred just a few months before his death.

Richard Morris Stovin Taylor was born in 1903 Wanganui, 100 miles north of Wellington, New Zealand. He was the great-great grandson of Reverend R.M.S. Taylor, the C.M.S. missionary who transcribed the principal copy of New Zealand's Treaty of Waitangi in 1840. Educated at Wanganui Collegiate School and then at the University of Otago, he graduated B.D.S. in 1926. He was awarded a research scholarship which he took up in 1928 in the Department of Anatomy at Otago University. He commenced a study of the human palate using both conventional, point-to-point measurements and the more sophisticated coordinate geometry possible with the newly developed Reserve Craniostat which W.P. Gowland, the Professor of Anatomy, had purchased from Western Reserve University while on leave. This study took six years part-time, and in 1934 Richard Taylor received the degree of Doctor of Dental Surgery.

As part of his research, he studied casts of the fragments and reconstruction of the Piltown find. He became doubtful of the details of the reconstruction and at the January, 1937, meeting of the Australian and New Zealand Association for the Advancement of Science (ANZAAS) in Auckland, he presented a paper demonstrating clearly on morphological grounds that the canine was an upper left and not a lower right as in the reconstruction. More importantly, he showed that the setting of the teeth was incompatible with the wear patterns, and that no plausible antecedent occlusion could have existed in the individual. He was one of the first to seriously challenge the status of Piltown with verifiable evidence. It was a regret to many that the intervention of World War II prevented due recognition of his work. His D.D.S. thesis on the palate was critically re-evaluated and published in 1962 as a supplement to *Acta Anatomica*.

The demands of earning a living, marriage to Irene (Rene) Rhodes in 1935, and family (Diana and Michael) saw Richard employed first in the School of Dental Service in Wellington, Hamilton, and Auckland (1930-1948), and then in private practice in Auckland. There was little time for research but foundations were laid. Throughout his practice Richard collected extracted teeth. In 1946 and again in 1969, as a member of anthropological groups, he studied the dentition of native Australians, traveling extensively through central Australia and Queensland. In 1964 at the age of 69, Richard chose to retire from full-time employment and turn to full-time research. He established associations first with the department of Zoology

and then with the Department of Anatomy at University of Auckland. He worked at his researches essentially on his own with some financial support, especially from the New Zealand Dental Research Foundation, for almost 30 years. Along with a variety of smaller studies, he concentrated on two topics: morphological variation in teeth and tooth dislocation.

In his study of the palate Richard wrote: "expressing results by the maximum, minimum, and mean values cannot alone convey a true idea of variations." He took up this issue in detail as a first cause. Using his vast collection of teeth, he meticulously recorded tooth shapes by *camera lucida*. His findings were brought together in a monograph, *Variation in Morphology of Teeth*, published in 1978 by Charles Thomas. This work was submitted for the degree of Doctor of Science at the University of Auckland. The degree was conferred in 1980. In 1986, a similar account of deciduous molar variation was published in *Human Biology*: 58.

Richard Taylor then took up again a longtime interest in the dislocation of first molar teeth. His meticulous study on dislocation in Maoris had been published in 1963. He now extended this and completed a similar study of first molar dislocation in Australian Aborigines. The publication of this work was hindered by concerns about publication in Australia of photographs of aboriginal skeletal remains. The work was finally published by the department of Anatomy and the New Zealand Dental Research Foundation. In the meantime, the work had been submitted for the degree of Doctor of Science at the University of Otago. The degree was conferred in 1992.

In addition to these major studies, Richard Taylor participated in numerous carefully argued discussions on a wide variety of dental issues. These embodied a breadth of interest and a determination to use direct observation followed by careful argument. These qualities were the hallmarks of Richard Taylor, and they expressed his total devotion to meticulous research. In a time, after his retirement, when experimental biology had loomed large, his painstaking observation and recording of detail and its considered use to develop an hypothesis—or to show good cause to doubt one—was an inspiration to many of us in the Anatomy Department and to many others. We do have his outstanding skeletal collections, which were left to us in trust, and many of his personal papers as a constant reminder of a quietly determined and gifted researcher. His membership in the Dental Anthropology Association was a very tangible expression of the universality of his life-interest in dental anthropology.

Etruscan Teeth and Odontology

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ABSTRACT The results of a paleopathological examination of the teeth and supporting structures of a 4th through 2nd century BC Etruscan sample of 119 crania from central Italy reveals a relatively low incidence of caries (27.7%) and high frequencies of ante-mortem tooth loss (49.6%) and alveolar bone infection (27.7%). The mandibular anterior teeth of one individual were partially covered with a gold strip. The function of this strip may have been ornamental or possibly odontotechnical to cover a diastema which resulted from ante-mortem loss. Previous studies have shown that the Etruscans were renowned for their skill in odontotherapy.

