one of the most readable, award-winning dental magazines in America, comes to you, doctor, as a professional courtesy of your Ticonium Laboratory.
artists, writers, professional football and baseball players, golfers, actors, restaurateurs—and now there’s Dr. Monte Lamb of Las Vegas, who is a performer in the rodeo circuit. . . . The Foundation of the Greater St. Louis Dental Society has constructed a unique building in Missouri. It is a “dental theater” where patrons will be able to sit in the audience and learn about the principles of good health care. The staging is interesting and highly dramatic as the audience is elevated to a height make up the cast. . . . If you’re thinking of retiring you had best find some work to keep you active and interested, at least that’s the advice given in a study by the Soviet Institute of Gerontology. They claim that “work is an invaluable remedy against premature old age.” They also cite the effects of “pension illness”—the quick deterioration suffered by some older people when they retire. Other ways to fight premature aging is to be married, have children, live in high altitudes, eat moderately, drink water—once again silence isn’t golden—talk a great deal. . . . In conclusion: “Whatever a man’s profession is, the better he becomes at that, the more he becomes a person.”—William Saroyan

EENY, MEENY, etc.

There are so many opposing opinions to confuse us, both in medicine and dentistry, that it’s discouraging to find yet another set of differences. The use of either hot or cold compresses for a swelling has been a standing joke for many years. Some men favor heat while just as many seem to favor cold. There is even a story about the subject that goes something like this:

A patient with a swollen knee goes to the physician and the doctor asks, “What have you been putting on your knee?”

“Cold compresses,” says the patient.

“You should use hot compresses,” replies the physician. “Who told you to use cold?”

“My maid,” answers the patient.

“Maybe so,” says the physician, “but my maid recommends heat.”

For years now we have heard that not only does an apple a day keep the doctor away, but that apples are excellent for cleaning the teeth and gingival tissue. In fact, Dr. Loren Tukey of Pennsylvania State University says that not only are apples good tooth and gum cleaners but that the juice leaves an alkaline residue that is helpful in fighting colds, virus infections, and even hangovers. For apple growers and apple eaters that sounds just fine and bears out the old adage about keeping the doctor away. However, about the same time, the British Medical Journal did a study on the ingesting of this fruit that makes the first theory sound like so much applesauce.

In an editorial, “Nature’s Toothbrush Reappraised,” an opposite opinion is voiced. The writer claims that apples have some small cleaning effect but that the plaque between the teeth and the gingival margin is not removed, and that apples not only contain sugar but also very acid. Furthermore, it is said that “those distinct fail in plaque pH after they are eaten suggest that they are not without hazard to the teeth.” Finally, the editorial states that the eating of apples when the pH is already low after the consumption of a sugary food does not lead to a protective rise in pH. So maybe Eve knew why the fruit was forbidden.

What then do they recommend as a good in-between snack or after-dinner tidbit? Well, the British investigators, who have no interest whatsoever in President Carter’s personal business, recommend peanuts. Now, not so long ago we read something about the possible danger of peanuts as a carcinogen—oh, well, eee, meee, etc.

(Continued from Page 7)


April 1978 Vol. XXXVII No. 4

Contents

PRESIDENTIAL DENTISTRY

AMERICA'S NO. 1 DENTAL PATIENT—AND HIS DENTIST

An exclusive report on dentistry of the White House, where preventive care is the rule.

DENTAL ANTHROPOLOGISTS UNLOCK SECRETS OF PREHISTORIC PAST

Introduction to a new field. An important, and interesting, contribution to dental history.

HOw TO BREAK THE COMMUNICATIONS GAP

Simply and effectively. An authority spells it out.

PREVENTIVE PERIODONTICS

A periodontist discusses undercleaning, overcleaning, surgery, and other factors.

EVOLUTION OF ANTISETIC SURGERY

You will like this. A concise, absorbing account.

U.S. DIETARY TRENDS AND IMPLICATIONS

Nutrition news for health professionals, including dentists, of course.

ANGLES AND IMPRESSIONS

Dental advertising, enzymes and apples as tooth cleaners—and a lot more.

American's No. 1 Dental Patient—And His Dentist

For 13 years, his duties as a Navy dentist took him across the globe.

In the 14th, they stopped at the White House. Since that day in 1975, when he accepted an invitation for an interview, William H. Maastricht has been “Dentist to the President of the United States.”

Like any responsibility that attends to the care of the President, its duties are awesome, so that the American Presidency is the most visible seat of power in the world and all that is associated with it becomes of prime public concern.

