A DATA BASE

FOR

FORENSIC ANTHROPOLOGY

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ABSTRACT

We have established a computerized data base for use in human skeletal identification research. The data base contains information obtained from 715 individuals whose skeletons were sent to forensic anthropologists for identification or study. Nearly 500 of these have been positively identified, at least as to race and sex. Documentation for each skeleton consists of age, sex race, height, weight and additional information about the individual that may be available. Measurements and observations from each skeleton were entered and stored in the data base.

Our data base is broadly representative of the contemporary U.S. population as it is seen by forensic anthropologists. As such it differs considerably from skeletons in anatomical collections, upon which most current forensic research rests. Demographically, forensic skeletons represent younger individuals from a more diverse ethnic background than those found in anatomical collections. Ethnically, our sample is 67 % White, 19 % Black, 6 % Hispanic and 3 % Native American. Metrically, forensic skeletons are larger and more variable. We have used the metric data to revise sex and race identification standards. The new standards are more suitable for use in forensic practice than those currently available.

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

APPENDICES PAGE

LIST OF TABLES

LIST OF FIGURES

HISTORY AND BACKGROUND

Introduction

Identification of skeletal remains by forensic anthropologists, has long played an important role in the criminal justice system. Anthropologists have been actively involved with the American academy of Forensic Sciences since its inception in 1949, resulting in the eventual establishment of a separate Physical Anthropology section. In 1977, five years following this development, the American Board of Forensic Anthropologists was formed to oversee the certification of future practioners in the field.

All of these developments reflect a greater realization of the importance of the contributions of forensic anthropology to the criminal justice system. During the last 20 years, the field of forensic anthropology has seen an exponential increase in the amount of work being conducted in cooperation with or directly for law enforcement agencies at the federal, state and local level. It is now common practice for the law enforcement community across the nation to rely on the expertise of the forensic anthropologist whenever identification of human skeletal remains is involved.

While these changes have increased the contributions of the discipline to the criminal justice system, they have also accentuated the need for further research in the field of forensic anthropology. This includes research specific to the areas of age and sex determination, assessment of major racial or genetic affinity, and stature estimation from the human skeleton. Correspondingly, success achieved in human identification from skeletal remains depends on the experience of the anthropologist as well as on the availability of adequate sex, race, age, and stature standards. In 1984 we proposed to construct a computerized skeletal data bank composed of recent forensic cases as recorded by forensic anthropologists from all regions of the country (Jantz and Moore-Jansen 1984). Since then we have developed a recording form, a standardized manual containing guidelines for the recording of forensic skeletal cases, and a data-base structure for the computerization of data records. During the past two years we have visited several research institutions for the purpose of recording and documenting recent skeletal cases, all of which have been added to the data-base. We have received cooperation on the part of several professional collegues, while even more have committed themselves to future participation. While data collection is a gradual and slow process, the format proposed under the terms of the data bank promises to provide a dynamic data-base which is both flexible and diverse in its format. Together the data records compiled in this forensic skeletal data bank would provide a sizeable and demographically representative data-base, otherwise unattainable. Most of all, it will remain truly representative of the current U.S. population as long as new data records continue to be added at a steady rate.

<u>Comparative Anatomical Collections</u>

Central to research in human identification is the availability of skeletons of documented age, sex, race, and stature. It is from such resources that metric and nonmetric data are obtained to form the basis for the skeletal parameters, used to differentiate between sexes, major racial groups, and to assess age, and estimate stature.

Historically, anthropologists have relied on the availability of comparative anatomical skeletal collections for the purposes of skeletal identification research. Early anthropologists and anatomists across the nation, aware of the applications of such anatomical research collections, established depositories of human skeletons as part of their respective research institutions. The two largest collections are the Terry and the Hamann-Todd anatomical collections. The Terry collection, assembled by Robert J. Terry at Washington University, St. Louis, contains approximately 1600 White and Black skeletons obtained from dissecting room cadavers primarily, during the 1920's and 1930's (Stewart 1979). The Hamann-Todd collections assembled by T. Wingate Todd between 1912 and 1938, consists of approximately 2600 skeletons, also of Whites and Blacks obtained from dissecting room cadavers. In a recent review of past literature in forensic research, we determined that over one-half of the published researh surveyed, is based on materials from the Terry and Hamann-Todd collections alone (Table 1).

The principal limitation of collections such as the Terry and Hamann-Todd is that they no longer represent the population of the United States which of course is the population from which skeletons requiring identification are derived. Sources of bias

Table 1. Skeletal collections upon which forensic anthropology research is based.