INTRODUCTION

The Etruscans lived in central Italy, especially in Tuscany, between the 9th and 2nd centuries BC. They developed a major civilization which attained very high levels of artistic and technological achievement. The cultural aspects of this pre-Roman population are well known. Unfortunately, the paleobiological aspects of these peoples have been less studied.

We believe that the Etruscans were a biologically homogeneous population. According to Barnicot and Brothwell (1959) Etruscans may have been "a clearly differentiated physical group." For example, anthropometric studies of skeletal samples have demonstrated a substantial and significant uniformity in the distribution of the cranial index (Pardini and Bassi, 1975). Only a few anthropometric differences were found in comparisons of Etruscan groups of different geographic origin. For example, coastal region Etruscans (Tarquinia, Luni, Orbetello, Populonia) exhibit a higher skull than inland Etruscans (Chiusi, Chianciano, Volterra) (Pardini and Bassi, 1975). However, from a paleopathological perspective, we lack a detailed study of individual Etruscan diseases and their epidemiology.

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MATERIALS

A paleopathological study of a large Etruscan sample from the National Museum of Anthropology of Florence University was recently carried out. The sample consists of 119 crania (M=74, F=45) from individuals between 25-50 years of age. Most crania were recovered from graves near Chiusi in Tuscany and date between the 4th and 2nd centuries BC (Etruscans of the Late Epoch). The preliminary results of this study include a detailed analysis of their dental pathology (Capasso, 1987; and below).

DISEASES AND ANOMALIES OF THE TEETH AND JAWS

Dental agenesis is present in 8.4% of the individuals studied and affects only third molars. Dysodontiasis (delayed eruption) is rare, with only 3.3% of the subjects affected. Inclusion is seen in 5.9% of the individuals and involves only molar teeth (2.6% of all molars are unerupted).

Malposition of at least one tooth affects 8.4% of the individuals and 1.25% of all the teeth examined. This percentage is low, and suggests that tooth decay in childhood was rare. Caries of deciduous teeth can lead to early tooth loss, which in turn may lead to a reduction in the space reserved for eruption of the corresponding permanent teeth and subsequent permanent tooth rotation or shift.

Anomalies in tooth size (microdontia and macrodontia) are found in both the third molars and lateral incisors, and affect 5% of the Etruscan sample studied. Dental calculus is present in 16 individuals, with a 13.4% frequency of occurrence.

Dental caries, which are frequent (>80%) throughout present-day Italy, occur in just 27.7% of the Etruscan individuals. Only 6.6% of all teeth (95 out of 1430) are affected by dental caries. The teeth most commonly affected are first molars, followed in frequency of occurrence by third and second molars (Fig. 1). Only two decayed teeth (less than 2%) are incisors. The low frequency of caries is common in all archaic populations and may represent a diet rich in fiber, which is difficult to chew. The result is efficient tooth cleansing and reduction of the surface on which the cariogenic oral flora can develop.

Evidence of teeth lost *in vitam* (ante-mortem) is seen in only 12.25% of the 2,072 alveoli studied. About one half of the sample (49.6%) lost at least one tooth before death (Capasso, 1984).

The frequency of teeth lost ante-mortem decreases regularly from the back to the front of the dental arch. The most affected tooth is the third molar; the least affected is the lateral incisor. About 5% of all central incisors (Fig. 1) were lost ante-mortem. These central incisors lacked dental caries, and were affected only marginally by severe attrition. Therefore, trauma may have been a contributing factor to this loss.

The most common cause of all tooth loss was probably extreme dental wear related to the abrasive quality of the diet. In fact, ante-mortem tooth loss (59 individuals) was found together with serious dental wear (degrees 5-8 of Molnar, 1980) in 34 individuals, and with carious teeth in 30 individuals.

Tooth decay possibly played an important role in introducing germs into the apical paradont, and in causing some osteomyelitis localized in the maxillary bones (apical granulomas). Apical granulomas are present in 27% of the alveoli and in 27.7% of the individuals. About two-thirds of the cases are concentrated around molar roots. Indeed, these inflammatory lesions are more often found in association with dental caries (57.6% of the individuals) than with serious dental attrition (54.6%). This proposal is supported by the fact that the location of the apical granulomas within the dental arches closely follows the topographical distribution of dental caries (Fig. 1).

