

**THE HUMAN SKELETON
IN FORENSIC MEDICINE**

Second Edition

THE HUMAN SKELETON IN FORENSIC MEDICINE

By

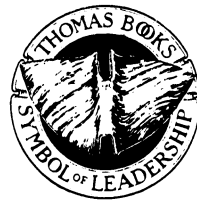
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TO
MARY AND WALDA
WHO HAVE STOOD BY US
OVER THE YEARS

PREFACE

The Second Edition of this book is based upon 65 years of combined experience, involving not only human alone, but also mammalian skeletal remains as well. We have taken special cognizance of the theme of intrinsic variability; and its range, whether in age-time or measurement, has been our major concern. As a result there is a constant emphasis upon the reliability of the many different determinations to be made when solving, as it were, for “X, the unknown.”

As stated in the Preface of the First Edition, data were selected from major anatomical and anthropological journals from volume one onward: American, English, German, French, Italian, Portuguese. We also included relevant books. Proper credit has been given to direct quotes, summaries, figures, tables, wherever these have been included in the present edition, whether adopted specifically or adapted (restated).

We had originally planned to include as much basic data as possible to emphasize the scope of variation within and between populations. However, in order to keep the cost of this edition at a reasonable level, we were forced to eliminate much of this material. It is hoped that the readers will consult the references we have provided throughout the book.

We have aimed to make the Second Edition, like the First Edition, as broad in scope and as comprehensive in its application as we possibly could. If our book is useful in the identification of human skeletal remains, then our labors shall have been worthwhile. If there be “sins of omission or commission,” we shall be glad to be told of them, but we feel we have checked and double-checked as carefully as is humanly possible!

Wilton Marion Krogman
Mehmet Yaşar Işcan

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The authors met at Boca Raton, Florida and worked literally from dawn to dusk. Without the help of three lovely young ladies, Mary, Walda and Meryem, they would have had to "burn the midnight oil"!

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CHAPTER 1

INTRODUCTION: SCOPE AND PROBLEMS

This book deals primarily with bones. *However*, we felt it was important to include other material related to the individuality of a forensic case in order to make this volume as comprehensive as possible. While we recognize the importance of *teeth* in forensic science, we have decided to include only the areas relevant to age, sex, and race. There are many specialized books about dentition for those desiring further information on this subject. In dealing with bones we shall limit ourselves to the skeletal remains of deceased persons only, except where correlative evidence can be gained from studies of the living. For the most part, medicolegal cases involving the bones of a living individual should remain the concern of the orthopedist, the roentgenologist and the pathologist. Yet there are several exceptions to this rule. Many physical anthropologists have been consultants in several adoption cases of unknown or suspect paternity, i.e., racial background where the problem concerns the possible presence of genes other than Caucasoid (White). A subsidiary problem may be skeletal age and evaluation of maturational status. We have also worked on immigration cases (non-Caucasoid) where chronological age is uncertain and skeletal age became of import in the assessment of whether the individual was under or over 21 years of age. These are special cases, not ordinarily within the scope of a book such as this, although Chapter 3 is certainly pertinent.

What, then, is the purpose, the aim, of this book?

First and foremost, it will not make the reader an "expert" in the field of the identification of human skeletal remains. It is our hope to acquaint the law enforcement agent, forensic pathologist, forensic odontologist, and advanced graduate students with the bones, what they tell and how they tell it. We hope to answer questions as to types of information gained from the skeleton; and moreover, answer in terms of absolute and/or relative reliability, so far as this can be done. We do not flatter ourselves that this is a he-who-runs-and-reads-may-learn kind of book. It is a meaty, specialized, questioning, and evaluating exposition of our present state of knowledge. It is not definitive, in whole or in part, for there are too many lacunae in our studies,

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