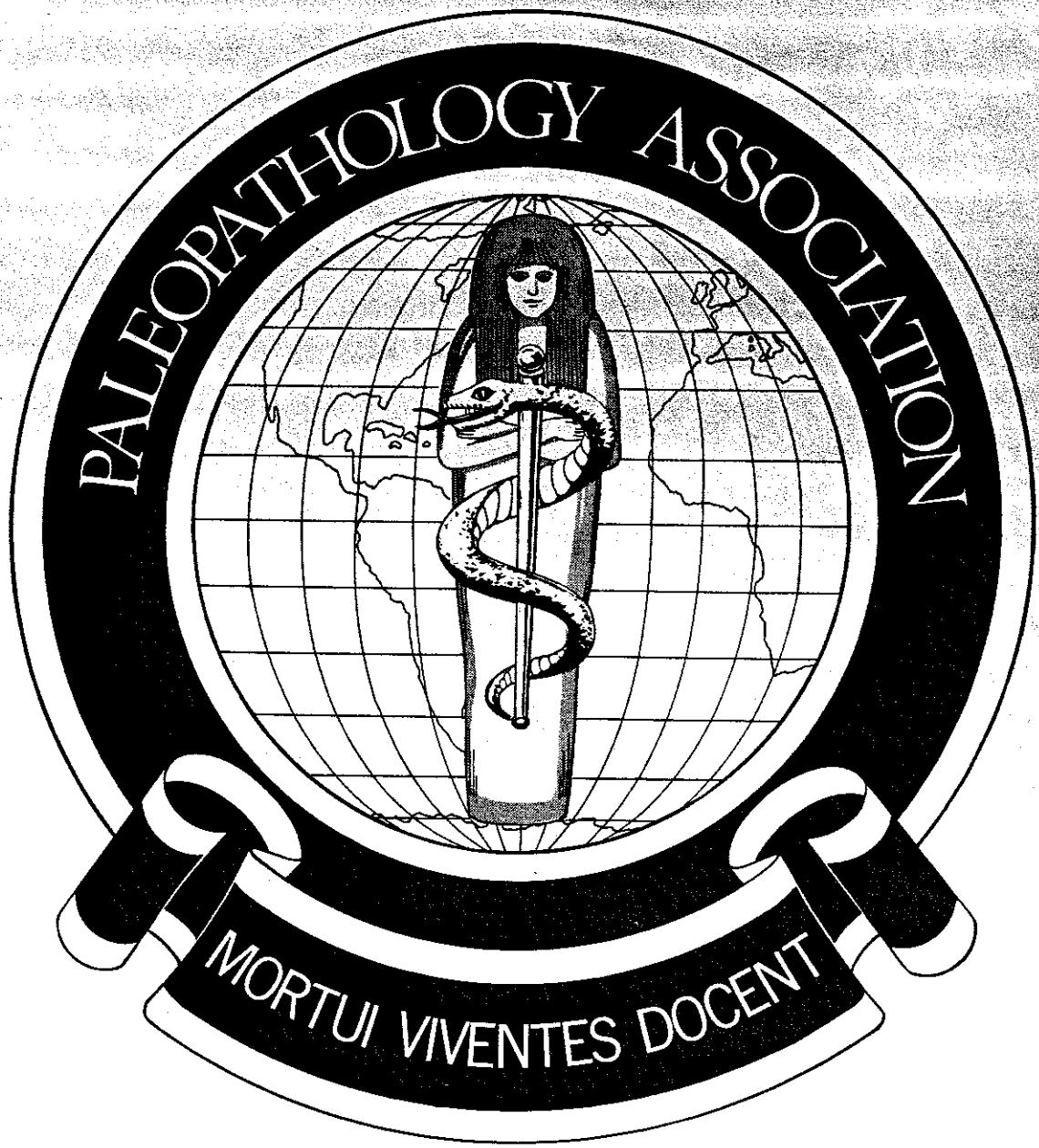
PAPERS ON PALEOPATHOLOGY

presented at the

Fourth European Members Meeting



16 - 19 September 1982

Middelburg - Antwerpen

Cover design originated by Patrick Horne

INTRODUCTION

G.T.Haneveld (Netherlands)

The historic town of Middelburg, where this fourth European Meeting of the Paleopathology Association is being held, was ravaged again and again by fires, wars, and floods -- but every time, the stubborn inhabitants managed to survive and reconstruct their ancient town. 'Luctor et emergo' (I struggle and emerge) is the proud motto on the Zeeland coat of arms. As archaeologists and paleopathologists, we must feel ourselves related in a way, for we too try to rebuild the past from the shattered ruins that we have collected. It is for this reason that Middelburg is an appropriate setting, a stimulating background for our scientific attempts to reconstruct the living from the dead. We reconstruct the dead, and they teach us: 'Mortui viventes docent.' In a different sense, this motto also recalls our pioneer and former president, the late Aidan Cockburn, whose memory we will now honor in silence.

HISTORY AND AIMS OF THE ASSOCIATION

Eve Cockburn (U.S.A.)