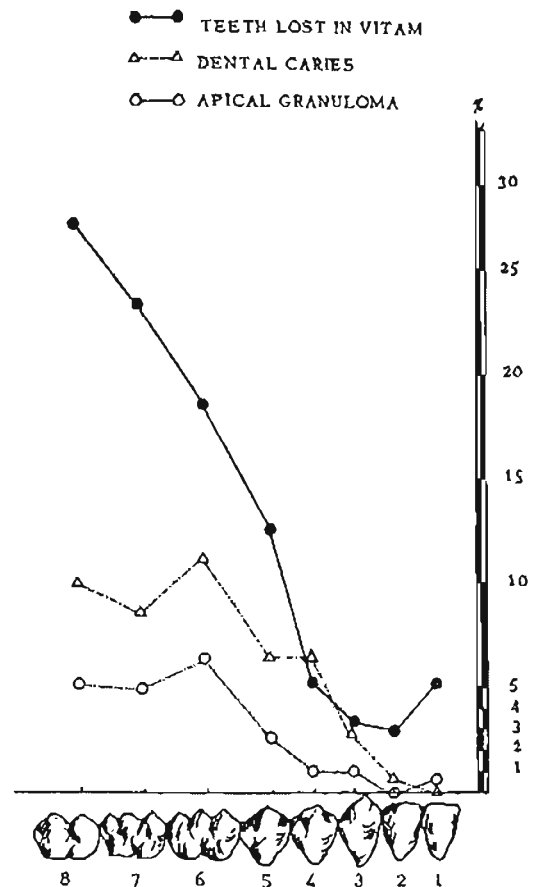


Fig. 1. Graph showing percent of teeth lost *in vitam*, caries, and apical granulomas by tooth in the Etruscan sample.

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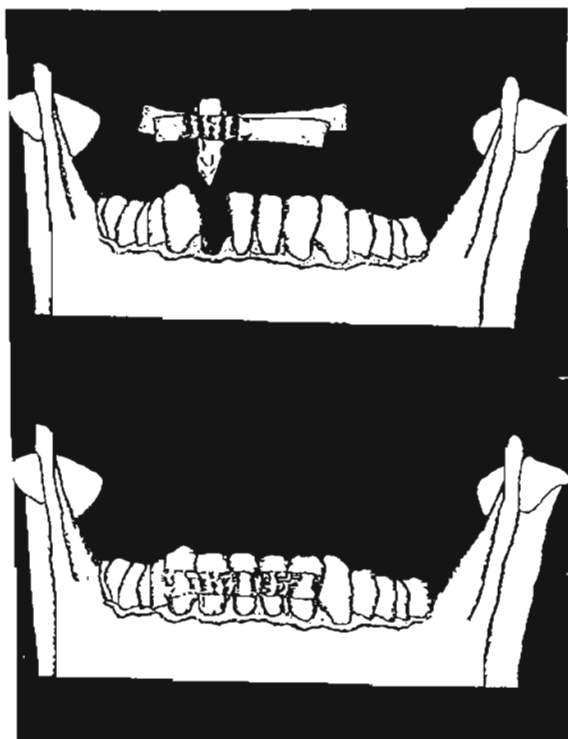


Fig. 2. Illustration of Etruscan fixed prostheses.

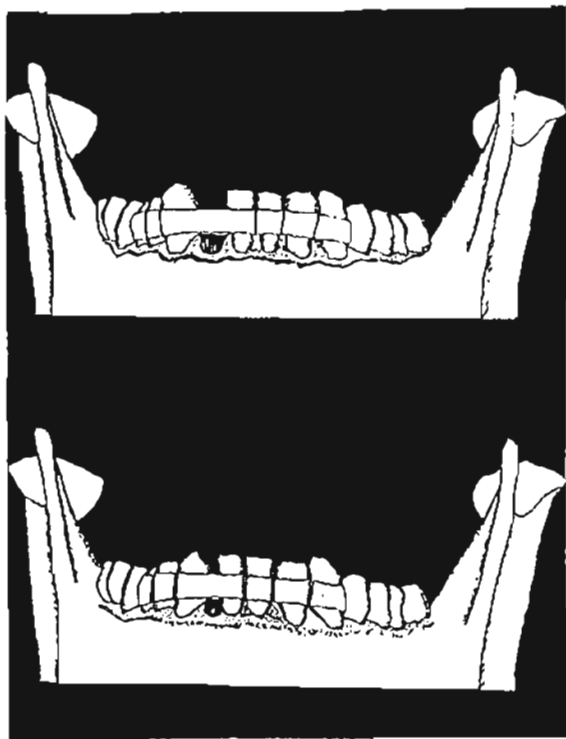


Fig. 3. Illustration of the possible therapeutic function of the gold strip for reduction of the ante-mortem diastema.

These dental data permit us to calculate the "dental lesion absolute index" of Bisel (1980), which in our sample is 18.5. The value of this index, along with the epidemiological and topographical information presented here, allows us to state that the dental health of the Etruscan sample apparently represents an "archaic character" of nutrition. The low incidence of caries and severe dental wear suggests a low carbohydrate and high fiber diet.

