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FUTURE PROSPECTS FOR PALEOPATHOLOGY

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In the past twenty years, new techniques have changed paleopathology dramatically. Carbon 14 dating, neutron activation, electron microscopy, computerized axial tomography, amino-acid dating, fluorescent immunology -- all of these can produce data that were unthinkable two decades ago. Where is all this going to lead us? Today, I would like to suggest some of the directions we may follow in the future.

In Europe, the first task is to assemble and arrange the vast amount of data already recorded in the literature, first breaking it down into time groups, then plotting the instances of major diseases in each time group on maps in order to trace geographical spread. The Paleopathology Association could take the initiative by setting up committees to make a critical assessment of what is known about certain European periods. These should be:

1. Paleolithic;
2. Neolithic;
3. Classical times (Greek and Roman periods);
4. Dark Ages (400 - 1,000 A.D.);
5. Medieval (1,000 - 1,500 A.D.).

In two to five years, it should be possible for us to prepare monographs on each of these periods.

Second, specific problems need to be attacked. We should set up projects on cancer, leprosy, arthritis (particularly the non-osteoarthritic forms), and parasites. We need individual workers interested in these diseases who are prepared to receive reports from others, to record and analyse them, and draw conclusions from the evidence.

Once our information for Europe is organised and available, the next task will be to study it to determine the flow of disease from place to place and time to time. One event of profound importance in the spread and evolution of disease was the ending of the Ice Age, which raised the levels of the oceans, and thus cut off the Old World from the New, separated Australia from southeast Asia, and led to the creation of the British Isles. This happened about 10,000 B.C., and any disease evolving in the Old World after that date would have difficulty in spreading to Australia or America until the development of ocean travel.

All this means an enormous amount of work that is beyond the capacity of any one person: it can be done only by the collaborative efforts of many workers directing their energies to a common goal. Serious consideration should also be given to recording data on a computer. Here is a tremendous opportunity for members of the Association to explore an exciting new frontier, a venture in which I would be honored to take part.

(This is a summary of the opening address by the President of the Paleopathology Association)

HISTOLOGICAL STUDY OF BURIED SEA-IMMERSED AND/OR LAKE-IMMERSED BONES

G. and S. Arnaud (Draguignan, France), C.A. Baud and R. Lagier (Genève, Suisse)

Materials and methods: Study concerning the following specimens: a) 10 cases of buried bones (in earth, in ice moraine, in church crypt,) ca 20th century B.C. to 15th century A.D.; b) 2 cases of sea-immersed bones, ca 10th century A.D.; c) 1 case of lake-immersed bone, ca 20th century B.C. Histological study by microradiography, polarized light microscopy, various stains (hematoxylin-eosin, PAS, Alcian blue, von Kossa for calcium phosphate). In addition to crystallography of mineral substance (particularly x-ray diffraction - study of crystal size), dosage of hydroxyproline (reflexion of collagen content) and of fluorine.

Results: Specimens buried in earth show deep and diffuse erosion classically due to fungi. Sea-immersed specimens show only superficial attack by microorganisms. Specimen which was immersed in lake water and lake wet slime shows the two above types of change but to a much lesser degree. Apatite was the only mineral substance found. The amount of hydroxyproline (related to weight of bone powder) is diminished only in places where an important erosion was found at histological examination.

Conclusion: Further studies are needed on a broader spectrum of specimens. Such investigations would be interesting for two reasons: a) to furnish the paleontologist, anthropologist and archeologist information analogous to that given by a forensic medicine specialist; b) in biology and medicine as a model for studying the influence of microorganisms and of different environments on bone tissue. Although such a model is certainly not a physiological one, it still may offer valuable information of practical interest.

A COMPARATIVE MICROSCOPICAL INVESTIGATION OF THE SO-CALLED SYMMETRICAL ATROPHY OF THE PARIETAL BONES

A. Ascenzi (Roma, Italia)

A microscopical comparative investigation has been carried out on three skull specimens showing lesions corresponding to those commonly indicated as symmetrical atrophy of the parietal bones. The skulls belonged respectively to 1) an Egyptian dynastic mummy going back to the first intermediate period, ranging from 2400 and 2060 years B.C., and 2) cadavers recently autopsied in the First Institute of Morbid Anatomy of the University of Rome. Microscopical examination was associated with a microradiographic analysis according to the technique suggested by Amprino and Engström (Acta anat. 15: 1-22, 1952). This last technique proved to be very useful, especially in investigating the ancient Egyptian skull.

In the three specimens, the lesions were similar. They involved not only the parietal bones but also other areas of the skull. Moreover, the distribution of the lesions was not exactly symmetrical. Microscopically, the most striking finding was a peculiar osteolytic process starting from the periosteum covering the outer table. A secondary bone deposition was evident at level of the diploic medullary spaces. The meaning of these findings will be considered shortly.

THE LESIONS OF THE MUMMY OF MERNEPTAH. THEIR POSSIBLE RELATIONSHIP WITH THE EXODUS OF MOSES

M. Bucaille (Paris, France)

The mummy was discovered in 1898 in the tomb of Amenophis II. Of all the royal mummies studied in Cairo in 1974-5, it was Merneptah's that provided the maximum number of features inviting research. This one was performed by a group of Egyptian and French collaborators. Investigations were undertaken particularly in the fields of radiology, endoscopy, odontology and forensic medicine.

