A FIELD GUIDE FOR HUMAN SKELETAL IDENTIFICATION

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Second Edition

By

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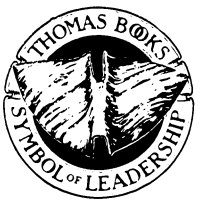

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INTRODUCTION AND PREFACE TO THE SECOND EDITION

The identification of unknown human skeletal remains should ideally be carried out under laboratory conditions, where sufficient time and equipment are available for the forensic anthropologist to arrive at the most carefully reasoned set of estimates possible. Over the last 25 years of practice in this area, however, a significant number of my examinations have been performed in the open field, in basements of rural funeral parlors and city morgues, in small non-equipped rooms at state crime laboratories and other law enforcement agencies, sometimes in animal health care facilities, and in various other locations where conditions were far less than optimal. In addition, examination times have often been limited due to the sensitivity of the particular case, to hasty funeral arrangements by relatives who for personal reasons resist having their kin subjected to post-mortem trauma, and at times by law enforcement officials who were understandably anxious to begin their investigations. As unfortunate as this may be, it is nevertheless a practicality that is unlikely to change. Under such conditions, therefore, it would seem advantageous for forensic anthropologists to have quick access to information pertinent to procedures involved in human identification, especially of the sort that is not easily consigned to memory.

This manual attempts to serve that purpose. It is designed solely as a reference guide for the professional forensic anthropologist to utilize in the field, and it thus presupposes an expert knowledge of human skeletal and dental anatomy, including the ability to identify small fragments and the side of the body to which they belong. It also assumes a mastery of measurement techniques and thorough familiarity with bony landmarks, as well as observational skills necessary for identifying changes in the hard tissues due to trauma, disease or age. It likewise presumes a working knowledge of the past and present literature in forensic anthropology, especially with respect to the advantages of some techniques and inherent limitations of others. Indeed, most professionals should be quite familiar with the information contained here, because it has been either abstracted or reprinted from the available literature.

This manual is divided into the four most fundamental areas of human

identification: ethnic affiliation, attribution of sex and estimations of age and stature. I have tried to be comprehensive in each of these sections, but make no rash claims about completeness of coverage. Efforts were made to be judicious in the selection of the most appropriate and accurate methods and techniques and, in this context, there are some conspicuous omissions. Methods that have been shown to be generally unreliable or that have low predictive capabilities, such as age determination by cranial suture closure, are not mentioned. Nor are techniques that can be carried out only in the laboratory, including age determinations by dental histological methods, cumulative microstructural changes in the bone cortex and x-ray analysis of the resorption of cancellous bone. Also not included are the many studies of discriminant function sexing of individuals from populations with no records of sex, as among prehistoric American Indians, because there is an element of circularity in these analyses. Finally, the methods presented here have been developed almost exclusively from population samples in the United States and may not be applicable to individuals from other populations.

The field of forensic anthropology has reached a stage where nearly all major bones of the body, and even parts of those bones, can be used in a wide variety of different combinations to estimate with high degrees of accuracy the sex, age and ethnic affiliation of unidentified human skeletal remains. Because many new techniques and modifications of older ones have been developed since first publication of *A Field Guide for Human Skeletal Identification* in 1987, it seemed appropriate to bring the guide up-to-date by incorporating these new advances into a revised edition.

Among the more important changes in this edition are the following:

1. Cranial and post-cranial discriminant function coefficients for determining ethnic affiliation and sex, generated from measurements taken on individuals represented in the Forensic Data Bank at the University of Tennessee in Knoxville. These coefficients are particularly welcome in light of the growing evidence that they are more applicable to modern individuals than those developed from the older anatomical collections, perhaps because of a secular trend over the last several generations toward gracility among modern groups.
2. Substitution of the Suchey-Brooks method for the Gilbert-McKern method for age determination by public symphysis maturation, especially because the former appears to be more accurate for females.
3. Inclusion of age estimates for males and females by sternal rib metamorphosis, which allows estimates to be made on individuals older than allowed for by pubic symphysis maturation.

It is hoped that these and other additions, including new corrections for age in estimating stature in older adults, will make the guide more useful during the process of human identification.

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METRIC DATA FOR THE ATTRIBUTION OF ETHNIC AFFILIATION

TABLE 1

Discriminant Function Weights for Distinguishing American Whites from American Blacks on the Basis of Cranial Measurements

Measurement	Male Weights	Female Weights
Basion-prosthion	+3.06	+1.74
Glabello-occipital lgth.	+1.60	+1.28
Max. width	−1.90	−1.18
Basion-bregma hgt.	−1.79	−0.14
Basion-nasion	−4.41	−2.34
Max. bizygomatic dia.	−0.10	+0.38
Prosthion-nasion hgt.	+2.59	−0.01
Nasal brdth.	+10.56	+2.45

Notes: The test sample included 108 White males, 79 White females, 113 Black males and 108 Black females from the Terry and Todd collections. Age, sex and ethnic group were known.
Male sectioning point: Above 89.27 = Black; below 89.27 = White
Female sectioning point: Above 9.22 = Black; below 9.22 = White
Stated accuracy: White males = 80%; White females = 88%
Black males = 85.4%; Black females = 88%

Source: Giles, Eugene and Orville Elliot 1962 Race identification from cranial measurements. J. For. Sci. 7: 147-157.