GOLD DENTAL STRIP

During our study we examined a vast amount of osteological and odontological material from different Etruscan tombs, some of which are well-known for the high quality and quantity of their funerary objects. For this reason, we hoped to identify some traces of the famous fixed dental prostheses that Etruscans are known to have made with both human and artificial teeth (Weiss, 1989). In these prostheses, the replacement teeth were often fixed to gold strips which served to attach the device to sound teeth adjacent to the diastema (Fig. 2).

In a lower jaw from Pieve (near Perugia) we did find a number of teeth covered with gold. Pale gold leaf covered the teeth on both the lingual and buccal sides. At first, we thought this gold strip was ornamental. However, a more exhaustive examination revealed that the gold leaf covered a group of teeth, one of which had been lost ante-mortem.

The specimen (No. 11782) is a skull from a female, about 16 years of age (Corruccini and Peccieni, 1992). The gold strip and the mandible around the symphysis are broken, and accurate analysis of the relationship between the teeth and strip is difficult. This damage occurred during a flood which damaged collections in the Archaeological Museum of Florence. Nevertheless, it can be seen that the gold strip covers all teeth between the lower first left premolar and the second right premolar. The lower left canine is missing, and the corresponding alveolus is nearly resorbed (Fig. 3).

The gold band may have had an ornamental purpose and we cannot decide whether it had been applied before or after the individual's death. Additionally, whether the absent tooth was lost antemortem or was never present (agenesis) is difficult to assess. However, the fact that the missing tooth is a canine makes the possibility of agenesis seem questionable.

The probability of a relationship between the absent anterior tooth and the gold strip appears quite likely. The strip may have been attached to the tooth surfaces with bindings which are now missing because they were either made of a decomposable material or were very thin. The strip passed through the spaces between the teeth with the aim of bringing the lingual gold leaf closer to the buccal one. In this way, the band could be used to keep all teeth

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next to the lost tooth in tension. Initially, this device may have been employed only on the teeth closest to the missing one. However, more teeth eventually may have been included within the gold band. In this way, teeth on both sides of the missing tooth underwent mechanical stress, resulting in continuous remodelling of the alveolar bone. Thus, shifting of teeth adjacent to the lost one may have occurred until the diastema closed.

This is a plausible, although difficult to prove, hypothesis. Etruscan dentists performed orthodontic interventions with provisional equipment. Yet, the orthodontic function of the gold strip is possible if we consider the technological level that the Etruscans reached. The gold strip may have been left on the teeth as an ornament after its potential mechanical function was completed. Thus, a therapeutic function may have been associated with an aesthetic one, which perhaps was related to the use of gold as a feminine ornament.

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What Are Mulberry Molars?

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In 1987 Jacqueline A. Turner and I spent five months collecting dental and other anthropological data in six institutions, laboratories, and museums in Moscow, St. Petersburg, and Novosibirsk, Russia; and Tallinn, Estonia. At the Institute of Ethnography in St. Petersburg, we studied several skeletal series. One of these, a series of 145 historic Russians, was especially noteworthy because of the presence of numerous dental and osteological pathologies and anomalies, including what appeared to be extensive syphilis. The series had been excavated during the 1950's by the late Academician Valeri Alekseev (1969) from a presumed Russian Orthodox cemetery located inside Sebezh, Russia, a city south of Pskov near the Latvian border. Mortuary offerings of datable coins suggest that the cemetery had been in use during the 18th century—at least 200 years after syphilis was supposed to have been introduced to Europe from the Americas.

Figures 1-A, 1-B, and 1-C illustrate the severely malformed first permanent molars, and slightly hypoplastic deciduous second molars of a six to seven year-old Sebezh child. Figure 1-D shows one of the adult crania, several of which had marked syphilitic lesions.

The occlusal surfaces of the child's permanent molars possess numerous supernumerary ridges and *cusps*. Deep furrows are associated with the supernumerary ridges, and pitting occurs on the cusps. Some of this extra pitting can be seen on the deciduous second molars (Figs. 1-A, 1-B, 1-C). The unerupted second permanent molars also appear to be hypoplastic, but to a lesser degree than are the deciduous teeth.

The hypoplasia probably exposed the deciduous molars to increased risk of caries because of the pitting and uneven enamel formation. The mandibular left deciduous molar has occlusal and buccal surface caries (Fig. 1-A). The mandibular right deciduous tooth also appears to be carious in the deep occlusal furrows (Fig. 1-B). There are no caries on the permanent molars because they had erupted only a few months before death. The mandibular left permanent molar has only one cusp tip (cusp 1, protoconid) with any exposed dentine. Calculus deposits are extensive, as can be seen on the maxillary right deciduous molar (Fig. 1-C).