All the evidence points towards the fact that Merneptah is the Pharaoh who died in the pursuit of Moses and the Hebrews during their exodus from Egypt, according to the Bible.

The lesions are summarized as follows:

- the fracture on the upper extremity of the right humerus, which may just as easily be due to an accident during the subject's lifetime as a break in the mummified bone;

- the lacunae in the right part of the thorax may well be the result of an injury sustained during the subject's life time; there is less likelihood that tomb-plunderers smashed the body in this place on the thorax because there is no 'breakage' of tissue (bones or soft tissues) around the abnormal orifice;

- the fracture of the right forearm bones is quite obviously a fracture of the mummy;

- there is nothing to be said about the lacuna in the right lumbar region on which the mummy is lying. All we possess is a view of the orifice seen from the inside by endoscopy; the lesion is not visible from the outside today. We do not possess the photograph taken by Elliott Smith, who gave the account of the examination of the mummified body after he had removed the wrappings in 1907;

- two thirds of the abdominal wall have subsided after the unwrapping;

- the anterior wall of the thorax seems be invaded by fungi;

- the cranial lacuna in the right parietal bone is of great forensic importance: its presence may suggest a cranio-cerebral lesion received during the subject's lifetime, a fracture with penetrating wound seriously injuring the brain, a damaging agent of some kind having entered the latter. In all likelihood, this lesion probably caused a very quick death.

The Bible simply states that the Pharaoh was drowned. It would therefore

be totally in keeping with the scriptural narration for him to have fallen victim, on the return of the water, to a trauma causing wounds to various parts of the body.

I have vainly searched for a contradiction of any kind between our medical observations and the narrations of the Exodus contained in the Bible and in the Qur'an, but I can find no argument to oppose the theory I have put forward. Given the present state of our knowledge, the only valid hypothesis that can be advanced is that Merneptah, Rameses II's successor, came to a tragic end during the Exodus.

RITUAL INJURIES INVOLVING BLOOD IN THE PREHISTORY OF SPAIN

D. Campillo and E. Vives (Barcelona, España)

In present day Spain more than fifty trepanated skulls have been found. In some cases the individuals survived the trepanations, while in others these trepanations were performed posthumously, by way of varying techniques. For a number of reasons, we conclude that this practice had magical or religious purposes, which had nothing in common with present day neurosurgery.

Four enclaved skulls have been found from the Iberic culture, probably the victims of punishment. Five individuals were found in three different locations and from different periods of time. These discoveries presented partial posthumous dental mutilations. In still another neolithic location, two incisor teeth mutilations were found, but these were practiced alive. Two parietal skull fragments, which were found underneath different cabins, might belong to a ritual act.

We also discovered several newborn babies of the Iberian period, all of whom were buried. This act was probably a ritual brought by the Punic civilization.

QUELQUES REFLEXIONS SUR LA PREHISTOIRE DU PIED BOT CONGENITAL

V. Capecchi (Siena, Italia)

Etant donné que le Congrès de Paléopathologie n'est pas seulement une présentation de cas concrets, mais aussi proposition et position de problèmes, je présente à l'attention des collègues celui du pied bot congénital.

Puisque cette difformité se rencontre dans toute l'humanité, sans distinction de race, dans le pourcentage de 0.12% environ, parce que l'on croit démontrée sa transmission héréditaire récessive, il faut admettre que la mutation génétique relative est vieille au moins de 100,000 années, c'est à dire avant le commencement de la glaciation de Würm. Je demande comment l'homme atteint d'une telle difformité a surmonté, en vivant à l'état de nature, une

épreuve aussi dure. Je pense que cela a été possible parceque, probablement, on croyait à une signification magique de la difformité.

OBSERVATIONS PALEOPATHOLOGIQUES SUR UNE POPULATION VIKING D'ALLEMAGNE DU NORD: SCHLESWIG, 11E - 13E SIECLES

C. Charlier (Liège, Belgique)

Au cours de fouilles menées il ya une dizaine d'années dans la vieille ville de Schleswig (Schleswig-Holstein), les restes osseux d'environ 200 individus on été recueillis. L'utilisation du cimetière va vraisemblablement de 1066 à environ 1275. A cette époque, Schleswig avait repris le rôle économique du port viking tout proche de Haithabu, plaque tournante du commerce dans toute l'Europe du Nord. Quoique tombée dans l'orbite culturelle de l'Occident, la population étudiée se rattache physiquement au Vikings.

La fréquence d'anomalies congénitales de type dysraphique est frappante (3 cas de spina bifida occulta sur 12 sacrum relativement bien conservés; 2 côtes cervicales dont une associée à de la spondylolisthesis; 2 cas de sacralisation de L5, dont 1 associé à une spina bifida occulta; 1 cas de sternum perforé; 1 cas possible d'épaule de Sprengel; 1 cas d'impression basilaire; 1 cas possible de microcéphalie.

D'autre part, 13 individus (sur 78 bien conservés) présentent un chevauchement des dents dont 5 cas sont associés à une rétention de canine(s). Un 6e individu est affecté de cette seule anomalie.

La comparaison avec d'autres populations scandinaves laisse supposer une parenté très proche avec Haithabu et peut-être, sous toute réserve, une fréquence accrue des anomalies dysraphiques dans le Nord de l'Europe au Moyen Age. Que la fréquence de la spina bifida présente des variations géographiques est un fait connu.