Although the official birthdate of the Association was 1973, the ideas behind it can be traced back to Aidan Cockburn's early experiences in dealing with infectious diseases in Africa, where his eyes were first opened to the concept of disease as a worldwide, evolutionary phenomenon. Twenty years later, in 1963, these ideas were published in his first book, The Evolution and Eradication of Infectious Disease, and further developed in a second volume four years later. Then, in 1971, working with a multidisciplinary team, he started the series of mummy autopsies that became the basis for the Association, looking for concrete evidence to back up his theories, a search for the footprints left by disease through the ages. The principles established at that time have guided us for ten years -- the emphasis on dealing with a series, not isolated specimens; the examination of soft tissue, and not just bones; the use of the most modern techniques, adapted for the study of ancient remains; the preservation of the material, so that it will continue to be available for later researchers by even more advanced methods. As we go on, the focus shifts: the concept of developing registries of finds from the past for a single disease entity; comparison studies of the same disease as manifested in similar populations in different eras; the rare and precious finds of frozen remains. But no matter which new paths we follow, the Association should continue to serve as a a means of communication, a worldwide network, bringing together devoted researchers in this unique discipline.

THE OSTEO-ARCHAEOLOGICAL DIAGNOSIS OF LEPROSY

J.G.Andersen (Ethiopia)

Based on a comparison between mediaeval Danish skeletal material from a known leprosy graveyard and radiological studies of inmates from a modern Indian leprosy hospital, where the inmates largely had the same social, therapeutic and occupational background, it is demonstrated that recognisable lesions attributable to leprosy and its sequelae are qualitatively and quantitatively identical. With due regard to the conditions of practical archaeology, the following lesions are presented as allowing a diagnosis of leprosy in an archaeological material:

The rhino-maxillary syndrome, which is exclusively found in low-resistance leprosy, permits a firm diagnosis of leprosy; Periosteal deposits on the adjacent edges of fibula and tibia with a high degree of certainty permit a diagnosis of leprosy; Concentric absorption and knife-edge absorption of metatarsal bones with a very high degree of certainty permit a diagnosis of leprosy.

The last two criteria do not permit a diagnosis of type of leprosy, but the degree of multiple attacks on several limbs may give a strong hint as to type.

MAXILLARY ALVEOLAR HYPEROSTOSIS IN 'ARAGO 21'

A.Ascenzi (Italy)

By examining the cast of the 'Arago 21' bone remains, kindly furnished by Professors H. and M.-A. de Lumley for a comparative investigation with pre-Neanderthal and Neanderthal Italian samples, the lesion named maxillary alveolar hyperostosis was recognized. These remains (a cranium with a complete face and crushed frontal bone) come from the Arago cave in southern France, a site dating to the Riss glaciation, but possibly belonging to an earlier period. The alveolar hyperplasia has been accurately studied by applying both anthropological and pathological methods. The results and the possible causes of the lesion are thoroughly discussed.

ORGANIZATIONAL METHODS AND RESULTS FROM THE DANISH PALEOPATHOLOGY PROJECT

P.L.Bennike (Denmark)

Diseases and injuries from medieval skeletons from Denmark are well studied, but the prehistoric remains were never analyzed from a paleopathological aspect. This has now been done by means of a new computer registration system containing over 300 variables. The material consists of unburnt human bones and teeth from approximately 1500 individuals. The specimens are all well dated to various prehistoric periods (Mesolithic, Neolithic, Bronze Age, Iron Age, and Viking Age), which span a period of 5,000 years.

The purpose of the study has been to compare the distribution of paleopathological conditions from the different periods in relation to age and sex, and the location on the skeleton. It has been possible to demonstrate the first known appearance of specific diseases (tuberculosis and probably rheumatoid arthritis). If further research is conducted using a similar technique, population studies will be possible over a much broader aspect, both temporally and spatially, than has been possible previously.

OSTEOCHONDRITIS DISSECANS IN ANCIENT POPULATIONS

D.A.Birkett (England)

A study has been made of the evidence for Osteochondritis Dissecans in skeletons from a number of archaeological excavations. It has become apparent in these investigations that there is no sharp dividing line between lesions resembling classical Osteochondritis Dissecans as seen in modern orthopaedic practice and small irregularities in the articular surfaces of bones that can be regarded as normal anatomical variants. Caution in assessing the incidence of this disorder in ancient populations is needed. An attempt has been made to find some method of establishing firmer diagnostic criteria.

A THOUSAND YEAR OLD BUILDING - CHURCH OR HOSPITAL?

D.Buhmann and C.P.Adler (Germany)

As pathological finds, a multitude of severe deformations of the skeleton originating from different causes were discovered (fractures, ankylosis, leprosy). A few examples are given from which questions arose, as to whether this could have been the cemetery of a hospital for incurables, consequently showing that the church must have been a hospital then.

DENTAL MUTILATIONS IN THE PRE- AND PROTO-HISTORY OF THE IBERIAN PENINSULA

D.Campillo and J.Barbera (Spain)

Since 1977, we have had the opportunity of carrying out studies on many teeth with partial dental mutilations, belonging to several prehistoric periods. This has allowed us to reach some provisional conclusions. They would be the results of two different rituals. First would be a funerary practice, of which there is no evidence that it was practiced anywhere in the Old World during prehistory; the second would have been an initiation ritual, as it was evident that it had been performed during life, similar to those in America during protohistoric periods, or today in Africa, Asia and Australia. Both rituals probably lasted through a long period of time.

LESSONS FROM ANIMAL PALEOPATHOLOGY

A.T.Clason (Netherlands)

Subfossil animal bones sometimes show deformations caused by diseases, fractures or deficiencies. There can exist also secondary or tertiary evidence for diseases, for example, bones of nearly fullterm cattle fetuses may point to virus abortion, differences in the ratio of cattle to sheep remains pointing to an infection with Fasciola hepatica of sheep.