Massler and Schour (1952:plate 16), in their discussion of teeth with congenital syphilis, note that the disease can affect only the teeth developing during neonatal and early infancy periods. "Therefore, the permanent incisors, cuspids and first molars, which are at the stage of *morphodifferentiation* at the time of the [infection] show a disturbance in *tooth form*; the deciduous teeth, which are active in the *formation of enamel* and dentine show *hypoplastic defects*, but no effects upon *tooth form*; whereas the bicuspid and

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permanent second and third molars, which are still in the bud stage, are usually not affected at all." Although the incisors are missing from the specimens illustrated in Figs. 1-A, 1-B, and 1-C, the deciduous and permanent molar condition matches Massler and Shour's developmental description.

Inasmuch as several of the adult crania (post-cranial bones were unavailable for study) exhibited what looked like advanced stages of syphilis, the question in my mind is: should the child's molar teeth illustrated in Figs. 1-A, 1-B, and 1-C be considered as mulberry or syphilitic molars?



Fig. 1. A. Left mandibular molars of Sebez child 6536-122 showing marked developmental anomalies of the occlusal surface (CGT neg. no. 35/4-2-87). B. Right side of same individual in Fig. 1 showing similar amount of occlusal hypoplasia (CGT neg. no. 34/4-2-87). C. Right maxillary molars of Fig. 1 individual (CGT neg. no. 32/4-2-87). D. Adult male (?) 6536-47 Sebez Russian cranium with advanced syphilitic lesions (CGT neg. no. 13/4-2-87)

I raise this question for two reasons. First, I have never personally seen or handled a documented example of a mulberry molar or a Hutchinson's incisor, both of which are said to be caused by congenital syphilis (Sarnat and Shaw, 1942; Massler and Schour, 1952). Therefore, I am unsure what these pathologies look like. Second, I have not seen the combination of adult osteological and childhood dental pathology, illustrated in Figs. 1-A, 1-B, 1-C, and 1-D (which together in a population suggest the active presence of the syphilis bacterium, *Treponema pallidum*) in any series of prehistoric crania of the New World. Many workers feel that syphilis originated in the New World. The evidence for this view is reviewed by Baker and Armelagos (1988) and Merbs (1992).

My questions to readers of the *Dental Anthropology Newsletter* are: Are the teeth illustrated in Figs. 1-A, 1-B, and 1-C examples of mulberry molars caused by congenial syphilis? Has anyone seen this combination of cranial lesions and severely hypoplastic molars within or among individuals belonging to a prehistoric skeletal population from the New World?

ACKNOWLEDGEMENTS

Permission to study and photograph specimens at the Museum of Ethnography was granted by I.I. Gokhman. Much appreciated help was granted by A.P. Kozintsev. Travel funds were provided by the U.S. National Academy of Sciences in cooperation with the former U.S.S.R. Academy of Sciences.

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Report: Presence of a Connate Tooth in a Neonatal Chimpanzee

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While dissecting the developing teeth from a neonatal chimpanzee, we recently found an example of a dichotomous lower tooth (connate tooth, per Miles and Grigson, 1990) comprised of the left di_1 and di_2 . As seen in Figure 1, merger between the crowns appears to have occurred between the lateral border of di_1 and the medial border of di_2 . The crown is complete in both with root development commenced in both central and lateral parts of the tooth. However, there is a differential in root development between medial and lateral tooth components suggesting that although merged, each component retains somewhat separate developmental parameters.

Miles and Grigson (1990) provide several examples of connate teeth including a photograph (Figure 3.9, p. 27) of one in the position of the I_2 in an adult chimpanzee. The crown of this tooth, like the one reported here, is separated only along the incisive border with the remainder of the crown combined in a single unit. Our tooth differs, however, in being a connate deciduous tooth representing combined deciduous teeth rather than a permanent connate tooth in the position of a single tooth. Ooe (1972) citing the work of others (Euler, 1939; Thoma, 1960) notes that connate teeth are more likely to appear in the deciduous dentition, most commonly involving the lower incisors as seen here (Hachisuga, 1938; Ito, 1939; Saito, 1959; Yuasa, 1944).

Two mechanisms have been hypothesized to explain connate teeth (Miles and Grigson, 1990): 1) they represent fused or joined tooth buds as a result of development in crowded space; or 2) they are the result of partial or incomplete splitting (dichotomy) or separation of tooth primordia during early stages of development. Research has provided support for both theories. For instance, Sofaer's work (1969) with mice appears to support crowding, hence fusion, whereas Ooe's work (1972) on humans provides evidence supporting the incomplete separation or dichotomy theory. Berkovitz et al. (1973) have found evidence in their work with ferrets to support the occurrence of both mechanisms. Based on the accumulation of evidence implicating both mechanisms in the development of connate teeth, Miles and Grigson (1990, pg. 9) conclude that "not all connate teeth arise in the same way." In our opinion, studies such as those of Ooe (1972) and Berkovitz et al. (1973) on the early stages of development are crucial to identifying the correct mechanisms.