NB En dehors du problème congénital traité, un cas de destruction néoplasique sur un crâne adulte mérite d'être cité. Il s'agit vraisemblablement d'un épithélioma basocellulaire.

NOTE SUR LA PSEUDO-PATHOLOGIE DENTAIRE

A. Collilieux and J.-F. Dousset (Caen, France)

Dans quelques conditions doit-on se méfier d'une fausse pathologie dentaire?

1. Des modifications volontaires peuvent être apportées à des dents unitaires ou à l'ensemble d'une denture du temps du vivant:

par exemple, des avulsions volontaires sont à différencier des pertes dentaires à la suite de phénomènes carieux ou d'agénésie;

des mutilations dentaires ne doivent pas faire croire à des fractures dues à des caries.

2. Des modifications dentaires peuvent aussi se produire post mortem, par exemple:

- les altérations de la denture par l'action du feu;
- les érosions vermiculaires dues aux racines végétales;
- les canaux de forage créés par certains champignons.

Par ailleurs, il est bien connu des anthropologistes que l'ensemble des dentures des populations anciennes présente une usure caractéristique qui est physiologique; aussi faut-il se garder de taxer de pathologique l'abrasion d'une dent isolée.

THE EFFECTS OF BOTANICAL PRODUCTS ON REHYDRATED MUMMIFIED TISSUE AND ON EXPERIMENTALLY MUMMIFIED TISSUE

E.A.Coughlin (Cambridge, U.S.A.)

Rehydration of tissue from HUM I, a Peruvian male mummy preserved by desiccation, and from HUM II, an Aleutian female mummy preserved by air drying, was accomplished by placing sections of pleura, liver, intestine and muscle in two millimeters of Ruffer's solution for 24 hours.

Tissue mummified with experimental natron was obtained from two specimens of Macaca fascicularis monkeys; sections of meninges, spinal cord, pleura, liver, stomach, intestine, muscle and a whole eye, were separately packed in natron for 14 days. Segments of these two tissue types were placed in a series of botanical oils for 60 hours. Specimens were removed from the oils and subjected to a testing procedure utilizing colloidal gold. Specimens of the oils themselves were also tested as controls. After 3 hours, the amount of precipitated gold was measured directly in millimeters and an additional spectrophotometric measurement at 330 nanometers was recorded. Tissue associated with the botanical products of the genera *Juniperus* showed consistent electromagnetic activity in both test measurements and in both tissue types and over the entire range of specimens selected. *Juniperus*, as previously reported, is the main constituent of the PUM II Egyptian mummy fluid.

A POSSIBLE TRISOMY 21 FROM THE LATE HALLSTATT PERIOD

A. Czarnetzki (Tübingen, R.F.A.)

In a cemetery of the late Hallstatt Period (350 B.C.) at Taubischofsheim-Impfingen, about 120 burials were excavated. At preparation, the morphology of one skull was striking. The comparison with the other skulls of the population sample pointed out clear deviations. They give rise to the interpretation that the skull belongs to an individual with a trisomy 21. Comparisons with cases in the literature are given.

A PROPOS D'UNE LITHIASE PROVENANT DU DOLMEN DE LA BERTRANDOUNE A PREYSSAC (LOT)

H. Duday, M. Rossi, J. Zammit, J. Clottes and F. Rouzaud (Montpellier, France)

Le dolmen de la Bertrandoune à Pressac (Lot) a livré les restes d'une cinquantaine d'individus, attribuables au Chalcolithique (datation radiocarbone 4170 ± 120 B.P.).

Parmi les ossements humains épars a été découvert un calcul urinaire ovoïde, très volumineux (longueur 41 mm, largeur 35 mm, épaisseur supérieure 21 mm). Une analyse radio-cristallographique par diffractométrie des rayons X a été réalisée sur les diverses couches de ce calcul.

Cet article a pour objet d'en présenter les résultats et d'attirer l'attention des archéologues et des anthropologistes sur ce type de document.

NEW EVIDENCE FOR THE PRESENCE OF HUMAN TREPONEMATOSIS IN THE PRE-COLUMBIAN NEW WORLD

M. Y. El-Najjar (Las Cruces, New Mexico, U.S.A.)

A review of the medical history and findings by paleopathologists shows that human treponematoses originated in the Old World. The findings of this study lend support to the fact that, although rare, human treponematoses were indeed endemic in the New World before European contact. The author finds no evidence that human treponematoses could have originated independently and de novo, especially during the relatively short time since man's arrival in the New World. Since the disease may have been endemic for quite some time, milder forms of human treponematoses and improved host resistance could have developed in which only the most severe cases would be observable in the dry bones. This may explain the scarcity of skeletal lesions suggestive of this disease condition in prehistoric human populations.

COMPLICATED TRAUMA OF BONES FROM ANCIENT CEMETERIES IN POLAND

J. Gładkowska-Rzeczycka (Białystok, Poland)

Trauma constitutes a significant percentage of changes observed in osseous material from ancient cemeteries. Most often fractures of long bones, ribs and traumas of the skull were observed. Serious damage of osseous-articular systems causing functional disturbances were rarely seen. Over 1000 skeletons in various states of preservation are described. Nine cases of complicated bone damage with functional disturbance were found.