In 1977, when he accepted an invitation for an interview, William H. Maastricht has been “Dentist to the President of the United States.”

Like any responsibility that attends to the care of the President, its duties are awesome, so that the American Presidency is the most visible seat of power in the world and all that is associated with it becomes of prime public concern.

It is the President’s response and involvement in good oral health care that most impresses Commander Maastricht, who has had the good fortune to serve as dentist to two Presidents—President Gerald Ford before President Carter—who were conscientious in the attention and action they took on behalf of good oral health.

The smile that Commander Maastricht finds as epitomizing the best of oral care was the butt of many political cartoons during the Presidential campaign and, occasionally, still emerges as the dominant physical characteristic of a Presidential caricature.

But the “smile” is genuine and the concern for good dental health is an equally important priority of President Carter, according to his dentist.

Impact of President’s Interest

That Presidential concern impacts strongly, on the First Family, on the entire White House. Regular dental appointments are not fitted in to accommodate a busy day, but, rather, get a first-in-the-morning priority of a Presidential day that is never without competition for the President’s attention.

“The initial dental examination of President Carter revealed a highly motivated patient who was very conscious of his oral health,” Commander Maastricht reports. It is not a passive interest, lost to the many other personal and official obligations which confront the President daily.

In discussing his oral health, the President was very inquisitive.
about how he could prevent any problems from developing.

There were more than words to his concern for as Commander Maastricht points out: “Late appointments showed a high degree of follow through on his part in accomplishing what had been previously discussed.”

“The President’s concern for his periodontal prophylaxis program is demonstrated every several months when he reviews his dental evaluation,” his dentist reports.

“I feel,” Commander Maastricht says, “that dental health is very high on his list of priorities, as he requests that his appointments be made early in the morning before other distractions of the day have a chance to interfere.”

“I feel that he is the ideal patient and very definitely an asset to the dental profession,” he concludes.

“Mrs. Carter demonstrates the same degree of motivation as her husband, in the care of her teeth. She also demonstrates concern in the health care of their children.”

Role of Dentist to the President

The position of Dentist to the President of the United States requires continuous availability to him, a round-the-clock attention and involvement at social events.

As dentist to the President, he serves also as consultant for the First Family, and as Commander Maastricht notes, “I also find myself giving informal consultations, especially at social events.”

The prestige of the responsibility is the only special consideration that goes with the position.

His salary remains as the one he receives as a Commander in the U.S. Navy, with no extra amount for extra White House duty.

His other responsibilities also include Head of Staff of the Dental Clinic at the Naval Hospital, Bethesda, Maryland, treating a patient at the Clinic.

Commander Maastricht is also responsible for the dental care of the military personnel stationed at Camp David, the Presidential retreat in Southern Maryland.

For the convenience of the President, there is a fully equipped dental office in the residence of the White House that enables any type of dental treatment to be rendered.

How does a dentist become “Dentist to the President”?

A personal summons to the White House in 1975 provided an interview which evaluated him and his professional credentials that began with graduation from Loyola University in 1962 and the earning of a D.D.S. from the Chicago College of Dental Surgery.

Background of a Presidential Dentist

Upon graduation in June of 1962, he reported for active Navy duty. In the period between 1962 and 1972, he has various tours of duty with Navy and Marine Corps units in California and Japan, including a U.S. Marine Corps unit in California and Japan, including

A Statement from the White House Physician

THE WHITE HOUSE
WASHINGTON
December 12, 1977

The President, having been a graduate of Annapolis, has had an early influence regarding his dental care through the Navy’s preventive dental care program that has been ongoing at the Naval Academy.

Now he very carefully follows the prophylaxis program initiated by Dr. Maastricht regarding his teeth.

As a gastroenterologist, I certainly support the importance of good dental care from the aspect of its function and proper digestion.

William M. Lakshin, M.D.
Rear Admiral, MC, USN
Physician to the President

THISA AND DATA

Now that dental advertising is permissible in New York State, dental services will soon be available in a large department store. The office, manned by six dentists and an auxiliary staff, will offer shoppers extractions for $10 and fillings from $7 to $15, according to a store spokesperson. Customers will be able to obtain dentures in three days and use their charge cards to pay for them. . . . What can we expect next? Dental "prophylap," in barber shops or beauty salons where patrons can get their teeth cleaned while getting their nails manicured? And what about trading stamps? Perhaps we shall see a rash of dentists to change their first names to "Quality," or "Professor," or to "Painless," like Gardner Parker, the successful advertising dentist of the early 1900’s. Incidentally, it wasn’t Parker’s idea to change his name from Gardner to "Painless" but rather that of a San Francisco newspaperman who was a public relations agent.