MESOLITHIC TRAUMA: DEMOGRAPHICAL AND CHRONOLOGICAL TRENDS

T.S.Constandse-Westermann and R.R.Newell (Netherlands)

In a cooperative research program, the demographical structure of western European Mesolithic populations is investigated. Within this framework, an analysis has been made of all indications of traumatic injury, as recorded in the literature or by ourselves, in a reliable sample of Mesolithic skeletal finds. The skeletons have been divided into six categories: (almost) complete individuals, individuals of which only few parts are missing, rather incomplete individuals, individuals represented by only a few parts or a cranium, isolated bones, and dental remains. It is obvious that the percentage of observed traumatic injury should be considerably higher in the first three categories than in the last three. The distribution of trauma over the various age groups, between the sexes, and over the various periods into which the Mesolithic can be divided may be indicative for other relevant aspects of Mesolithic society as intergroup hostility and the concomitant implications concerning the nature of the groups concerned, labor divisions, etc.

FREQUENCIES OF SPONDYLOPATHY AND CARIES IN DIFFERENT PERIODS, SOCIAL AND SEX GROUPS FROM THE MEROVINGIAN AGE

A.Czarnetzki (Germany)

This paper presents the frequencies of spondylopathy and caries of some samples of Merovingian times in southwest Germany. Spondylopathy was not divided into infectious and age-dependent forms. All degrees of caries were also counted. Spondylopathy could be examined on only one sample. Different social groups give unexpected frequencies for the highest classes, and different frequencies in contrast to today for the two sexes. The changing frequencies through the periods are compared with demographic and morphological data. The frequency of caries differs from sample to sample, from 8% to 15%, being much lower than today in the same region. There is higher frequency in the lower jaw. Differences in social classes, sexes, ages and periods are given, along with new possibilities of interpretation.

PROBLÈMS POSÉS PAR DEUX PERTES DE SUBSTANCE OSSEUSES HUMÉRALES MÉROVINGIENNES

J.Dastugue and P.Comode (France)

Descriptions des deux tunnels transdiaphysaires, d'une orientation similaire, avec apposition osseuse dans un cas. Origine traumatique la plus probable. Aucune conclusion formelle ne peut être donnée pour la pathogénie des tunnels (tendon emprisonné dans l'os).

LES MOMIES NATURELLES DE VENZONE ET DE FERENTILLO

A.Drusini and M.Rippa Bonati (Italy)

On présente ici une documentation sur des restes humaines momifiés naturellement, conservés dans les deux zones de l'Italie: Venzone (Udine) et Ferentillo (Terni). Dans le premier cas il s'agit de 15 momies d'une époque comprise entre le XIVème et le XIXème siècle; dans le second cas il s'agit de 27 momies d'une époque postérieure au XVIème siècle. Cette étude préliminaire a été faite en vue d'entreprendre des recherches sur les aspects paléopathologiques dont ce vaste materiel est riche.

DIFFERENTIAL DIAGNOSIS BETWEEN PALEOPATHOLOGICAL AND NON-PATHOLOGICAL POSTMORTEM ENVIRONMENTAL FACTORS IN ANCIENT HUMAN REMAINS

E.Fulcheri (Italy)

Differential diagnosis in paleopathology must be applied not only to the study of actual pathological changes but also to the identification and discrimination of postmortem environmental factors resulting from different forms of burial or preservation of the material. In mummified remains it is necessary to consider the phenomena related to the process of mummifcation and the storage conditions in both tombs and museums. When examining osteological material one must consider, in addition to the common alteration of soil and water erosion, the effects of parasites, insects, and small rodents. Some interesting cases are discussed.

UN CAS DE SPINA BIFIDA DANS LA NÉCROPOLE RH5 DU SULTANAT DE L'OMAN

R.Grilletto (Italy)

La Missione Archeologica Italiana de l'Institut pour le Moyen et Extrême

Orient de Roma a fait en 1981 des fouilles dans le Sultanat de l'Oman, au lieu dit Ra's al'Hamra, à 20 km au nord de la capitale Muscat. Dans le lieu RH5, sur un rocher donnant sur l'Océan Indien, on a trouvée une nécropole de pêcheur datente a 3 - 4,000 ans av. J.-C. Jusqu'à présent on a exhumé une quarantaine de squelettes, malheureusement très mal conservés, qui sont en étude. On présente ici un cas de spina bifida et autres anomalies tel que la perforation olécrânienne, ainsi que des fractures, des abcès dentaires avec fistulisation, etc.

HOW HEALTHY WERE THE FEET OF OUR PREDECESSORS?

W.Groenman-Van Waateringe and H.Herschel (Netherlands)

Study of wear patterns in pre- and protohistoric shoes enables us to get information concerning the health of the feet that wore them. The method used is thickness measurement of the sole leather by means of a micrometer with a dead weight of 500 g/cm^2 applied on an area of 1 cm in diameter (international standard for measuring the thickness of leather). Thus pathological wear patterns can be distinguished from normal ones. Sometimes the upper can also give indications for pathological conditions. By establishing wear pattern of large collections of prehistoric, Roman, early and late medieval, and 17th century footwear, it is possible to get an idea about the healthiness of the feet of our predecessors, and possible changes through time. Old wear patterns are compared with those of recent pathological cases with known diagnosis.