In the neolithic series of 218 skeletons found in Złota (Sandomiers district), traumatic changes were observed in 23% of the cases, mainly traumas of the skull and fractures in long bones. Apart from two cases of femur fractures with shortening of the limb one case of complicated traumatic change in crural and tarsal bones was found. As a result of this trauma, the articulation in the region of damage was completely accreted, and movement in this joint was lost. Similar changes were observed in the area of crural bones in a skeleton found in a medieval cemetery in Czersk (Piaseczno district). Two skulls with extensive changes in the skeleton of the face caused by trauma of the temporomandibular joint were also found.

The traumatic changes were observed in 13% of skeletons discovered in Czersk. This type of change was observed in 20% of the skeletons discovered in medieval cemeteries of Suraz (Łapy district), but no cases of changes were observed that would have disturbed the mechanics of the joints.

Among 250 skeletons found in Czarna Wielka (Grodzisk district) one case of trauma of several skull bones and both forearms was observed. In one elbow bone a pseudarthrosis was observed. In another case, a fracture of the lateral condyle of a femur was found. Some extensive changes were observed in the upper limb, which was found at a medieval cemetery in Ołbin (Wrocław district). The radiocarpal articulation and articulations of the carpus were accreted, with stiffening in these joints.

The frequency and character of traumatic changes is a good index of living conditions in particular populations. They arise from conflicts and social conditions. Our observations are in agreement with conclusions by other authors that trauma happened more often in neolithic than in medieval populations.

NOTES DE PATHOLOGIE DANS LES SQUELETTES ET DANS LES MOMIES DE LA NECROPOLE D'ANTINOE (EGYPTE)

R. Grilletto (Torino, Italia)

L'auteur, qui a participé comme anthropologue aux fouilles que la Mission Archéologique Italienne de l'Université de Rome a conduites en 1978 sous la direction du professeur Sergio Donadoni dans la nécropole d'Antinoë en Egypte, présente ici les résultats de la recherche pathologique sur les 69 squelettes et momies exhumés. Les cas traités se rapportent à: la polyarthrite alvéolodentaire; les abcès alvéolaires; l'hypertrophie du cornet moyen du nez; un probable ostéosarcome; l'ostéoarthrite rhumatismale dans ses manifestations vertébrales; des fractures, etc.

D'autres données anthropologiques ont été l'objet d'une communication que le même auteur a fait au IIe Congrès International d'Égyptologie (Grenoble 1979)

Complètent ce travail quelques anomalies remarquées, comme le métopisme, le hiatus sterni et la perforation olécrânienne.

LA TREPANATION AU PAYS-BAS

G. T. Haneveld and W. R. K. Perizonius (Utrecht, Holland)

Dans les énumérations paléopathologiques des trépanations européennes préhistoriques et historiques, les Pays-Bas ne figurent pas du tout, bien que quelques publications existent. Cette communication présente tous les crânes trepanés et toutes les rondelles trouvées au Pays-Bas.

On ne connaît pas de trépanations des temps néolithiques, parce qu'il ne reste guère de squelettes de cette période. La trépanation la plus ancienne a été trouvée au cours des fouilles à Cuyck (Noord-Brabant), situé sur la rive du fleuve La Meuse, et daté probablement de l'Age du Bronze. Pendant la période de 1000 B.C. à 300 A.D. on ne peut pas s'attendre à trouver des trépanations puisque à cette époque la crémation était d'usage. Quelques crânes trepanés et quelques rondelles datant du Haut Moyen Age ont été trouvés dans les 'terpes', des buttes artificielles d'habitation, en Frise au nord des Pays-Bas.

À partir du Bas Moyen Age jusqu'au XIXe siècle, la trépanation était généralement pratiquée par les médecins. Ceci peut être illustré par quelques crânes déterrés de cimetières et d'églises. Quelques-uns de ces crânes montrent de multiples trous de trépan et de traces de trépanations inachevées. Ceci peut être expliqué par le fait historique que des apprentis-chirurgiens devaient gagner de la pratique au cadavres. À cette époque des trépanations des vivants étaient faites seulement en cas de fracture de crâne, d'hémorragie ou de suppuration. Les signes de cicatrisation à part, les déviations pathologiques peuvent aussi fournir l'épreuve de trépanation *intra vitam*.

Cette communication montre l'importance de données sûres au niveau de la population et souligne la nécessité d'une collaboration intime avec des archéologues, des pédologues et les historiens de l'art et de la médecine pour la recherche paléopathologique.

THE PALEOPATHOLOGY OF AN IROQUOIAN POPULATION FROM ONTARIO, CANADA: STUDIES OF THE VERTEBRAL COLUMNS

P. Hartney (Saskatoon, Canada)

Vertebral anomalies and pathologies were studied during research on an Iroquois ossuary sample from Ontario, Canada. The ossuary belongs approximately to the 14th century. The mixed remains represent approximately 300 individuals. Between 2/3 and 3/4 of the sample were adults. Life expectancy was probably short. There are a few more males than females. The mixed remains were carefully reconstructed, resorted and pieces of vertebral columns put back together again. There are 498 of these parts or segments. Some of the adult vertebral bodies are compressed and wedge-shaped. These fractures are associated with other degenerative

changes. There are segments and isolated vertebrae which have inflammatory changes and may be examples of osteomyelitis of the spine. A few of them may be examples of tuberculosis. There are developmental anomalies, deformities, and variations of the vertebrae. Included are occipitalization, bony bridging, and anterior arch defects in the atlas vertebrae, ankyloses, anomalous articulations, separate spinous process, articulations of the spinous processes, numerical variation, spondylolysis and spondylolisthesis. The most common pathological lesions observed are examples of mechanical injury and degenerative changes of joints including surface changes associated with osteoarthritic lesions and intervertebral disc degenerations.

