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BOOK REVIEWS

ODONTOLOGISCHE VERWANDTSCHAFTSANALYSE (in German) [ODONTOLOGICAL KINSHIP ANALYSIS]. By Kurt W. Alt. Stuttgart, Ulm: Gustav-Fischer-Verlag, 1997. 331 pp. ISBN 3-437-25248-8. $52.00, Dm 98.

Teeth are, next to bone, usually the best preserved remains in prehistoric anthropological material and in any other type of macerated contemporary human material. Due to their morphology on macroscopical and microscopical levels, as well as their molecular structure, teeth store an abundance of information useful for detailed anthropological research. So, to search for details to enable us to perform kinship analysis using dental material was necessary and rewarding.

Kurt W. Alt has recently presented a well written book densely packed with valuable facts, morphometrical data, schematic drawings, and practical examples covering the topic of odontological kinship analysis. The author begins with a treatise dealing with the meaning of kinship analysis. He also discusses the difficulty in defining the term kinship. Kinship analysis cannot not simply be done by study of biological relationship. Realized social relations must be regarded as well. A separate chapter covers general formal genetics and special dental genetics. Four other chapters give a catalog of characteristic features of teeth and deal with variable characteristics within the normal range and with anomalies of the teeth. In addition, dentally aberrant features in conjunction with craniofacial dysplasia syndromes and epigenetic odontological marks are described.

After the prerequisites have been extensively described, an extra chapter deals with the odontological kinship analysis, itself. Here, the meaning of each single finding and factor, evaluated regarding its probability within the web of analytical statistics, leads to a probable kinship relation. Kurt W. Alt gives several examples of his method applied to real prehistoric populations in an extra chapter. Finally, he discusses the potentials and limits of this method.

Kurt W. Alt has established a comprehensive system of kinship analysis which makes use of the abundance of odontologically recordable features. This is useful for prehistorical analysis of biological and sociological reconstructions of populations as well as for contemporary forensic medical evaluations. I only wish that this valuable book were available in English, and not only in German, because it deserves to be read by a worldwide population of researchers in anthropology and forensic medicine.

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DIE EVOLUTIONE DER ZÄHNE: PHYLOGENIE, ONTOGENIE, VARIATION (in German). Edited by Kurt W. Alt and Jens C. Türp. Berlin, Chicago, London/Sao Paulo, Tokyo, Moscow, Prague, Warsaw: Quintessenz Verlags-GmbH paperback, 1997. 764 pp. ISBN 3-876-5259-0X. $110.00, Dm 198 (paper).

This voluminous and comprehensive book, written in the German language, covers a wide field of odontology by dealing with the complex subject of the evolution of the teeth with particular emphasis on phylogenetic, ontogenetic, and morphological variations. Not including the introduction, the text is arranged in seven major parts: 1) theoretical fundamentals of evolution, 2) phylogeny, 3) functional and constructional morphology, 4) odontogenesis, 5) phylogenesis and ontogenesis of the mandibular joint, 6) population studies and dental anthropology, and 7) archaeozoology. Each part contains several articles written by different authors. The profundity of these articles varies.

The first part contains four articles. K.W. Alt and J.C Türp report on comparative odontology and dental anthropology. Their article gives a general overview of the international research in this field and provides information on important new literature. The second article deals with the historic development of odontology and dental anthropology (K.W. Alt), and gives perspectives for further scientific research. In the third article U. Wolf informs the readers about the interactions between ontogenesis and phylogenesis. However, although this contribution takes a very serious approach and is an important contribution to the field, the information is not very specific to the evolution of the teeth. W.F. Gutmann, who wrote the fourth article, gives us the theory of the Frankfurt Model. The principles of the construction of the organism are discussed and explained according to the current views of evolution. The drawings in this article are very clear and informative.

The second part has four articles. T. Bollinger describes the development of the mammals on the basis of the fossil record. The next three articles are closely connected. M. Morlo reports on the phylogenesis of the teeth in vertebrates. In two articles W. Henke and H. Rothe deal with the phylogenesis of the non-human primates and the hominids. Both articles have been diligently and thoroughly researched and include results of recent work. However, the quality of some line drawings (e.g. fig. 3, page 283; fig. 35, page 338) could be improved.

The third part, which deals with functional and constructional morphology, contains four contributions. Using very clearly arranged, impressive line drawings, W.F. Gutmann shows how the evolution of some of the morphological constructions (e.g. branchia, central nervous system, jaws, and teeth) took place in different chordata. H.-U. Pfretzschner discusses the biomechanics of the dental enamel. This relatively short, but important, contribution is very well presented. T. Martin conscientiously describes the microstructure of the dental enamel in mammals. This article is illustrated by line drawings and very good quality black and white photographs which clearly represent the different structures of the dental enamel. The last article of this part is another contribution from H.-U. Pfretzschner. It deals with the adaptation of dental morphology to nutrition in recent and fossil mammals. This instructive article gives a reliable view on the different kinds of dentitions, but includes only a few citations.

The fourth part, whose subject is odontogenesis, contains the most contributions in this volume. J.C. Türp and K.W. Alt review well known methods and features and report on the basic knowledge of odontogenesis with emphasis on topography, terminology, and classification. G.-H. Schumacher describes the macroscopic morphology of human teeth and R.J. Radlanski presents the micromorphological aspects in human teeth. Both articles summarize well known results. However, R.J. Radlanski presents his creative theory on the structure of the enamel, which is