A PECULIAR CASE OF DWARFISM IN AFRICA

J.Huizinga (Netherlands)

During the 1966 excavations in a so-called Tellem cave (XI-XII century) near Sanga in the Dogon area (Mali) a skull and a right humerus were found within a huge amount of disarticulated bones. Despite their small size, dental development, sutural closure and distal epiphyseal attachment appear to be well advanced as compared to those of remains of comparable size. Moreover, the relation between the facial and neurocranial part clearly deviates from that found in skulls of similar size; the eye socket fits harmoniously into the face unlike those found in other small children. The slender humerus does not show an abnormal shape. The interior aspect of the closed sagittal suture shows a trabecular structure along its total length. The relation to premature suture distal closure remains doubtful.

HELMINTH INFECTION IN MEDIEVAL AMSTERDAM AND UTRECHT

J.Jansen and J.H.Boersma (Netherlands)

Samples of material from five medieval cesspits and from three other sources were examined for the presence of parasite worm eggs. All but one sample contained eggs of Trichuris trichiura, whipworm of man, and the five cesspits also contained eggs of Ascaris lumbricoides, large roundworm of man. The results indicate the common occurrence of both helminth infections in man in medieval towns in the Netherlands.

RECENT FINDS OF INTESTINAL PARASITE OVA AT YORK, ENGLAND

A.K.G.Jones (England)

During the last three years a number of archaeological samples have been examined, using modified veterinary procedures, for evidence of intestinal parasites. The material studied included Roman inhumations, a 10th century mineralized human coprolite, and soil samples from cesspits, floors and yards. Methodological problems, including the disaggregation of samples, the effects of laboratory treatment on egg size, and the identification of ancient parasite ova are discussed. Two kinds of intestinal nematodes occur regularly in the samples: Trichuris sp. and Ascaris sp. It is likely that these parasites were harbored by many of the people living in York in medieval times.

CREMATION OF A DISEASED YOUNG/MIDDLE ADULT WOMAN OF THE EARLY LATENE PERIOD FROM SCHLESWIG HOLSTEIN, NORTH GERMANY

I.Kuhl and M.Schulz (Germany)

In this well preserved cremation, all forms and measures of the skeleton point to a female of extreme slenderness. Some remains show superficial abnormalities: In the skull, at the inner vault of both parietals and of frontal bone, there are concentrations of numerous fine but sharply impressed vascular lines; on both parietals these lines are more numerous in the middle region of the bone; Some teeth show disorder in the development of root growth; The postcranial skeletal attachments of ligaments are conspicuously marked, especially at anterior aspects of phalanges (hand). One distal phalange (hand) shows porosity of the whole surface, but normal articular surface.

THE PALAEOPATHOLOGY OF SKELETAL REMAINS OF SOME RELATIVES AND COURTIERS OF THE PHARAOH CHEOPS, C. 2650 B.C.

F.Filce Leek (England)

Since the early decades of this century, the mummified and skeletal remains recovered by Dr. G.A.Reisner from the great western mastaba cemetery have been housed in a magazine north of the Great Pyramid. As no palaeopathological

investigation has been made, an application was sent by the Manchester University Museum Mummy Project to the Department of Egyptian Antiquities. When approval was granted, an all too brief two week survey was undertaken. The results are the basis of this presentation.

PHYSIOLOGICAL AND PATHOLOGICAL PROCESSES INTERFERING WITH THE RELIABILITY OF THE ESTIMATION OF AGE AT DEATH

I.Lengyel (Hungary)

To estimate the biological age at death of earlier individuals is one of the basic aims of historical anthropologists. There are two methods at our disposal for this purpose: a morphological and a chemical one. The reliability of both is debatable to a certain extent. Some of the main physiological processes (sexual maturation, repeated birth, life style, taxonomical character, etc) and pathological conditions (malnutrition, hypovitaminoses, hormonal disorders, chronic inflammations, degenerative and autoimmune processes, intracranial tumors, etc) with either or both of the two methods, are described. The report is based mainly on the data of the medical literature and on the author's experiences.

SCURVY IN DUTCH WHALERS BURIED AT SPITSBERGEN

G.J.R.Maat (Netherlands)

During the 1980 expedition to Spitsbergen (a research program of the Arctic Centre of the University of Groningen), the remains of fifty whalers were excavated on the island of Zeeusche Uytkyck. The burials dated from the second half of the 17th and 18th centuries. Inspection of the remains for pathological changes showed that 39 men suffered from scurvy at the time of death. One of the other whalers showed features of healed scurvy. It is known from historical sources that whalers, on their missions in the north, were frequently affected by scurvy. The polar conditions offered a unique opportunity to observe the effects of manifest scurvy in archeological material.

AN OSSIFYING DIATHESIS OF FIRST CENTURY A.D. DATE

K.Manchester (England)

Specimen: complete skeleton of adult male;
Provenance and date: Droitwich, England, 1st century A.D.;
Features: Osseous spinal ankylosis; costovertebral ankylosis; ossification of costal cartilage; ossification of para-articular structures; ossification of hyoid bone, thyroid cartilage; arterial calcification;
Tentative diagnosis: Forestier's ankylosing vertebral hyperostosis;
Differential diagnoses and ancillary investigations are discussed.

PALEOPATHOLOGY OF MEROVINGIAN NECROPOLIS AT VERSON (5TH - 8TH CENTURIES A.D.)

F.Metz (France)

Descriptive and synthetical analysis of the malformed, degenerative, traumatic, infectious pathology;
Nutritional paleopathology.