LES MALADIES DES NEANDERTALIENS: LE ROLE DE LA PALEOPATHOLOGIE DANS L'INTERPRETATION D'UNE ADAPTATION PREHISTORIQUE

K. H. Jacobs and G. J. Armelagos (Frankfurt am Main, R.F.A. and Amherst, Mass., U.S.A.)

Depuis les études de Virchow, les paléoanthropologues se sont intéressés profondément aux pathologies chez les Néandertaliens. Cette communication examinera l'étude de la pathologie néandertalienne de trois perspectives:

1. L'histoire des efforts de rejeter les Néandertaliens comme une 'espèce pathologique';
2. Une discussion de l'état actuel de connaissance descriptive de pathologies démontrées par cette étape de l'évolution humaine;
3. Un sommaire de recherche conduite par les auteurs, dans laquelle une analyse de variabilité entre les groupes fossiles dans la fréquence et l'intensité des caractères pathologiques nous permet de mieux comprendre les adaptations préhistoriques.

PALEOPATHOLOGY OF MARY OF BURGUNDY (1457-1482): A RECONSTRUCTION OF HER DEATH

P. A. Janssens (Antwerpen, Belgium)

This study contains the results of the anthropological and paleopathological investigations of the skeleton, found in the central burial vault in the church of Our Lady in Bruges (Belgium). It belonged to a woman aged about 25 years, with a stature of 1.60 m and a blood group A. The bones presented ante and postmortem injuries. To the first group belong fractures of 5 ribs and of both forearms. Postmortem lesions have been found on the left eyesocket, the cranial vault, the sternum and the metacarpal bones II and III of the right hand. These lesions are connected with an embalming process. Signs of serious illness have not been detected, only an anodontia vera of 11 teeth with an incomplete development of the head of the right articulation of the jaw and of the sternum. A superimposition of the cranium with the statue of the mausoleum proved the identity of Mary of Burgundy.

A CASE OF ANKYLOSING SPONDYLITIS IN MEDIEVAL GENEVA

C. Kramar (Genève, Suisse)

In October 1978, when excavations were being carried out in the Cathédrale Saint-Pierre (Geneva, Switzerland), medieval pathological bone remains were found (12c. - 14c.). They belong to an incomplete skeleton, male, aged about 60 years. Lesions affect the spine and the pelvic girdle. There is ossification of the intervertebral ligamentary system and of the apophyseal joints; the pelvic girdle shows a fusion of the sacroiliac joints. In addition to those effects, hyperostosis is seen in the tendinous insertion zones. These pathological facts permit a diagnosis of ankylosing spondylitis: inflammatory arthritis of the spine involving the sacroiliac joints, and less commonly the peripheral joints.

FORMATIONS EXTRADENTALES, PARACORONALES D'EMAIL DENTAIRE DES SERIES DES SEPTIEME ET HUITIEME SIECLES

G. Kocsis and A. Marcsik (Szeged, Hungary)

Les auteurs ont examiné les formations d'émail étant présentes aux surfaces cervicales et radiculaires des 2099 dents molaires et des racines dans 239 crânes humains provenant des septième et huitième siècles en Hongrie. Ils ont fait une description des quatre formations: la langue, la strie, la perle et la goutte d'émail. Abstraction faite de la langue d'émail, le pourcentage des formations d'émail, de même que leur fréquence concernant les dents et surfaces, concordent avec les données de la littérature. La différence de fréquence entre les sexes n'a pas de signification.

NOTE SUR LA TECHNIQUE DES TREPANATIONS EMPIRIQUES ANCIENNES

F. Leclère (Caen, France)

Deux sépultures néolithiques, à Loisy-en-Brie (Marne) et Mauny (Seine-Maritime), ont livré chacune un crâne porteur d'une large ouverture de trépanation ainsi que le volet osseux correspondant à la brèche crânienne. L'examen des crânes permet d'affirmer que les opérés n'avaient pas survécu et qu'ils étaient certainement décédés en cours d'intervention par hémorragie du sinus sagittal supérieur. Il est permis de penser que lorsqu'une telle éventualité se produisait, le sujet était inhumé avec son volet de trépanation. Dans ces deux cas, l'aspect de la zone d'intervention après remise en place du volet permet de juger de la technique employée et, en particulier, d'apprécier l'importance de la tranche osseuse nécessitée sans doute par deux facteurs: l'épaisseur de l'outil lithique utilisé et le souci d'aborder la dure-mère avec le maximum de précautions.

A THIRD MILLENNIUM DENTAL PROFESSION IN EGYPT: FACT OR FICTION?

F. Filce Leek (Manchester, England)

Medical historians of recent decades have accepted the concept that a highly organised dental profession existed in ancient Egypt, at a very precise date in its history, namely 2,650 B.C. The evidence is based on three separate and distinct observations, which, if each were substantiated, would indeed confirm that an organised profession did exist during that early period of Egyptian history. Two of these observations are based on paleodontological evidence, while the third relies on a philological interpretation.