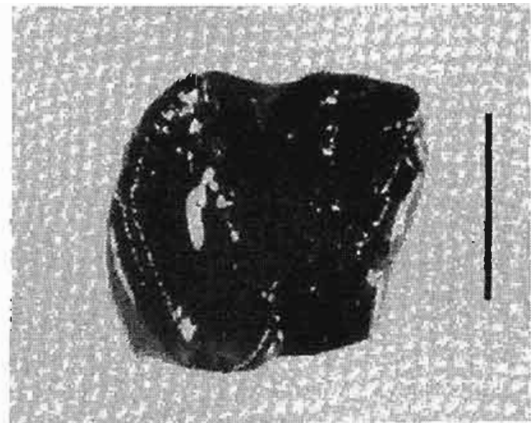


Figure 1. A lingual view of a connate deciduous incisor (combined left di_1 and di_2) in a newborn female chimpanzee (Yerkes specimen 87-159, property of D.R.Swindler). Scale = .5 cm. (Copyright L.A. Winkler)

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CONNATE TOOTH IN A NEONATAL CHIMPANZEE

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Periodontal Disease: Clinician's Point of View

PHILLIP COOKE

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I have read with interest and some confusion the thoughts of Clark (1993). I understand that he believes that localized periodontal disease originates in the tooth (pp. 2,3).

The view taught in American dental schools today is that, although periodontal disease is bacterial in origin, the bacterial invasion is presented from outside the tooth in the oral environment, and not the opposite (La Zare, 1967; Glickman, 1974; Klavan, et al., 1977; Schluger, et al., 1978; and Grant, et al., 1979). Let me briefly describe the prevailing view of periodontal disease as I explain it to my patients:

Mrs. Jones, I notice that you have bleeding gums. This is evidence of a very common infection called gingivitis. Eighty percent of our population has this gum disease. It is caused by germs floating in every person's saliva. These germs form a colony called plaque which is attached to the teeth and gums. If plaque is allowed to remain on your teeth and gums, the germs produce damaging acid which causes the gums to become inflamed and bleed. As time passes, the damage progresses and the supporting bone begins to melt away from the surrounding teeth. Dentists call this stage of infection periodontitis. The condition of periodontitis is treated by removal of the bacterial invaders and deposits from the surface of the teeth and exposed root surfaces.

If localized periodontitis were caused by disease of the tooth, then we should see many more aching teeth. Indeed, we often treat periodontal disease and see no pupal problems at all.

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News of Dental Anthropology Association Members

M. Yasar Iscan, Florida Atlantic University, organized two symposia on skeletal biology (with **Susan Loth**, Florida Atlantic University) and forensic anthropology (**Erksin Gulec**, University of Ankara) and presented two papers at the International Congress of Anthropological and Ethnological Sciences, held in Mexico City, Mexico. **Christy G. Turner**, **Antonia Marcsik**, and **Alexander Zubov** also participated in the congress.

On September 8, **Iscan** also presented the opening lecture "Forensic Anthropology" at the Italian Anthropological Society meeting held in Pisa. Two weeks earlier, from August 22-28, **Iscan** served as the invited chairman of a special symposium on Craniofacial Identification at the International Association of Forensic Sciences Meeting, Dusseldorf, Germany. At that meeting he presented papers, one of which dealt with the comparison of human face in photographs.

Iscan and R. Helmer are editors of a new book which should be available from John Wiley and Sons, New York, in mid-October. Entitled *Forensic Analysis of the Skull: Craniofacial Analysis, Reconstruction*

NEWS OF DENTAL ANTHROPOLOGY ASSOCIATION MEMBERS

and Identification, the book includes many technical articles which have been divided into sections on facial morphology and photographic comparison, cranial analysis, skull-photo superimposition, and facial reconstruction.

John R. Lukacs (University of Oregon) was awarded a National Geographic Society research grant to investigate skeletal indicators of dietary and subsistence related diseases among the Mesolithic people of north central India. A primary focus of this work is the comparison of prior conclusions derived from studies of dental health (to be reported in *Current Anthropology* in December 1993) with conclusions derived from the study of skeletal markers of diet and disease.