ALTERATIONS IN THE ALVEOLAR BONE OF EARLY MEDIEVAL JAW FRAGMENTS (DORESTAD)

D.Muller and W.R.K.Perizonius (Netherlands)

In the present study, maxillary and mandibular fragments were examined from early medieval skeletons excavated from one of the two known cemeteries ('de Heul') of the Dutch Carolingian town of Dorestad. The objective of this study was to score phenomena related to physiologic as well as pathologic processes in the alveolar bone, such as root exposure, interalveolar defects and furcation involvements. The methods used are described by the authors in J.Hum.Evol. 9 (1980). With the help of occlusal wear patterns, three age groups were distinguished. Results show an increase in the progress of root exposure with age on all surfaces. In addition, the interalveolar defects caused by periodontal disease show a close relationship with age. The same correlation, although less consistent, was seen with furcation involvements. Possible mechanisms for pathologic as well as physiologic bone reduction are discussed.

SIGNS OF CULTURAL ACTIVITY IN HUMAN BONES OF THE CHALCOLITHIC PERIOD

P.J.Perez and J.M.Bermudez de Castro (Spain)

Two examples of cultural manifestation have been studied on bones of the Chalcolithic period (about 2,500 B.C.) from Tielmes de Tajuña (Madrid). The first seems to respond to a therapeutic purpose, since all characteristics indicate that it is a matter of surgical amputation of a limb. The other example is the presence of red stains on the surface of the bone, that appear to correspond to the postmortem migration of coloring matter, possibly from the shroud. The analyses of the samples of coloring (by microscopic techniques and x-ray fluorescence) have demonstrated that the bone coloring is primarily due to limonite.

TOOTH WEAR AMONG ANCIENT EGYPTIAN SKULLS

P.-F.Puech and C.Serratrice (France)

L'usure des dents des Égyptiens de la collection 'Marro' n'a pas été notamment accélérée par les grains de sable ni par les morceaux de pierre incorporés aux aliments. L'aspect microscopique de l'émail et de la dentine est semblable à celui provoqué par la mastication de végétaux riches en phytolithes. La comparaison avec l'usure provoquée par différents végétaux montre que cette usure est en relation avec l'habitude qu'avait l'Égyptien de mastiquer des morceaux de la tige du c. papyrus. De cette façon une abondante salivation est entretenue tout au long de la journée. Salivation qui empêche les produits de dégradation des céréales de favoriser la carie dentaire tout en augmentant les dépots de tartre.

POST PARTUM INVERSION OF THE UTERUS IN AN EGYPTIAN DYNASTIC MUMMY

E.Rabino Massa (Italy)

In the Anthropological and Ethnological Museum of the University of Turin there is a wellpreserved, naturally desiccated female mummy, which had been buried with the osteological remains of her newborn child. This female has a large uterus prolapse previously described by Prof. Marro from the macroscopic point of view. The research objective now was to derive a diagnosis from the histological point of view. The histological results support the idea that this case is not the common and more frequent prolapsed uterus, but a total inversion of the uterus post partum. This case is very interesting, because it is the oldest example of this category of pathology so far reported.

BONE PATHOLOGY IN A MEDIEVAL POPULATION OF TIERMES (SORIA, SPAIN)

J.M.Reverte (Spain)

This is a review of the bone pathology found during the 4th series of excavations in Tiermes (Soria, Spain), the old settlement of Arevacos, Romans, Visigoths and Christians (VII -IX centuries). The author has found: skeletal tuberculosis, osteomyelitis, osteoporosis symmetrica, Cribra orbitalia, Coxa vara (osteoarthritis of femora), vertebral osteophytosis, ankylosing spondylitis (Strumpell-Marie-Betcherew disease, bamboo spine), traumatic arthritis, exostosis, multiple osteoma of the skull, large osteoma of the skull, vertebral hamartoma (Haemangioma), caries of teeth, dental abscess, teeth attrition, shovel-shaped teeth, senile atrophy of the skull and jaw, cranial fracture, trephination of the skull, skull traumatism, epipteric bone, interparietal bone, metopism, os japonicum, torus palatinus, platycnemia, congenital perforation of the humerus (olecranon) and others.

DIFFUSE IDIOPATHIC SKELETAL HYPEROSTOSIS IN ANCIENT POPULATIONS

J.M.Rogers (England)

A striking form of spinal ankylosis, Forestier's disease, or ankylosing hyperostosis of the spine. Extraspinal manifestations of this disease have been described in the literature, and the term diffuse idiopathic skeletal hyperostosis (DISH) has been suggested as a more appropriate terminology. Several examples from various ancient skeletal populations are described that fall into the DISH category.

TRAUMA AND ARTHRITIS IN PRE-EUROPEAN CONTACT AUSTRALIAN ABORIGINES

A.T.Sandison (Scotland)

In these hunter-gatherers, trauma was not only accidental but resulted from both tribal and personal violence (often over women). Weapons of varying sophistication were used. Secondary arthritis might follow trauma, but age related O.A. also occurred. Temporo-mandibular O.A. due to gritty food was common. Suppurative arthritis was rare, but could lead to ankylosis. Rheumatoid arthritis has not been described in full blood aborigines. Skeletal remains confirm these statements.

DAS PRAEKOLUMBISCHE PERU - PALAEOPATHOLOGISCHER ASPEKT

W.Scholz (Germany)

Relikte aus praehistorischer Zeit: Skelettfunde, Mumien, Skelettuntersuchungen pathologisch und anthropologisch, Mumien mit Röntgenaufnahmen: Alter Geschlecht, Krankheiten, soziale Einordnung.
Histologisch und bakteriologisch: Erregerfunde, Krankheitsdiagnose.
Mikrosk opisch: Nachweis der Nährstoffe.
Darstellungen in der Keramik: Alle heute bekannten Krankheiten, Miss- und Fehlbildungen, Geschwülste, Infektionen, Traumata. Herausragend Schädel-Deformationen und -Trapanationen, desgl. Verschleisserkrankungen wie Arteriosklerose und Arthrosis deformans.
Operationsmethoden, Instrumente, Therapie formen.
Wurzeln der heutigen Volksmedizin (Medicina folklorica) im alten Peru.
Coca-Kauen, ein alter, geheiligter Brauch.