Did-You-Know? Dept. One of the first students to attend Harvard Dental School in 1867 was a black American, Robert Tannor Freeman. . . . In the last 10 years the world death rate from smallpox dropped from 2,000,000 to 221. Proof that man is indeed capable of great things. Here in the U.S. because of the eradication of this one-time dread disease, we saved almost $150 million in medical costs besides the inestimable value of human life. . . . Our per capita consumption of ice cream is about 47 pints annually—America’s favorite dessert. And to add to the nation’s sweet tooth, the consumption of candy last year rose 85 percent of the energy needed each year to heat the building. . . . Chicago boasts one of the only mother-and-daughter dental practices in the nation. . . . A study of 100 denture wearers showed the efficacy of enzymes as denture cleaners. Tables containing a mixture of dextranase, mutanase, and protease was found to keep the tissue healthy and to be more effective in keeping dentures clean than the commercial denture cleaning tablets. . . . In the search for better dental adhesives, researchers are not only using brain power but "muskel" power as well. Muscles are being studied to learn what constitutes the tremendous adhesive power they generate in the threads they exude that enable them to cling so tenaciously to rocks.

Our amazing colleagues, a never-ending story of surprises. We have dentists who had high stations in political life, were
Cholesterol intake currently appears to be only 10 percent above that in the United States diet at the turn of the century. During the past 25 years there has been a declining use of eggs, lard, butter and various dairy products, while meat consumption has increased. Thus, the cholesterol level has risen only slightly during this period.

Vitamin and Mineral Consumption
Our consumption of vitamins and minerals has not decreased during this century. Calcium, vitamin C, and vitamin A are at higher levels in our food supply than they were 65 years ago.

Dietary Implications of Changing Consumption Patterns
Study of food consumption patterns over the last 65 years has revealed some of the nutritional problems inherent in today's diet. Although calorie consumption has remained essentially constant over the past 65 years, it has been accompanied by a decrease in energy expenditure. This combination has been clearly implicated in the major health problem of obesity in our population.

Many health and medical experts feel that the high incidence of coronary heart disease and similar conditions are related to a diet which is high in animal protein and its accompanying saturated fat and cholesterol. They recommend a reduction of consumption of calories, animal products and total fat.

The reduced consumption of complex carbohydrates accompanied by a decrease in intake of fiber is also of concern to many health professionals. In addition to its role as a bulking agent in the healthy intestine, some studies suggest that fiber can provide therapy for symptoms of diverticulosis and reduce serum cholesterol levels. The investigation of the relationship of dietary fiber to certain diseases such as cancer of the colon and coronary heart disease is still in its early stages. Further valid conclusions can be made.

Key References

Editors’ Note: This article was prepared by Contemporary Nutrition, a newsletter for health professionals published by a nonprofit, educational center within General Mills, Inc.

DENTISTS TO THE PRESIDENT

The formal post of Dentist to the President is not a new development. Immediately available information goes back at least to President Franklin D. Roosevelt, who was served by Lieutenant Commander Arthur Hall Yando, Dental Corps, U.S. Navy.

President Harry S. Truman had two White House dentists, Dr. Bruce D. Forsyth, then Acting Chief Dental Officer of the U.S. Public Health Service Dispensary, Washington, D.C., and Lieutenant Colonel George H. Mouton, Dental Corps, U.S. Army. Dr. Forsyth was White House dentist at the beginning of the Truman Administration and Colonel Mouton held that post when President Truman left office.

President Dwight D. Eisenhower’s military dentist was then Colonel Robert Shira, Dental Corps, U.S. Army, who then was Chief, Oral Surgery, Walter Reed Hospital. Later, Dr. Shira, as Major General, headed the Army Dental Corps; and subsequently became president of Tufts University and president of the American Dental Association.

President John F. Kennedy had two military dentists on call—Captain John Pepper and Captain Theodore R. Hundley, both with the Navy Dental Corps—although the Kennedy family used civilian dentists.

President Lyndon B. Johnson used two Navy dentists, Commander James D. Enoch, as principal dentist, and Commander J. J. Thomas.

President Richard M. Nixon’s White House dentist was Lieutenant Colonel William E. Wymer, Dental Corps, U.S. Air Force.