Collection	No. Samples Used	% of Total	Ethnic Group	Sex	Age Group
Terry	43	32.3	Black & White	M/F	Adult
Todd	30	22.5	Black & White	M/F	Adult
Korean War Dead	8	6.0	Black, White, Hispanic and Mongoloid	M	Young Adult
Harvard Dissecting Room Cadaver Coll.	6	4.5	White	M/F	Adult
Hrdlicka Collection	5	3.8	Black, White, North American Indians	M/F	Adult & Foe-tuses
Howard Medical College	2	1.5	Black	M/F	Adult
Unspecified Cadaver or Forensic Collections	9	6.8	Black, White & Mongoloid	M/F	Adult
Arctic Eskimo	4	3.0	Mongoloid	M/F	Adult
Prehistoric North American Indian	12	9.0	Mongoloid	M/F	Adult
British-American	2	1.5	Black & White	M/F	Foe-tuses
European (Belgian, British, Nordic, Finnish, Hungarian, and European Unspecified).	8	6.0	White	M/F	Adult
Japanese	1	0.8	Mongoloid	M/F	Adult
Chinese	1	0.8	Mongoloid	M	Adult
African (East and South Africa)	2	1.5	Black & Hybrid (Colored)		
Total	133	100%			

include: 1) ethnic variability. While both the Terry and Hamann-Todd collections consists of Whites and Blacks only, the U.S. population is much more diverse, including large Hispanic populations, especially on the Southwest, Oriental populations, and of course, Native American populations; 2) indivduals composing these samples were born prior to 1900 (Stewart 1979). The secular changes in Blacks and Whites since the turn of the century, especially well-known for body height (Tanner 1978), render these collections less appropriate for contemporary Black and White populations. Changes in health and nutrition also appear to have altered morphology (e.g. Angel 1982); 3) the demographic characteristics of the Terry and Hamann-Todd collections make them less appropriate as bases for current forensic research. Since they consist of skeletons obtained from cadavers donated to medical schools in St. Louis and Cleveland respectively, they are primarily older individuals drawn from a lower socioeconomic strata. Skeletons that go through forensic laboratories, on the other hand, come from a wide range of age and socioeconomic categories.

The Data Banking Concept

We propose that the data bank concept as it is presented by the current project will provide an answer to some of the problems described above. Three important aspects of a data bank of this nature are 1) the greater ease with which data may be compiled relative to the time involved in the accumulation of actual skeletal collections; 2) the potential for continuous testing and revision of standards for identification to reflect biological changes in recent populations (forensic cases); and 3) the greater manageability and easy storage of the data. In contrast to the substantially greater storage requirements and financial investments needed for the curation of comparative anatomical collections, the forensic data bank requires only hardware and software computer facilities for storage. Additional financial investments are limited to management of the data bank including maintenance, research and development, and service to participants and potential users from the forensic anthropological and law enforment community. Proposed services which may be provided include continuous revisions and modifications to current standards in human identification.

While the data bank concept has many advantages, three major problems must be dealt with. The first concerns the choice of information to be collected and the methods and standards by which this information is recorded. Due to the individuality in the application of particular methods and techniques sometimes observed among forensic anthropologists, biases or inconsistencies do occur in data and findings reported by different observers. We feel that inter-observer error can be minimized by taking measures to the develop appropriate recording procedures. Standardization of variable descriptions for all types of information recorded, as well as of specific recording procedures and formatting is an integral part of the data banking project at hand. In response to this problem, we developed a standard recording form containing all the data catategories to be collected. The design of the recording form was intended for efficient recording as well as for later computerization. In addition, we compiled a handbook which include a selection of observational and measurement techniques from the existing literature (Moore-Jansen and Jantz 1986).

A second problem concerns the degree of active participation by forensic anthropologists. In general, most practicing forensic anthropologists are rather restricted with regard to how much time they may justifiably spend on research, including recording of incoming forensic cases in a detailed fashion such as that proposed here. Currently, we estimate that the recording of a complete or nearly complete skeleton, using the procedures prescribed in the manual, will take about one to two hours. In situations where remains have to be skeletonized in preparation for recording, substantially greater amounts of time are required. Additional time may be required to locate any available documentation including biographical data, which frequently must be obtained from several different sources (medical records, dental records, police records, family or personal records). Despite the best intensions on the part of all professionals in the discipline, it is in our best interest to continue to work on reducing the time required for data recording. This process is slow and require some practical applications on the part of different individuals, who in turn are willing to provide helpful comments and criticisms which may help us improve the recording procedure both in design and format. However, we firmly believe, that the current version of the manual represents both a stable and lasting core on which future editions may be constructed.