PATHOLOGICAL CHANGES IN THE SKELETONS OF THE PRE-COLUMBIAN SETTLEMENT OF CULHUACÁN, MEXICO

M.Schultz (Germany)

The skeletons from Culhuacán were examined by macroscopical, histological, radiological, and scanning-electron microscopical methods. The mortality had been rather high in the young adult age group, amounting to 46.3%. The older adult age had been reached by 25.9%, and just 5.6% were older than 50. Diseases of the jaw and the teeth could be observed. Diseases of the spine had also been very common: spondylosis deformans, which in severe cases induced ankylosis of the vertebrae. There are also osteoarthritis in the large joints and cases of rheumatoid arthritis in the smaller joints, which show obvious lesions in the joint surfaces. In addition, cases of osteochondritis dissecans and osteitis were diagnosed. The results are compared with those from pre-Columbian pueblo populations.

PALEOPATHOLOGY OF THE NEOLITHIC CAVE BURIAL OF AJDOVSKA JAMA (SLOVENIA)

J.M.Soulié (France)

The lowest neolithic level in Ajdovska Jama cave in northeastern Slovenia, dating from early Lengyel periods (4,000 - 3,800 B.C., uncalibrated C14), yielded a little collective burial of 13 to 16 individuals in a poor state of preservation. This material was examined macroscopically and radiologically. Several interesting observations were made, notably frequent enamel hypoplasia corresponding to the second to fourth year of life (unbalanced diet after weaning?); frequency of interradicular extension of enamel on lower molars (small, rather isolated population?); trauma at the left angle of one mandible, with indications of current treatment for such injuries.

MODELS FOR BRACHYCEPHALIZATION IN MEDIEVAL STRASBOURG

R.Soulié (France)

This introductory work is based on the 93 adult skulls of the late medieval cemeteries of Strasbourg (1,000 - 1,500 A.D.) on which cranial index could be measured (average I1=80.2). During this period, the dolicho-mesocephalic population (subgroup A) proceeding of the early medieval period turned into an average brachycephalic population (subgroup B) without any historically recorded invasion. Paleodemographic analysis (method of Castro e Almeida and Masset 1979) showed that the expectation of life at 20 was 4.7 years higher in the brachycephalic subsample than in the dolichocephalic one. The differences in the probability of death were constant (ca 0.6) from 20 to 70 years. The mean I1 per age class of the deaths increased regularly from 20 to 80 years. Thus, a selective process affected all adult classes of age with the same rate. Three alternative models are proposed, accounting for brachycephalization in medieval Strasbourg: the first based on plague as a selective agent, the second based on plague reducing the size of the population, the third being a combination of these two elementary possibilities.

PALEOPATHOLOGY OF THE LATE PERIOD POPULATION OF ABUSIR, EGYPT

E. Strouhal (Czechoslovakia)

A large series of human remains (minimum no. 296) was excavated by the Czechoslovak mission at Abusir in a secondary cemetery dated VII - IV century B.C. and located in the ruins of the Fifth Dynasty mastaba of Ptahshepses. The series is characterized by a very low mean age at death, relatively large proportion of immatures (except newborns and smallest infants) and a minimum life expectancy. Winter deaths dominated over the summer ones. According to the low frequency of traumatism without fighting injuries, the population lived peacefully. Major problems were osteophytosis of the spine, inflammations, and arthritis. Dental losses were due more to heavy attrition and paradontosis than to caries. Interesting congenital anomalies complement the relatively poor paleopathological picture.

ST BEE'S MAN: THE DISCOVERY OF A PRESERVED MEDIEVAL BODY IN CUMBRIA

D.M.O'Sullivan (England)

This paper presents the archaeological background to the discovery of a preserved body found in the course of excavation at St Bee's in Cumbria in 1981. The excavation of the burial vault and other circumstances of the discovery are described, and the archaeological and other evidence for the date of the body and its possible identity is considered. An account of the mode of burial is given, including details of the coffin and shrouds. These are set within the context of what is already known of medieval burial practice; brief reference is also made to other known instances of preserved corpses from medieval ecclesiastical contexts in Britain.

ST BEE'S MAN: THE AUTOPSY FINDINGS

E. Tapp and D.M.O'Sullivan (England)

This paper is concerned with the autopsy findings in a body excavated at St Bee's in 1981. The degree of preservation was remarkable and allowed both histological and electron microscopical examination of the tissues. Natural disease was found in the form of hydrocele of the left testes, changes in the lungs suggestive of tuberculosis, and a dental abscess. Traumatic lesions were also present, there being fractures in the seventh rib on the left side and in the hyoid bone. In addition, the jaw was fractured in two places. The possible relationships of these lesions to the cause of death is discussed.