President Gerald R. Ford was served by Commander William H. Maastricht, Dental Corps, U.S. Navy, who is also President Jimmy Carter’s White House dentist.

The President’s concern for his periodontal prophylaxis program is demonstrated every several months when he receives his dental evaluation. . . Mrs. Carter demonstrates the same degree of meticulous care in the care of her teeth. She also demonstrates concern in the health care of their children.”

TIC, APRIL, 1978
Although dentists have made important contributions to physical anthropology and paleontology, the field of dental anthropology remains unknown to many. In the summer of 1924, Raymond A. Dart was professor of anatomy at the University of Witwatersrand in Johannesburg, South Africa. His offer of five pounds to the student who collected the most interesting fossil while on vacation would be claimed by the only woman in his class, who brought him a baboon skull unearthed from a limestone quarry near the village of Taung.

Excited by the discovery of a fossil primate hundreeds of miles south of any previous find, Dart asked the mine to send him any blocks of stone suspected of containing fossils. His search through this material led to the now famous discovery of the "Taung Baby," later named by Dart Australopithecus ("Southern Ape") africanus. The facial skeleton, jaws, teeth, and occipital bone of this juvenile have since been dated to at least three million years.

The publication of this find in 1925 came amidst controversy surrounding the teaching of Darwinian evolution in the public schools, and sparked intense debate among scientists. As Dart painstakingly labored for four years to free the jaws from their limestone matrix to reveal the occlusal surfaces of the teeth, the question of whether Australopithecus showed a greater affinity towards man or ape went unanswered.

For most, the problem was satisfactorily resolved in 1935 when a team of specialists from the American Museum of Natural History went to Johannesburg. There they examined the Taung remains and other similar specimens which had since been collected. The team was led by Dr. William King Gregory, curator of paleontology, and Dr. Milo Hellman, an orthodontist. These men had been collaborating in their research since 1910 and were among the world's leading experts on the comparative study of dentitions and dental anthropology.

Dentition is frequently important in showing ancestral relationships. Arriving in South Africa, Hellman took numerous measurements and made casts of the materials from which he later reconstructed the jaws and teeth of several individuals. He and Gregory then released a detailed report of their findings which confirmed Darwin's belief that Australopithecus was in many features closer to man than to any of the living anthropoid apes. Newspapers then declared that the "missing link" had been identified and controversies continued to build their theories of the Australopithecine ancestry of man.

This account illustrates one of the many types of problems which dental anthropologists have helped to solve. As "dental specialists" these workers are relied on extensively by paleontologists, comparative anatomists, and physical anthropologists. Although dentistry may rightfully claim many leaders and contributors in this field, dental anthropology remains obscure or unknown to many in the dental profession.

The current interest in this growing field is indicated by the fact that among the 250 papers read at the 1976 meeting of the American Association of Physical Anthropologists, 50 were directly concerned with dental anthropology. The discussion which follows will serve as an introduction to three areas of investigation in which the skills of a dental anthropologist are often required: paleontology, paleoanthropology, and dental variation in modern man.

Paleontology One of the greatest challenges in paleontology is the construction of the phylogenetic or ancestral history of an animal. Establishment of a phylogenetic relationship requires the identification of morphological characters which are similar only if the animals being studied were related by common ancestry. Frequently, the dentition is key evidence in determining if such ancestral relationships exist.

Teeth are of major importance for several reasons. They are the most common structures preserved in the fossil record. Due to their high degree of mineralization, they withstand the assault of the environment more often than other skeletal pieces or soft tissues. Therefore, dental remains by necessity play a role, sometimes exaggerated, in constructing phylogenies.

Of equal importance is the information supplied by dental morphology and anatomy. Size, form, and groove patterns show a great deal of variation among groups of animals. Yet within any particular group these features are relatively stable compared to other anatomical structures. The intricacies of occlusion and the precise coordinates involved in mastication seem to set some structural limitation on the teeth, which may in part be responsible for their stability.

Similarities in dental morphology offer evidence as to the likelihood of a common ancestry for two different animals.

As an example of the application of this information, we return to the work of Gregory and Hellman.

Dental Anthropologists Unlock Secrets of Prehistoric Past

by Stephen E. Hershey, D.D.S., M.A. (Anthropology), Ann Arbor, Michigan
The Age of Asepsis

Pasteur further modified Lister's principles of antiseptic favor of asepsis, in which potentially dangerous pathogens would be denied access to susceptible tissues.