A different aspect of this problem includes the restrictions imposed by the limited number of observations recorded. Due to the previously discussed time constraints it is impossible to collect a data set large enough to completely replace the function of comparative skeletal collections. However, the contents of the data bank as described below compose a rather substantial data base with numerous potential applications to human identification research and practice. Variables and variable categories may be added or deleted from the general body of the data-bank in accordance with changing needs and emphases in skeletal research. However, the present composition of the data bank is considered to represent a stable body of information which will be maintained relatively intact with future revisions.

A third problem concerns the dissemination management of data. Efficient management of the data-base involving maintenance and continued addition of data records, is strongly dependent upon the successful centralization of data records, and correspondance between the central data bank and potential users. It should be stated that when a data record is submitted for inclusion into the data bank, it becomes part of a common data-base which will be made accessible to all participants upon request. Specific rights to particular data records are relinquished once the record is submitted to become part of the data bank.

For special management and reference purposes, an official version of the data-base is assigned once annually. The designation of a data-base version will provide users and readers with an easy reference to data used in a particular study and will permit the comparison of this and later versions of modified, revised and enlarged data sets from the data bank. The present version of the data-base is to be referenced as "Forensic Skeletal Data Bank, Version 1.", and will be made available to researchers upon request. A new, revised version of the data bank will be produced following the completion of the present project in early 1988. A permanent copy of each edition of the data-base will be maintained in its entirety, to permit researchers to review changes in the data-base during its development. We recommend that user's wishing to obtain data from the skeletal data bank make their requests directly to the data bank office rather than using secondary sources. This will assure that the originality of the data and that the most recent version of the data bank is provided.

DATA AND STRUCTURE OF THE DATA-BASE

Hardware and Software

The basic equipment of the data bank is composed of an IBM PC-XT personal computer, (640Kb) with dual disk drives, a 20Mb hard card, and an Epson FX-85 printer. The "dBase III Plus" (Ashton-Tate 1986) software package was chosen as an appropriate data-base management system package for the design and maintenance of the skeletal data-base. "dBase" is able to perform several essential functions of both managerial and analytical nature. It also permits data to be read into Ascii files which may be read by more comprehensive statistical packages on mainframe computers. For the purpose of statistical analysis we relied on the Statistical Analysis Package (SAS),(SAS Institute,Inc., 1985), which the University of Tennesse Computing Center supports.

Recording procedures

The forensic data bank represents a dynamic data-base of skeletal information obtained primarily from recent, documented forensic cases or donated anatomical specimens. Each skeleton is recorded on a specially designed forensic recording form (Appendix A), which upon completion is submitted to the central data bank for inclusion in the computerized skeletal data-base. Presently, each record is composed of more than 172 variables or variable categories pertaining to qualitative and quantitative description of dental and skeletal material, documentation of the identity of the individual to whom the remains belong, and general management purposes.

When a record is received for computerization, a primary key or Forensic data number (FDN) is assigned uniquely identifying it. All recording forms are maintained separately in file folders, which in turn are stored sequentially by their primary key.

Computerized Recording Format

Once the recording form has been completed, the next step is to computerize the manually recorded data. Using "dBase III", we developed a number of record structures composing a total of six relational data-base files (.dbf) (Table 2). Each structure is composed of a group of related variables or variable categories, which make up the contents of a single data record. The total number of data records with a specific record structure, in turn comprise a single data file, while the combined number of data files compose the data-base.

Table 2. Data-base files and associated screen formats.

File type	Data-base	Screen format
Identification file	IDDATA1.dbf	IDFORM1.fmt
Documentation/pathology	IDDATA2.dbf	IDFORM2.fmt
Inventory/materials	IDDATA3.dbf	IDFORM3A.fmt
Inventory/materials	IDDATA3.dbf	IDFORM3B.fmt
Skeletal age changes	IDDATA4.dbf	IDFORM4.fmt
Cranial measurements	IDDATA5.dbf	IDFORM5.fmt
Postcranial measurements	IDDATA6.dbf	IDFORM6A.fmt
Postcranial measurements	IDDATA6.dbf	IDFORM6B.fmt

To minimize storage requirements and redundancy in information, each variable or variable category is unique to one the six file structures with the exception of the primary key . The primary key, or forensic data bank number (FDN) is the only variable to appear in each of the data files comprising the information ~~pertaining to a single data record. This permits maintainance of~~ relationship of different data categories from each of the separate data files for each particular data record. From this data-base of relational files, modified composites of information of variable categories can be constructed.