LEAD IN BONE: A TALE OF THE UNEXPECTED

H.A.Waldron (England)

Lead is stored in skeletal tissues, and its concentration in bone is an index of the degree to which an individual or a population has been exposed. We have determined the lead concentration in bones from several archaeological sites in England in order to assess the degree to which early populations were exposed, and thus make an indirect estimate of the contribution made by lead poisoning to their morbidity and mortality. Since lead is mobile in the soil only in acid conditions (which would not favour bone preservation) there seemed little likelihood that the bones used in the studies would have been contaminated by lead in the soil. A series of recent studies has produced unexpected results, which do not support this view and cast doubt on our earlier conclusions. The results of these studies will be presented, together with the lessons that can be drawn from them.

PALAEOPATHOLOGIE AM NIEDERRHEIN: AUSGRABUNGEN UND SAMMLUNGEN

R.Watermann (Germany)

Übersicht von Sammlungen: 1. Bonn, Rheinisches Landesmuseum (Römerzeit bis Mittelalter): z.B. in Xanten, Neuss und Bonn freigelegte Skelettreste. 2. Köln, Röm.-Germ. Museum: Skelettreste des Stadtbezirks. 3. Krefeld, Burg Linn: Skelettreste aus Gelduba. 4. Duisburg, Museum: Röm. Skelette linksrheinischer Bezirke. 5. Aachen: Leprösen-Sammlung Schmitz-Cliever. 6. Kaiserswerth: Fliedners altäg. Mumie. 7. Köln, Dom: Schrein Drei Heilige Könige. 8. Köln und Xanten: Martyererskelette in Kirchen. 9. Braunkohlengruben: Diverse Skelette.
Übersicht osteopathologischer Details (6 Diapositive).
Übersicht regionaler Fachliteratur.
Topographische Karte mit Grabungsplätzen und Sammlungen.

EVOLUTIONARY BIOLOGY AND PATHOLOGY

J.Wind (Netherlands)

When we extend the scope of paleopathology back into prehistoric times by considering the life of early sapiens and pre-sapiens hominid populations, it appears that the concept of disease (while being quite obvious in daily life and especially in medical thinking) basically has a very relative value and a limited meaning. This can be illustrated by some fictitious examples of 'pathological' conditions in such populations. What we commonly call 'pathological' are conditions tied closely to human cultural life. Speaking of such conditions in prehuman populations poses some methodological pitfalls, resulting from the risk of confusing daily-life terms with those of evolutionary biology.

HELMINTHS IN ARCHAEOLOGICAL DEPOSITS - AN UPDATE (Display)

P.S.Gooch (England)

Two recent lines of investigation in archaeology have yielded information on parasitology. Parasites have been found in the tissues of mummified bodies and parasite eggs have been found in faecal material in cesspits and other deposits. Thus, information is available at both the individual and at the population level. Such information fits well into an ecological approach to past societies and may present useful evidence as to the evolution of parasitic disease, which in turn may have a bearing on future development. A survey of findings as represented by citation in the literature is presented.

PHILIPPE-CHARLES SCHMERLING, A DUTCH/BELGIAN PALEOPATHOLOGIST (Display)

G.T.Haneveld (Netherlands)

Philippe-Charles Schmerling, born in Delft on 24 February 1791, is one of the pioneers in paleopathology. After his medical studies both in Leiden and in Liège, he began to practice in the Belgian town. During his excavations in caves near Liège, the remains of some 60 animal species were discovered, and also human bones in an undisputably fossil state. By means of stratigraphic arguments, Schmerling was the first to demonstrate the existence of man during antediluvian periods. His medical background led him to a study of pathological lesions in these Quaternary mammalian bones, which were described in his Recherches sur les ossements fossiles découverts dans les caves de la Province de Liège (1833-4). He died in 1836, and his collection is still treasured at the University of Liège.

A QUANTITATIVE STUDY ON PATHOLOGICAL CHANGES IN HUMAN BONES FROM THE 17TH AND 18TH CENTURIES EXCAVATED IN THE HOOGLAND CHURCH, LEIDEN (Display)

G.J.R.Maat, M.R.M.Van den Brink and W.J.Mulder (Netherlands)

During the renovation of the Hoogland Church in Leiden, a considerable amount of human bones was collected in 1974 - 6. They originated from citizens buried under the church floor (A.D. approx. 1600 - 1830). To obtain reference material for the results of other excavations, this study was intended to get a picture of the occurrences of pathological changes in the major bones of the skeleton. Examination of the dry bones was focused on the following subjects: traumata, syphilis, inflammations of unknown origin, deficiency diseases, arthritis (osteoarthritis and vertebral osteophytosis), congenital anomalies and diseases of unknown origin (Paget's disease and biparietal thinning).

PATHOLOGICAL DEFORMATIONS OF BONES FROM THE 8TH CENTURY (Display)

A.Marcsik (Hungary) and V.Laszlo (Yugoslavia)

In the course of analysing the skeletons of the Avar period (i.e. the 8th century) series, which originated in the area of the Danube-Tisza Interstream Region, Bačka Topola, Yugoslavia, we described many pathológical deformations. In our material, two pathological deformations are very important: spondylitis tuberculosa and a bone tumor. We try to clear up etiology and set up the differential diagnosis on the basis of the x-ray and morphological pictures. These pathological deformations are compared with the results of the other series from the Avar period.

DEHISCENCES AND FENESTRATIONS IN EARLY MEDIEVAL JAW FRAGMENT FROM DORESTAD (Display)

D.Muller and W.R.K.Perizonius (Netherlands)

The material investigated consisted of jaw fragments from early medieval crania excavated from one of the cemeteries (de Heul) of this Dutch Carolingian town. Fenestrations and dehiscences in the alveolar bone are considered to be developmental phenomena with a genetic background instead of primarily pathologic processes. They were scored and measured according to definitions and methods as described by the authors in the J.Hum.Evol. 1980. Three age groups were distinguished by means of occlusal wear patterns in the posterior teeth. In this population, the incidence of fenestrations increased with age. No such tendency was found for dehiscences, since the lowest incidence occurred in the oldest group. A few speculations are made over the etiologic background of both dehiscences and fenestration.