In 1878, in his famous "germ theory" lecture, Pasteur said: "If I had the honor of being a surgeon, convinced as I am of the dangers caused by the germs of microbes scattered on the surface of every object, particularly in the hospitals, not only would I absolutely clean instruments, but after cleaning my hands and putting them through flame, I would only make use of bandages and sponges which had previously been heated from 110°C to 120°C."

The techniques that evolved from Pasteur's and Lister's discoveries today include sterilization of instruments and dressings; the wearing of sterile gowns, masks and rubber gloves; the use of aseptic suture material; the cleansing of the patient's skin around the site of the operation; and the widespread routine use of aseptic technique in handwashing prior to surgery was not a steady. Late in the 1900's, Habstead insisted on careful handwashing by all health professionals participating in an operation. Habstead also contributed much to improving the technique of aseptic surgery, and developed a fine silk suture material that was safe for closing wounds. He also developed the concept of rubber gloves in surgery.

Pour make the habit of washing the hands with soap and water and then with a severe disinfect before surgery was not a steady. Late in the 1900's, Habstead insisted on careful handwashing by all health professionals participating in an operation. Habstead also contributed much to improving the technique of aseptic surgery, and developed a fine silk suture material that was safe for closing wounds. He also developed the concept of rubber gloves in surgery.

Handwashing a Must

One of the first American physicians to advocate routine handwashing prior to surgery was not a surgeon but an anesthesiologist, William Stewart Halsted. Late in the 1800's, Halsted insisted on careful handwashing by all health professionals participating in an operation. Habstead also contributed much to improving the technique of aseptic surgery, and developed a fine silk suture material that was safe for closing wounds. He also developed the concept of rubber gloves in surgery.

Today, in addition to aseptic technique and stringent handwashing procedures, hospitals have added other mechanisms for infection control. Architectural improvements aimed at isolating operating theaters from other parts of the hospital, as well as separating susceptible patients from others in the hospital environment, have been included in most new hospitals and added to older ones.

New ventilation systems, including laminar flow (one direction air flow), are being installed to lower the incidence of airborne contamination. And, while still somewhat controversial, the use of antibiotics prophylactically following surgery has reduced the incidence of post-operative infection. However, it is now known that use of antibiotics in this manner tends to promote the development of microbial strains that are resistant to these agents.

In recent years, many hospitals in the country have formed infection control committees, usually consisting of representatives of hospital administration, surgery, internal medicine, microbiology (pathology), nursing, obstetrics, pediatrics, pharmacy and other disciplines. Some committees also include housekeeping, food service and other "support" departments.

These committees meet regularly to set policy and establish procedures for preventing and controlling infection of patients, hospital personnel and visitors. In many instances, infection control committees are geared to act swiftly on potential epidemics of infection in the hospital. A major target of such groups is to reduce the 5% average infection rate of hospital-associated infections.

(April 1978)

Pantosteptes is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.

Dental anthropologists often contribute to our knowledge of an animal's evolutionary biology, in particular its environmental adaptations. Generally, the diet of most animals can be approximated from an analysis of the teeth. Therefore, even a gross inspection of tooth size, form, and the amount and pattern of attrition can give valuable information concerning the types of food eaten.

From these findings, additional conclusions can be formed regarding behavior. For example, by determining from the dentition that an animal was most likely carnivorous, other behavior associated with the hunting, capture, and consumption of prey can be inferred. This is precisely what has been done with Australopithecus africanus and its contemporary, A. robustus. A. africanus demonstrates the more gracile mandible, incisiform canines, and molar wear patterns characteristic of an animal consuming at least partially carnivorous diet.

Dryopithecus is a genus of fossil great apes whose skeletal remains have been dated to approximately 14 to 20 million years. On examining the occlusal surfaces of these creatures' lower molars, a Y-S configuration of grooves and cusps is found.

This characteristic pattern is also present with some variation among all modern and fossil men. Here then is a common morphology, traceable over 20 million years, which adds evidence to the theory that the Dryopithecines were ancestral to some of the anthropoid apes and man.
the stage of tooth eruption are a few of the many
factors considered.

In some instances, tooth size and muscle attachment
markings may be helpful in sexing specimens and
allows an estimation of the sex ratio in the population.

Occasionally a mandible not found in close approxi-
mation to the rest of the skull may be related by the
study of occlusal wear patterns. This procedure may
also help prove that pairs are not related. Atypical
dental wear facets was one of the clues which helped
to expose the Piltdown fraud.