Figure 1 illustrates the three types of relational files which tie into a central identification file (IDDATA1.dbf): 1) a documentation/medical history/pathology file (IDDATA2.dbf); 2) a skeletal inventory and research materials file (IDDATA3.dbf); and 3) three osteological files composed of qualitative and quantitative data.

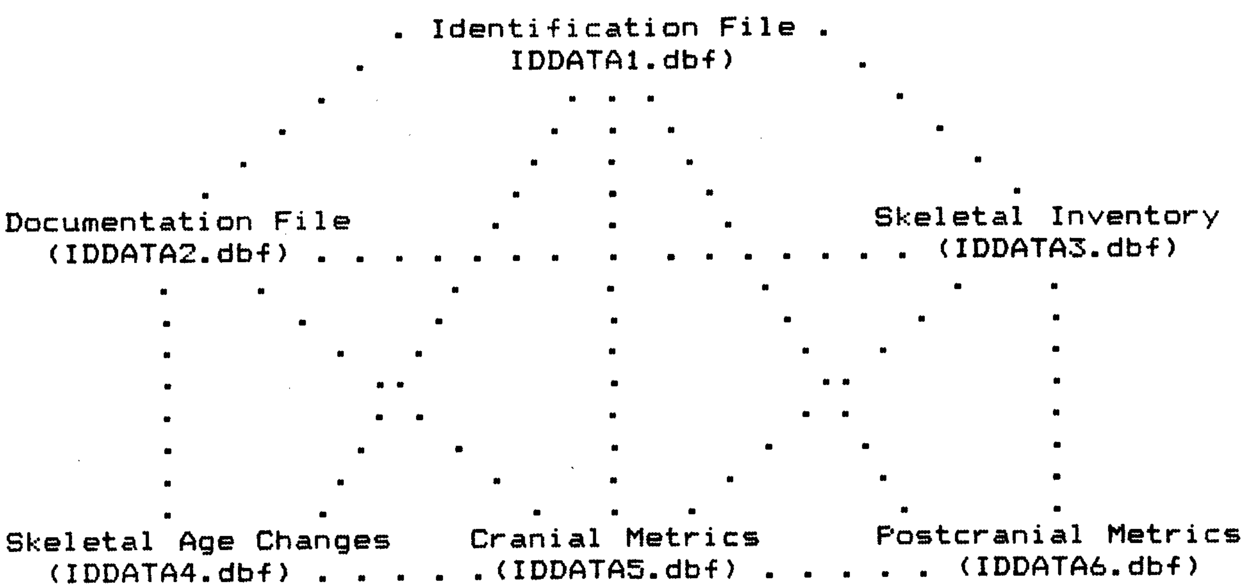

Figure 1. Relational structure of data-base files.

An additional file structure pertaining to dental records and observations recorded directly from skeletal remains or from medical examiner's records is currenly under development. The design of the dental file will follow the recording format prescribed by the FBI-NCIC standard recording procedures (Fierro and Loring 1986). Dental information is obtained as part of the standard recording procedure, and will be included in forthcoming versions of the data-base.

Data entry into the software data files is done directly from the recording form onto the computer. For the purpose of data entry, and to facilitate editing and review of data records at a later time, special data entry screen formats (.fmt) were designed for each record structure. A screen format reproduces the respective portion of the recording form pertaining to a particular data-base file or record structure on the computer screen, permitting the operator to more easily read and interpret each record. Additionally, the variable codes or labels as they appear in the file structures may be modified to better identify specific variable categories entered. While variable labels are necessarily abbreviated in the file structures so they do not exceed the variable name length prescribed by the software, more meaningful variable names may be applied in screen formats[1].

Eight screen formats or computerized recording forms were designed to correspond to the six data-base files (see Table 2).

[1] For the actual variable labels used in the record structures of each file and their corresponding variable names, see Appendix B, sorted by variable label, or Appendix C, sorted by variable name. Associated data-base files and screen formats are listed in both Appendix B and C.

While four of the data-base files (IDDATA1, 2, 4, and 5) each have a single corresponding screen format or computer record page, the inventory file (IDDATA3.dbf), and the postcranial data file (IDDATA6.dbf) have two screen formats or computerized recording pages each. Due to the length of their respective file structures, it was not possible to include all of the variable categories on a single screen format for these two data files.