UN NOUVEAU CAS D'AMINCISSEMENT SYMETRIQUE DU PARIETAL (Display)

R.Perrot and M.Billard (France)

Les auteurs décrivent la calotte crânienne d'une femme âgée de 80 ans environ, provenant de l'ossuaire de l'Eglise Saint-Sorlin de Serrières (Ardèche). Ce crâne présente un amincissement bilatéral et symétrique de la gouttière de la région pré-lambdoïde, avec également amincissement de la voûte au niveau de l'obélion. Ces lésions semblent caractéristiques d'un 'amincissement symétrique du pariétal' - 'symmetrical thinness of parietal bones'. Les auteurs discutent l'étiologie et l'anatomo-pathologie de ce cas par référence aux travaux antérieurs des autres paléopathologistes.

MICROSCOPICAL INVESTIGATIONS ON SOME LONG BONES FROM THE PRE-CLASSIC SETTLEMENT OF TETELPAN, D.F., MEXICO (Display)

M.Schultz, P.Schwartz (Germany) and C.M.Pijoan Aguade (Mexico)

Some longbone fragments from the preclassic settlement of Tetelpan, which were found in different pits, showed features indicating that cannibalism could have taken place in pre-Columbian times. The bones had been broken when the bony tissue was nearly fresh, and a few bones had a blackish color at one point, as if burnt. The bones were examined by histological and electron microscopic techniques. The histological investigation shows that in most cases the bone structure was extremely well preserved. Only in some samples could features be seen which point to decomposition. The findings of the examination by the scan conform for the most part to the histological results. But nearly all the samples show areas with very small holes scattered irregularly throughout the bone tissue. These structures could not be diagnosed reliably. There is no evidence of the influence of high temperatures over 200°C.

SOME UNUSUAL CASES OF EARLY MEDIEVAL (7TH CENTURY) PATHOLOGY AND SURGERY (CEMETERY OF RAUCOURT, MEURTHE-ET-MOSELLE) (Display)

R.Soulié and J.M.Soulié (France)

The Merovingian cemetery of Raucourt, only 71 graves and a little ossuary, yielded very rich archeological materials and some unusual paleopathological cases. Documents presented concern:

- possible cases of brucellosis;
- a well-healed amputation of the left lower leg with remains of a wooden pylon;
- three trephinations performed with Iron Age type saws, by the 'menchar' type technique still in use during the XIX century in North Africa (Chaouis of the Aurès). The technique used shows that in the Moselle region, autochtonous Iron Age surgical traditions survived through the Roman period.

REGIONAL PALEOPATHOLOGY OF PREHISTORIC PEOPLES IN THE GREAT BASIN, NEVADA (Display)

C.Stark and S.T.Brooks (U.S.A.)

The types and frequencies of pathologies were analyzed for a series of skeletal materials recovered from archaeological locales in Nevada. These data were collected over the past fifty or eighty years by both professionals and avocationalists, and were housed in various museums within the state, so provenance is not always known. The most

frequently occurring pathologies are osteophytic growths on the vertebral column and evidence of gum disease in the resorption of alveolar bone, exposing the roots of the teeth. Wear on the occlusal surfaces of adult dentition is extreme, leading to abscesses and tooth loss. The latter is particularly evident in older individuals, although it can commence in the mid-thirties. Where there is provenance, the indication is that these types of pathologies characterized the prehistoric Great Basin peoples through time.

RADIOLOGICAL EXAMINATION OF FOSSIL HOMINID SKULLS (Display)

J.Wind (Netherlands)

For an assessment of the internal anatomy of fossil hominid skulls, radiological examination seems to be of great value. However, commonly mineralisation hampers such an analysis. In addition, in the case of the temporal bones difficulties arise by the superposition of various structures. The latter problem can be solved by common tomography (radiographically rendering slices of the specimen), and the first now appears to be solvable by the third generation of computerized tomography (CT) scanners. Various approaches are illustrated by means of x-ray pictures of some skulls of fossil hominids (including Australopithecus and Homo erectus), of modern man, and of chimpanzee. It appears that CT scanning may allow a reconstruction of facial nerve size, the position of the horizontal semicircular canal, and of middle and inner ear structures.

TEST YOUR PALEOPATHOLOGY!

G.T.Haneveld and W.R.K.Perizonius (Netherlands)

During the meeting, the participants were able to test their diagnostic abilities on specimens selected from the unique 'Narath' reference collection, which dates from the pre-antibiotic era. Albert Narath (1864 - 1924) was a professor of surgery at Utrecht and Heidelberg. He had collected hundreds of clinically proven osteopathological specimens, mostly from his own practice. From this collection, housed in the Institute of Pathology of the State University at Utrecht, 25 specimens were exhibited. The actual diagnoses, made during life, were revealed halfway through the meeting. Cases of tuberculosis of the skull, the elbow, and the feet proved especially difficult for modern (paleo)pathologists, as was the excessive bone growth around the knee (the so-called Charcot joint) in neuropathic syphilis. The importance of reliable reference material cannot be stressed too much. Wherever such collections are available, we must preserve them for the future by all possible means.