The evidence most frequently quoted is that of two mandibular molar teeth joined together by a figure eight loop of gold wire, with the knot tied between the two teeth. This artifact was found by Junker in a mastaba tomb in the Giza necropolis. Because of the near impossibility of tying such a knot within the living dentition, the author is unable to accept this evidence. The philological evidence rests on the interpretation of the use of the hieroglyph elephant tusk determinative used in an Old Kingdom title. A number of eminent philologists contend that it implies a dental profession, though others, including the author, think that it betokens an honorary title bestowed upon the holder by the king. The third assumption relies on the observation of a fistula leading from the buccal plate through to the apex of a lower molar tooth in an Old Kingdom mandible. Because of its circular precision, the observer was assured that it was the result of an operative procedure in order to cure an apical infection. Examination of hundreds of ancient Egyptian dentitions reveal many similar sinuses arising from an apical abscess. This is a normal reaction of the alveolar bone to an acute or chronic apical infection, and most certainly has not been mechanically contrived.

The author is therefore unable to accept the validity of any of the evidence that has been given to support the hypothesis that an organised dental profession existed in Egypt during the reign of Cheops.

FORENSIC ASPECTS OF THREE ARCHAEOLOGICAL DEATHS

K. Manchester (Bradford, England)

The examination of 3 skeletons from Great Britain is described. The means of diagnosis of the cause of death in each case is different, and is dependent to varying degrees upon the finds at excavation and on the findings of laboratory examination.

The first case is of sub-Roman date from Dalton Parlours, Yorkshire. The skeleton is male, of age 25 - 30 years, and height 174 cm. Excavation revealed a prone burial and examination of the position of burial in situ led to a conclusion that it was a live burial. Laboratory examination did not assist in drawing this conclusion.

The second case is a cranium only. It was discovered in a well of Romano-British date at Rothwell, Yorkshire, and associated with pottery of the 3rd and 4th centuries A.D. In situ examination did not reveal the cause of death. Laboratory examination of the skull base indicated that the cause of death was decapitation with the victim in the erect posture.

The third case is of Anglo-Saxon date from Eccles, Kent. It is a male skeleton of age 35+ years and height 176 cm. During excavation, a metal implement, probably an arrowhead, was discovered beneath the lumbar spine. In isolation, this may have been assumed to be the cause of death. Laboratory examination indicated that the arrowhead wound was not the fatal injury, but that death was due to a large perforating sword wound of the right parietal bone.

The three cases are demonstrated to persuade paleopathologists to inspect, whenever possible, the remains during excavation, and even to conduct the excavation personally. Deductions made from in situ or from laboratory examination alone may be misleading.

METHODES D'EXPLORATION DE L'OSTEOPOROSE EN PALEOPATHOLOGIE

F. Metz and P. Raffy (Caen, France)

L'ostéoporose est définie en termes anatomiques. L'ostéoporose maladie, ou ostéopénie pathologique, est différenciée de l'ostéopénie sénile. L'exploration reste difficile pour le paléopathologiste (mauvaise conservation des squelettes)

1. Les méthodes 'cliniques' comprennent l'examen du squelette à la recherche de déformations caractéristiques des corps vertébraux, la radiographie classique, les mesures de poids, de l'épaisseur de la corticale auxquelles s'ajoutent les notions d'âge et de sexe.
2. Les méthodes d'évaluation de la quantité de tissu osseux sont plus fiables mais nécessitent des techniques élaborées:
 - a. Les méthodes histologiques par prélèvement osseux sur la crête iliaque permettent l'observation de la trame osseuse, le calcul du nombre de travées et de leur état.
 - b. Les méthodes densitométriques ont pour but de mesurer la quantité de minéral présent dans l'os. La tomodensitométrie axiale ou 'scanner' est une méthode d'avenir, encore peu utilisée. Les paramètres (densité osseuse et épaisseur corticale) permettent le diagnostic rapide de l'ostéoporose. A la densitométrie radiographique nous opposerons les analyses par absorption photonique, méthode d'avenir certaine. La quantité de calcium osseux mesurée en grammes par cm^2 est rapportée à l'âge, au sexe et à la taille du sujet; le diagnostic d'ostéoporose est alors aisé.

L'écueil de ces méthodes reste l'absence de profil minéral pour les populations anciennes de toutes régions et qu'il faudra établir.

PALEOPATHOLOGY AND ANCIENT MAN'S ECOLOGY

R. Perrot (Lyon, France)

Ecology is the study of the natural medium, and interactions between living agents and their medium (Haeckel 1870). According to Wassermann (1974), the author uses the idea of human ecosystems: man is the centre of three environments - physical (geology, hydrology, climatology), biological (man, animals, plants), and socio-cultural. These three environments interact in space and time by disturbing parameters. Man attempts to adapt against them: the good adaptation is homeostasis (Cannon 1929), or, in simple language, 'good health.' Pathology is the failure to adapt; thus paleopathology (the study of ancient diseases) brings a knowledge of ancient man's ecology.

The author thinks that the socio-cultural environment is the more compulsive by mutilations s.l.: cranial deformations (voluntary or not), ritual trephinations, syncipital T, scalping, dental mutilations, fingers and members mutilations, cannibalism. In a biological environment, man is the first disturbing parameter. The author notes wounds of all kinds: cranial perforations and fractures including medical trephinations, fractures and war amputations of limbs. Animal interference by biting (fulvous wild beasts); specific changing of bone pathology i.e., caused by paludism and treponematoses. Also vegetable microscopic organisms i.e. bacillus responsible for the osseous pathology of leprosy and tuberculosis. Viruses are also a disturbing factor, i.e. causing poliomyelitis.