Dental evidence also shows distribution of
many diseases.

The study of pathology in ancient man (paleo-
pathology) has added valuable information on the
geographical and chronological distribution of disease.

Dental evidence in these cases may be of even greater
importance than that of other skeletal elements.

Although bone injury or faulty calcification may be
hidden from subsequent detection, the bone having
undergone repair, the dental tissues permanently re-
cord some conditions which affect them during de-
velopment.

Such data are of particular value in assessing the
nutritional status of a people. Dental pathology
studies include the frequency of carious lesions, abscess
formation, alveolar bone loss from periodontal dis-
ease, and clefts of the palate. Findings have shown
that dental caries and periodontal disease are not of
recent appearance. Studies of fossil skulls de-
mstrate the presence of these diseases in every popu-
larity of ancient man, and one need only look at the
skull found at Broken Hill in Rhodesia, South
Africa, or the jaw fragments from Krapina, Yugo-
slavia to be convinced that man has rarely avoided
dental disease.

In contrast, cleft palate is seldom found until very
recent times and has increased in frequency dramati-
cally in the last 100 years.

By careful examination of the alveolar bone, it
is possible to determine whether tooth loss occurred
during life or postmortem, and whether it was the result
of injury. This is important when the possibility of mur-
der, warfare, or cannibalism is suspected.

Many other abnormalities or unusual morphologies
are also of interest. For example, the British anato-
mist, Sir Arthur Keith, gave the name "taurodontism"
to the unusual pulp chamber found to be character-
istic of Neanderthal man.

In other cases the dentition may reveal important
ancillary characteristics. The intentional deformation,
chipping, filling, and inlaying of precious stones for
decorative purposes, or the extraction of teeth, have
all been found to be of ritual significance in many
populations.

In a special application of dental and anthropo-
logical techniques, a team of scientists at the Uni-
versity of Michigan made a radiographic study of the
mummies of the Egyptian pharaohs. The findings
have provided extremely useful knowledge on the
epidemiology of dental disease, and the identity and
family relations of the pharaohs.

Dental Variation in Modern Man. For the last 50
years dental anthropologists have been extensively in-
volved in the study of the origins of modern groups of
people, their geographical and the persis-
tent of their isolation or admixture with other popu-
lations.

These dental studies once again center on a num-
ber of morphological traits which have been shown
to be inherited and may be used to distinguish popu-
lations. These traits include shape-shaping of the
incisors, the extent and frequency of Carrelli's cusp
and the protysyli, and cusp number and groove
configuration.

Dendrology may be used to distinguish traits in
human populations.

The measurement and study of tooth size (odonto-
metry) may also be used to differentiate populations.
Although a wide variation within any group and con-
siderable overlapping with other groups is to be ex-
pected, when evaluated in conjunction with the
previously mentioned features, a trained anthropolo-
gist has little difficulty establishing the biological
affinities of a people.

What factors contribute to the variability of modern
man's dentition?

When a small group leaves one location and mi-
grates to a new area, it takes with it a limited gene
pool. Through inbreeding this group becomes more
homogeneous and will over many generations achieve an
individuality in form and range of variability in many
physical characters, including the dentition.

As a group migrates it also encounters new and
sometimes harsh environments to which it must adapt.
It would be expected that the teeth would show a
number of characters of selective advantage in such
an environment.

Dentition of American Indians helped prove
their Asian ancestry.

An excellent example of trait analysis is Dahlgren's
study of the American Indian. He has shown that the
Indian dentition differs markedly from that of
European and American whites, and it is similar to
that of East Asiatic Mongoloids.

These findings support the now accepted theory of
migration of an Asiatic people across the Bering
Strait into North America. In the same study Dahlgren
demonstrates that the Indian dentition pos-
esses elements of form and size suggesting it could
meet the greater stress and compete successfully in
this new environment.