During the past summer, the University of Oregon Physical Anthropology Laboratory continued work on three research projects: 1) Dental Anthropology of the Prehistoric Guanches of the Canary Islands Project (computer entry and verification of data for pathological, morphological, and odontometric information collected by Lukacs in 1991 at the Museo Arqueologico de Tenerife in Santa Cruz de Tenerife); 2) Patterning of Linear Enamel Hypoplasia by Gender among the Castes and Tribes of India and the Degree with Which Variation in Linear Enamel Hypoplasia Prevalence Might Reflect the Socio-cultural Practice of 'Son Preference' and 'Daughter Neglect' (data analysis phase); 3) Odontometry of Tribes and Castes of Central India (final stage of data collection phase). This work constitutes the third regional odontometric analysis of the tribes and castes of India undertaken by **Lukacs** and **Brian Hemphill** (University of Oregon Ph.D. 1991). Previous studies on tooth apportionment in northwest India (*Human Biology*, April 1993) and in southeastern India (in *Culture, Ecology and Dental Anthropology*, ed. Lukacs) show different degrees of assimilation of tribes into the Hindu caste structure.

Hemphill, whose research includes odontometric variation among both contemporary and prehistoric people of India, is presently assistant professor of anthropology at Vanderbilt University.

Robert F. Pastor (University of Oregon, Ph.D. 1993) (see *Recent Publications*) has begun working on a post-doctoral position at Johns Hopkins University, Department of Cell Biology and Anatomy. He is working with Mark Teaford on the howler monkey and other projects.

Three DAA members, all affiliated with Arizona State University, participated in the Sixty-Sixth Anniversary Pecos Conference held in Casa Malpais National Historical Landmark, Springerville, Arizona. **Andrea Buck** presented "A Preliminary Report of the Skeletal Analysis of Site AZ Q:15:1 (ASM), Eagar, Arizona." **T. Michael Fink** gave a paper: "Vector-Borne and Zoonotic Disease Program of the Arizona State Department of Health Services." **Joel D. Irish** chaired one of the sessions which dealt with the Mogollon Region.

Irish, an Arizona State University Ph.D. 1993, is Assistant Principal Investigator and Archaeologist with the Cultural Resource Group, Louis Berger and Associates, Inc., Phoenix, Arizona. He has also been named adjunct faculty of the Department of Anthropology at Arizona State.

Donald Tyler (University of Idaho), while doing survey work near Sangiran in central Java, was approached by workers who had found a fossilized skull. According to Tyler, the skull is "the most complete *Homo erectus* skull ever found in Java." Tyler thinks that the individual was female, had a cranial capacity of 813 to 1280 cc., and lived about 1.4 million years ago. The skull is presently in the Institute of Technology, Bandung, Indonesia.

One of the isolated molar teeth from the site of St. Cesaire (Charente, France) is on a brief visit to Philadelphia so that its cracked enamel can be scanned on the University Museum's SEM. The data from the scan will be included in the description of the dentition of this late Neandertal currently being prepared by **Bernard Vandermeersch**, Universite de Bordeaux, and **Alan Mann**, University of Pennsylvania.

Bones of a human male about 35 to 45 years old found in a Colorado Mountain cave have been dated at over 8,000 years old, according to Patty Jo Watson, Washington University archaeologist. The cave's location has not been revealed, and the bones have been returned to the Southern Ute Tribe which lives there. Analysis of the skeleton is the subject of study of members of a multi-disciplinary team under **Watson**. Working on the physical anthropological aspect of the study are **Charles Hildebolt** and **Tab Rasmussen**, Washington University, St. Louis; **Sam Stout**, University of Missouri, Columbia; and **A.M. Haeussler**, Arizona State University.

Hildebolt has also received a 4-year grant from the National Institute of Health and the National Institute of Dental Research. The project is entitled, Alveolar vs. Postcranial Bone Loss After Menopause. The specific aims of the study are to: 1) quantify the rate of periodontal alveolar bone loss in postmenopausal women; 2) evaluate effects of estrogen therapy on the rate of periodontal alveolar bone loss; and

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3) determine how changes in periodontal bone mass relate to bone mass changes in other skeletal sites. **Michael Shrout**, School of Dentistry, Medical College of Georgia, is a collaborator on the grant.

In April, **Haeussler** gave a paper on early Neolithic burials of northeastern Asia at the international symposium, Archaeology of Northern Pacifica. Sponsored by the Institute of History, Archaeology, and Ethnography of Nations of the Far East, Far Eastern Division of the Russian Academy of Sciences, the symposium took place in Vladivostok, Russia. While in Vladivostok, Haeussler was a guest of the Department of Archaeology of Far East State University and examined several skeletal collections, including materials from the recently excavated Neolithic site of Boisman II.

Alan Goodman, Hampshire College, has collected a substantial number of exfoliated deciduous teeth from children in a semi-urban community in the Nile Delta, Egypt, and in a rural valley in highland Mexico. Financial assistance has been provided through a grant from The National Institute of Health. According to Goodman, the greatest value of these teeth is the excellent documentation of the socioeconomic status, nutritional intake, and health of the mothers and infants for the time of tooth development. A sub-sample of the teeth are now being studied for developmental enamel defects through light microscopy of thin section. Goodman would like to pursue ideas and potential collaboration in the further use of these teeth, especially for studies of developmental disruption, dietary chemistry, pollutant chemistry, possible DNA extraction, and the like. Anyone interested should contact Goodman at the address found in the membership list printed in this issue.