Paleopathology from the physical environment is more difficult to demonstrate in skeletal remains: climatic variations (cold, humidity) seem to be causative elements in rheumatoid diseases (rheumatoid polyarthritis, spondylarthritis ankylosans).

DENTAL DESTRUCTION IN LA FERRASSIE MAN

P.-F. Puech (Paris, France)

The microscopic wear on the teeth of one particular Neanderthal man (La Ferrassie I from 40,000 years ago) does not indicate use for more than just dietary purposes, but for two reasons the wear must be interpreted as atypical:

1. the forward position of the mandibule dentition, giving labial rounding to the maxillary anterior teeth;
2. the extensive periodontal breakdown.

The distribution and size of microscopic striations present on the teeth of La Ferrassie I and La Ferrassie II (the woman who shared the way of life of the first subject) arise from mastication of meat and vegetable food eaten with a great deal of grit, associated with a tearing action (see Barret film, Mastication: a dynamic process), followed for La Ferrassie I by a period of careful mastication, which is associated with the dental destruction and its pathology.

MALFORMATION LUXANTE DE LA HANCHE DANS UNE POPULATION EGYPTIENNE

E. Rabino Massa and V. Capecchi (Torino and Siena, Italia)

Les auteurs présentent un cas de malformation luxante de la hanche chez les anciens Egyptiens de la collection ostéologique 'G. Marro' de l'Institut d'Anthropologie de Turin. Il s'agit d'une femme de 37-45 ans qui présente une malformation luxante de la hanche droite dû à un glissement et à une épiphysiolyse de la tête fémorale qui s'est produite à la suite d'un traumatisme ou d'un processus infectieux qui ont causé la fracture du col fémoral. Dans cet individu on peut observer un cotyle trop ouvert, peu profond, avec une obliquité excessive de son toit. La tête fémorale est un peu aplatie, la diaphyse distale du fémur manifeste un effilement pour une nouvelle adaptation articulaire. Les radiographies révèlent une ostéoporose très élevée causée par un défaut des sollicitations mécaniques du membre inférieur.

PATHOLOGIE DANS QUELQUES FOUILLES DE CASTILLA VIEJA

J. M. Reverté (Madrid, España)

Dans la dernière année, les élèves du Cours d'Introduction à l'Anthropologie médicale et Paléopathologie de l'Université Complutense de Madrid ont réalisé sous la direction du Prof. J.M.Reverté des fouilles dans diverses parties de Castilla la Vieja (Soria, Segovia, Burgos). Dans cette communication on présente les cas les plus notables des fouilles des anciens gisements de San Millan y San Frutos (Segovia) (Siècles IX-XVI), Tiermes (Soria) (Siècles IX-XI), Burgos, Monastère de Silos (Siècle X).

Au cours de la communication, les diapositives projetées étaient: trépanations (10 cas); syphilis (4 cas); arthropathies (plusieurs); traumatismes (plusieurs fractures); anomalies dentaires (plusieurs); cribra orbitalia (10 cas); ostéome crânien (4 cas).

ARTHRITIS IN SOME ENGLISH SKELETAL POPULATIONS

J. Rogers (Bristol, England)

Preliminary examinations of medieval and Saxon skeletal populations in the southwest of England, comprising some 400 skeletons, have indicated some interesting differences of incidence of arthritic disease from those commonly seen today. Most skeletons were of young adults probably aged between 20 and 50 years.

Of 465 hands examined, only two (from the same Saxon skeleton) had an erosive arthropathy, which might have been caused by rheumatoid arthritis. One putative case of gout was seen in the feet. Severe osteoarthritis was common. Hip osteoarthritis was seen in 28% Saxon specimens and 10% of

medieval hips. Shoulder osteoarthritis was present in 24% Saxon and 12% of medieval specimens. In five cases, vertebral hyperostosis was present, one of these being a Saxon Bishop.

A continuing detailed study of the different patterns of arthroses in the different populations, both temporally and spatially, is under way.

TREPONEMAL INFECTIONS IN PRE-EUROPEAN CONTACT EXHUMED AUSTRALIAN ABORIGINAL SKELETONS

A. T. Sandison (Glasgow, Scotland)

Venereal syphilis was introduced into Australia by European explorers and settlers, and may still be absent in some remote areas of Central Australia. Previously, Australian aborigines suffered from yaws in moist tropical areas and from endemic syphilis or treponarid (irkinja) in the arid areas traversed by nomadic hunter-gatherers. Collections in Australian medical schools and museums show evidence of treponemal disease in about 1% of exhumed skeletons. All of the changes of *caries sicca* may be seen in these skulls and cavitating nodose expansions in other bones. It is probable that over the past 10 millennia shrinkage of the large humid tropical environmental areas and enlargement of the arid zones of the continental centre permitted the evolution of treponarid from yaws.