During this period of man's history, the teeth still
The Patient as "Expert Cleaner"

After you have completed this second phase of treatment which includes periodontal surgery, scaling, and root planing of restorations, you must proceed to make the patient an expert cleaner. Immediately following surgery and dressing removal, the patient is started back on the embroidery thread technique. The object of wrapping the embroidery thread around each interdental surface is to clean the line angles (corners). However, most patients do not wrap the thread effectively enough to clean these areas. Consequently, a week to ten days after dressing removal, the patient is placed on the "still technique" using an electric Broxodent gentle bristle brush. By placing the electric brush between the teeth and holding it in place for approximately ten seconds, the line angles are more effectively cleaned. The broad surfaces of the teeth are cleaned with a hand brush and one should not allow the patient to use the Broxodent for anything other than cleaning the line angles of the teeth. Since most people brush poorly on the lingual surface, they can be asked to brush the inside first, then the outside, then the inside again. The average patient is usually about half as efficient on the back—a lot easier than scraping calculus off. If defects can not be corrected, they can be reasonably maintained using the perio-aid and the water soaked toothpick providing the patient has good dexterity. Using dry toothpicks is not effective in lieu of effective plaque removal. Water jets will help in orthodontic cases where flossing is impossible, but should never be used in lieu of effective plaque removal. Patients who have poor dexterity cannot use anything effectively—especially the water jet instrument. Those who have good dexterity should certainly be placed on a more effective technique.

The Most Important Step

Getting the patient to self diagnose is the most important step in making him interested to the point of being a partner in treatment. The therapist of course makes the mouth as cleanable as possible, but making the patient an effective plaque remover is the ultimate secret in keeping teeth. By using the embroidery thread technique (which is available on the market now), the "still technique," the hand-brush correctly, anyone with reasonable dexterity can be blocked out. Most of my effective cleaners control calculus formation to the point that recall visits are limited to an oral exam and a pat on the back—a lot easier than scraping calculus off. Proteins functioned not only in the processing of coarse food items, but served as tools in daily endeavors such as skin protection and shelter.

Of continuing interest is the problem of what effect cultural advancement has had on the evolution of the teeth. With the rapid increase in technology, particularly tool use and the cooking of food, it would seem apparent that selective pressures which previously limited the evolution of the deciduous may have been eased if not completely removed. Whether this has actually taken place is currently being investigated.

There are many other applications of dental anthropology than those described in this brief discussion. The field also includes the challenging areas of forensic dentistry, dental genetics, and craniofacial growth and development.

Something of the lure of dental anthropology may be understood by returning once more to the Australphosphate fossil from Taung. In 1950, the late Dr. Jacob Bronowski was asked to do a mathematical analysis of the Taung child's teeth. In his book, The Ascent of Man, he relates how this experience affected him:

"I had never held a fossil skull in my hands and I was by no means an expert on teeth. But . . . it transmitted to me a sense of excitement which I remember at this instant. I, at forty-odd, having spent a lifetime in doing abstract mathematics about the shapes of things, suddenly saw my knowledge reach back 2 million years and a light shine through the history of man. That was phenomenal."

And from that moment I was totally committed to thinking about what makes man what he is." 10

I have the opportunity to study the dental-facial variations of his patients and through the application of anthropological knowledge, may help to discover "... what makes man what he is." 11

REFERENCES


"Mr. London's bridge keeps falling down."
Treatment of periodontal disease, alias pyorrhea, is now getting a moderate amount of attention. There are many approaches to treating the disease. Some dentists approach it as if the primary etiology is traumatic occlusion, some approach it primarily through surgery. Controversy exists as to whether the patient's own teeth cause the disease or whether it is due to bacteria. Preventive periodontics is a technique aimed at getting the patient to be a very efficient cleanser while making the mouth as "cleanable" as possible. The approach is based on three phases: 1) self diagnosis; 2) making the mouth cleanable; and 3) the control phase.

We obviously do not know all of the causes of periodontal disease nor do we know all of the effects it has on the remainder of the body, but this article is based on my successes and failures in the treatment of periodontal disease over the past ten years.

Self diagnosis is the most important stage of periodontal treatment. If the patient can recognize the differences between healthy gums and diseased gums and understand the reasons why healthy gums are healthy and diseased gums are not, then he is well on his way towards controlling periodontal disease. It is very important for the patient to have a simple understanding about the process of gum disease.

Undercleaning and Overcleaning

Gum disease can be divided into two types: disease from undercleaning and disease from overcleaning. Undercleaning, which is the failure to remove the molar-plaque, always leads to gingival inflammation in the proximity of the plaque. There are no exceptions to this rule. Although there are many reasons why people fail to remove the plaque, there is one reason why people get gum disease. It is needless to say that reduced body resistance and bruxism usually fail. Nowadays, patients are usually under cleaned. I have my upper left cuspid was longer than the right cuspid, it was not hard for me to watch over brushing, since I certainly didn't want a "fang." When I stopped brushing the area that I had always under cleaned the process was further established in my mind. If the patient doesn't realize these things in his own mouth, the gum disease will always be a mystery and the odds of his staying on a good control program are slim. Therefore, self diagnosis, which is the recognition of one's own disease conditions, will usually bring about good disease control and a willingness to accept treatment plans.