Amy Alpin and **Cathy Willermet** (Arizona State University) received Master of Arts degrees in anthropology (see *Recent Publications*). Willermet also organized a series of symposia on the subject, "Debate on Modern Human Origins: A Scientific Tug of War", in conjunction with a museum exhibition which she prepared for the Department of Anthropology at Arizona State. DAA members **Christy Turner** and **Milford Wolpoff** participated as invited speakers.

Diane Hawkey, Arizona State University, left for India on October 3, 1993. Hawkey was awarded a 1993-94 fellowship from the American Institute of Indian Studies, Chicago, to do fieldwork on her dissertation: "Peopling of South Asia: Dental Evidence for the Origins and Affinities of Late Pleistocene/Holocene Populations of India and Sri Lanka."

According to **Charles S. Mandell**, members will be interested in a recent article by Atilla (*American Journal of Implantology* 19(2)) on a tooth implant found in a sixth century BC Anatolia specimen. Mandell also asks that members, who have information pertaining to implantology as it relates to anthropology, send articles to him at the address in the membership list. Mandell will forward them to the American Academy of Implant Dentistry Journal or the International College of Oral Implantology Journal so that they can be published in implantology newsletters.

Membership Dues

JOEL D. IRISH, DAA Secretary-Treasurer

The 1994 Dental Anthropology Association dues must be submitted by **December 31, 1993**. If a '(***)' or '(1993)' follows your name on this issue's mailing address, please send \$5.00 (Student) or \$10.00 (Regular) in U.S. currency for continued membership. A membership blank has been included in the envelope containing the newsletter. I would appreciate your adding new information, such as Email addresses, so that I can update the membership list.

In the past, we have mailed the DAN newsletter to inactive (non-paying) members. However, due to high publication costs, we have discontinued this practice.

Regarding foreign members, I would like to encourage all members to remit extra cash to help in sponsorship. We have many requests for sponsorship from dental researchers in eastern Europe, Africa, India, and elsewhere where currency restrictions and limitations exist. The high cost of overseas postage, in addition to extra DAN production costs, makes DAA sponsorship increasingly more expensive. Therefore, your generosity is greatly needed. Thanks go to the many current members who have sponsored one or more foreign members in the past, and to the Department of Anthropology at Arizona State University for providing bulk mailing to members in the United States.

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If you have any questions or comments regarding membership, please contact me by mail, Email at DENTANTH@ASUACAD, or telephone at (602)965-0158.

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1. Style Guidelines: Text style is that used by *American Journal of Physical Anthropology*, as much as is practical for a newsletter.
 - A. Short articles do not need a title page, key words, or abstract.
 - B. Citation, bibliography, and metric abbreviation styles will follow those used by *American Journal of Physical Anthropology*. Journal titles should be abbreviated following those in *Index Medicus*. The regular feature, *Recent Publications*, will contain unabbreviated citations.
 - C. The newsletter can publish line illustrations and black and white photographs. Photograph size should not exceed 3½ by 5 inches.
2. Manuscript: Contributors are asked (but not required) to send their manuscripts on diskette or by E-mail (AGAMH@ASUACAD). For diskettes, IBM format is preferred, but others are accepted. Diskettes should be labeled with the name of the file, the type of format, and , the word processing program. The newsletter uses IBM format and *Word Perfect 5.1*.
3. Publication dates and deadlines: Volume 8 of the *Dental Anthropology Newsletter* will be published in October, January, and May. Manuscripts received by the fifteenth of the month prior to the first of January and May will be considered for that issue. Manuscripts received after that date may be saved for a future issue.
4. The newsletter is not copyrighted. Please give citations to authors and the newsletter when using information published in the newsletter.

January issue of the *Dental Anthropology Newsletter*

The January issue will be a tribute to Albert A. Dahlberg. Individuals planning to contribute to the issue are asked to inform the newsletter of their intention by October 31 and to submit the material by December 15, 1993.

Recent Publications

- Alt KW, and Kockapan C (1993) Artificial tooth-neck grooving in living and prehistoric populations. *Homo* 44(1):5-29.
- Arriaza BT (1993) Seronegative spondyloarthropathies and diffuse idiopathic skeletal hyperostosis in ancient northern Chile. *American Journal of Physical Anthropology* 91:263-278.
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Theses

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The Dental Anthropology Newsletter
Volume 8, Number 1 October 1993

Publication of the Dental Anthropology Association
Published three times yearly

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