DIFFERENTIAL DIAGNOSES IN THE HISTOPATHOLOGY OF PREHISTORIC HUMAN BONES

M. Schultz (Göttingen, R.F.A.)

The examination of microscopic structures in prehistoric human bones is often the sole possibility for obtaining a reliable diagnosis. Sometimes the effects of some special bone diseases are so similar that it is difficult to diagnose the genuine disease or to exclude secondary factors like decomposition and soil erosion. In these cases bone histology may be of help. As prehistoric bones are often fragile, the samples must be handled very carefully. Therefore a new method of preparation was used: the specimens were embedded in BIODUR^R E12. After this impregnation there is no difficulty in sawing, grinding and cutting the samples, even when they are large. Using not only techniques of the usual histological investigations, but also micro-radiography, it is possible to detect structures which are characteristic of special diseases. In this report, five case studies are presented (metabolic disease, tumor, osteitis). An attempt is made to show the evidence for special diseases and to discuss their differential diagnoses.

NEW EVIDENCE FOR SKULL METASTASIS OF MALIGNANT NEOPLASM IN THE EUROPEAN BRONZE AGE

R. Soulie (Strasbourg, France)

The author describes a female skull aged 50-70 years found in grave 281 at the Bronze Age cemetery of Mokrin (Yugoslavia) and dated 1900 - 1600 B.C. (C14). There were no macroscopic changes in the long bones; scapulae, pelvis and vertebral column were missing. By direct observation, the skull showed 5 lesions, of which 4 were partially and 1 not perforating. The largest perforation, centered on the left coronal suture, was 39.5 x 35 mm (inner table). On the inner table there are very clear traces of neovascularisation. All lesions are without, or with very slight, bone reaction. At least two of them were centered on the course of meningeal vessels. The three others seem to have started in the diploe without involving the inner table. The disposition and type of lesions fit very well with neoplastic diffusion through the external carotid system (cancer of the breast?). Teeth showing great quantities of tartar may indicate anorexia.

Research on other paleopathological evidence for primary carcinoma, metastasis or myelomatosis in central and western Europe have shown that the case of Mokrin is the most ancient in that area. The skull from Tartareu (Spain) is now interpreted as Ewing's sarcoma, Hodgkin's disease or reticulum cell sarcoma (Campillo 1976), the one from Nørregård in Denmark is problematic (Brothwell 1967), the one from Grossbrenbach, GDR, is very improbable (Ullrich 1972 and personal communication). The malignant character of the two lesions of skull JJB354 (♂ 40-50) from the Grotte de Terrevaïne at La Ciotat, Bouches-du-Rhône, France, cannot be excluded, but it is rather pseudopathology (author's direct and radiographic examination). During the middle ages in the same area, 12 observations have been noted. In addition to the five quoted by Brothwell (1967), there are examples from Poland (Gładkowska-Rzeczycka 1980), GDR (Froehlich 1965, Bach 1961), Czechoslovakia (Vyhnanek 1969, 1976, Jakab 1977), and Hungary (Regoly Merei 1962). The people affected were not significantly younger than in modern times.

In Egypt, a catalogue for all epochs was made by Strouhal (1976, 1978). We can add the case of Late Dynastic skull E270 published by Brothwell (1967) as intradiploic epidermoid cyst, and the case from Biga (female 30 -40), which was diagnosed as chronic rhinitis by Wood Jones (1910). Primary nasopharyngeal carcinoma seems to be significantly more frequent in Egypt than in central Europe, a situation that still exists, and points to constant differences in conditions of life, but local susceptibility to viral etiology (Epstein-Barr) may also explain the phenomenon.

UN CAS DE GANGOSA DANS UN CIMETIERE ROMAIN D'ARLES

E. Spitery (Marseille, France)

Un crâne provenant d'un cimetière romain d'Arles (Bouches-du-Rhône,

France) porte de très importantes mutilations faciales réalisant le tableau de 'gangosa.'

L'os frontal, très irrégulier, porte les traces de lésions cutanées. Des exostoses de petite taille existent sur les maxillaires.

Les os propres du nez sont réduits, l'orifice nasal est arrondi, son bord est mousse.

La branche montante du maxillaire droit présente une angulation responsable de l'ouverture vers l'avant de la gouttière lacrymo-nasale.

Le bord alvéolaire est cicatrisé au niveau des incisives gauches.

Le palais osseux est presque entièrement détruit.

La cloison nasale n'existe plus.

Ces lésions pourraient être dues à une rhinite mutilante identique à celle qui survient au cours de la phase tardive des tréponématoses.

ETUDE PALEOPATHOLOGIQUE ET MEDICO-HISTORIQUE D'UNE PIECE ANATOMIQUE DU XVIIIIE SIECLE

P. L. Thillaud (Paris, France)

La pièce présentée appartient aux collections du musée Dupuytren (Paris) Il s'agit de la tête osseuse incomplète d'un enfant de 12 ± 3 mois, décédé en 1797. Une impressionnante lésion recouvre la presque totalité de la voûte crânienne. Le diagnostic historique évoque une 'carie du crâne, suite de teigne.'

Après avoir considéré la documentation médicale historique se rapportant à cette pièce, l'auteur procède à l'analyse macroscopique et radiologique. L'hémangiome osseux primitif de la voûte crânienne est, après discussion, le seul diagnostic étiologique retenu.

L'étude des pièces ostéo-pathologiques conservées dans les musées anatomiques apparaît comme fondamentale et providentielle tant pour l'historien de la médecine que pour le paléopathologiste. Aussi faut-il favoriser leur protection et même leur extension. Trop de collections françaises patiemment constituées souffrent de l'évolution technologique des moyens d'investigation anatomo-pathologiques et meurent faute de crédits.