Use the "Praise Method"

I use various methods to help the patient self diagnose, but my most general approach is the "praise method." When people come to the dentist, especially the periodontist, and suspect that they have trouble, they are usually afraid. They are embarrassed at the thought of having gum disease and may have tremendous guilt feelings. If you see them and hear what you have to say, you must first overcome these problems. Fear can be reduced somewhat by assuring the patient that he will not lose all of his teeth (unless of course, it is too late) and by kind and gentle treatment. All can be lost at this stage if you scold the patient. There are generally areas that the patient cleans well—where their tissues have not inflammation or pocketing. Praise the patient for maintaining these areas. You can probe the facial surface of a cuspid or bicuspid to show the patient that the probe will not go under the gum and that the gum is well attached to the tooth. You can explain that he has always kept this area clean and consequently the gum is in good condition. You can then point out areas that have been overcleaned by saying, "You not only brush well, but you actually overbrush the point to the right that you have rubbed away some of your gum and tooth. Many good toothbrushers do the same thing." Usually at this point, you have established rapport with the patient by giving him and you have his attention. Now for the "coupe de grace." You must establish the fact that he does have disease in other areas by showing him a pocket and/or inflamed gums. Using a perio-probe, probe an area that has a pocket and make sure he sees the pocket and the Therschneider technique like, "Mr. Jones, this is gum disease that has occurred in an area that you don't clean well." Or if you feel like you need more impact, say, "Mr. Jones, this is gum disease, alias pyorrhea, that has occurred from not cleaning this area well." This is always a downer for the patient but if he is listening, he is self diagnosing. It may be necessary to again show him his health and an area of disease. It is often best to end with praise. At this point, you may have your staff instruct the patient on the embrasure thread technique. Patients usually recognize its possibilities immediately. You may then quite the patient asking him to explain the process to you to show you that he understands. If the patient has self diagnosed, he is ready for phase two. If I feel that he needs further understanding, then I put him on an effective cleaning program utilizing the embrasure thread technique for about a week. I never scale the teeth (unless calculus would prevent cleaning) until the patient has a chance to get improvement on his own. On the second visit, I go over exactly the diagnosing scheme as I did on the first visit. If the patient did see improvement through cleaning, then he has already self diagnosed. If for any reason the patient does not self diagnose, the chances for successful treatment have been greatly reduced.

There are other variations of helping the patient self diagnose and a more elaborate one was designed for my students at LSU in a course on preventive periodontics.

The Second Phase

Making the patient believe that the disease is manageable is the second phase. Anything that prevents the patient from effectively cleaning should be corrected. The embrasure thread technique becomes the method of cleaning between the teeth that I am aware of. The technique employs the use of cotton threads joined together with a leader which is a slightly waxed fine nylon floss. The object is to use as much cotton thread as can be comfortably pulled between the teeth. When the cotton thread is pulled between the teeth, each interdental area is slightly polished. The thread is then pulled completely through. Using too much pressure is uncomfortable and using too little can be ineffective. Even though this is a very effective technique, it is not effective around rough margins and it is not capable of cleaning out deep pockets. When patients begin using the technique, they generally notice an improved gum tissue disease, but usually think they are cured. And in fact, some are. However, those that are not must be reassessed uncleanable pocket areas. Once this self diagnosed he is usually eager to have his mouth made cleanable.

Most dentists are well aware of the many surgical techniques that are available for pocket elimination. Periodontal surgery at best is uncomfortable and I always chose the least traumatic surgery I could do the job. The gingivectomy in the less advanced cases is far kinder to the patient. More advanced cases require more extensive surgical techniques. Since most cases of insufficient attached gingiva are caused from excessive brushing, I always try to eliminate the trauma by correcting brushing habits. If the area is given time, under less traumatic conditions, the tissue will improve, sometimes eliminating the need for gingival grafting.

Occlusal adjustments should always be made well into the third phase of treatment. In other words, the tissue should be as healthy as possible before occlusal adjustment is undertaken. If occlusion is adjusted while the periodontal membranes are inflamed and edematous, the teeth will not be in their true position. Any condition that causes fluid in the periodontal spaces, will cause a hydrolic effect making the tooth extrude slightly. It may be necessary to adjust occlusion during a phase of acute bruxism.