When using a particular data-base file, the corresponding screen format(s) may be initiated by engaging the appropriate "dBase" command language. At this time, it is necessary to access each data-base file and corresponding screen format independently. If a user wishes to review records of a different data file, the previous data-base files and screen format should be closed, before the new data-base file and corresponding format is initialized.

Data Files and Structures

As previously stated the data-base is composed of six data files, each with its own unique record structure. A primary "biographical" or "identification" file (IDDATA1.dbf), comprises the information pertaining to the positive identification of each particular case maintained in the data bank. The information contained in the biographical file includes such data as sex, ethnic affiliation, age, height, and weight. Additional information pertain to the time, place and circumstances of death, discovery, and time since discovery. A complete list of variables and variable categories of the identification file (IDDATA1.dbf) is presented in Table 3. The associated screen format (IDFORM1.fmt) is illustrated in Figure 2.

Table 3. A list of variables and variable categories comprising the identification file (IDDATA1.dbf).

Variable Name	Variable Name
Forensic Data Bank Number	Place of Birth (Municipality)
Collection /Case Number	Place of Birth (County)
Curator/Address	Place of Birth (State)
Recorder	Occupation
Date Recorded	Years of Employment
Identification Status	Blood Type (ABO)
Date of Positive Identific.	Blood Type (Rh)
Sex	Blood Type (MNSS)
Sex Status/Level of Identif.	Blood Type (Kell)
Race	Blood Type (Kidd)
Race Status/Level of Ident.	Blood Type (Duffy)
Ethnicity	Number of Births
Name (First)	Number of Pregnancies
Name (Middle)	Date Reported Missing
Name (Last)	Date of Discovery
Age At Death	Date of'Death
Age Range (Estimate)	Time Since Death
Age Group (Gross Estimate)	Manner of Death
Stature in Cm (Living)	Deposit/Exposure
Stature in Cm (Cadaver)	Depth if Cm (If Buried)
Weight in Lbs (Living)	Estimated Period of Decay
Weight in Lbs (Cadaver)	Decay Status
Means of Identification (1)	Place of Discovery (Area)
Means of Identification (2)	Place of Discovery (State)
Handedness	Place of Discovery (County)
Date Of Birth	Place of Discovery (Municip

See Appendix C for corresponding variable labels.

```
======================= FORENSIC DATA BANK  PAGE ONE  =======================E
FDN:        ID#:                RECORDER:              IDSTATUS:             SEX :
            CUR:                DATE REC:    /  /      DATEOFID:    /  /     RACE:
------------------------------------------------------------------------------
 FNAME:                         MNAME:                         LNAME:

 ---------AGE---------          ---STAT---    ---WGHT---    -MEANS OF IDENTIFICATION-
 AT TIME OF DEATH:              ALIVE:        ALIVE:        MNSOID#1:
 RANGE:         GRP:            CADAV:        CADAV:        MNSOID#2:

 HANDEDNESS:                    -----PLACE OF BIRTH-----    ---------OCCUPATION-------
 BIRTHDATE :    /  /            MUNICIP:                    OCCUPAT :
 ETHNIC GRP:                    COUNTY :      STATE:        YEARS OF EMPLOYMENT:

 BLOOD TYPE   NO. OF BIRTHS:    PREGN:          ----------DEPOSIT / EXPOSURE---------
                                                D/E:
 ABO :        DATE REP. MISSING:    /  /        DEPTH IN CM (IF BURIED):    .
 RH  :        DATE OF DISCOVERY:    /  /        PERIOD OF DECAY:         ESTIMATE:
 MNSS:            DATE OF DEATH:    /  /
 KELL:                                          ----------PLACE OF DISCOVERY---------
 KIDD:        TIME SINC DEATH:                  AREA:
 DUFF:        MANNER OF DEATH:                  STATE      CO:     MUN:
==============================================================================
```

Figure 2. Computer screen format, page one (IDFORM1.fmt).

A second data file referred to as the documentation/pathology file (IDDATA2.dbf), contains source information regarding the biographical sketch presented in the identification file (IDDATA1.dbf), specific information pertaining to number of births and pregnancies, and additional general information concerning a documented medical history. Also part of this file is information pertaining to the the general condition of the skeletal remains and observed pathological lesions. A special comment field permits inclusion of specific information or data categories which are not specifically defined in the recording format. A complete list of the variables and variable categories comprising the documentation/pathology file (IDDATA2.dbf) is illustrated in Table 4. The corresponding screen format (IDFORM2.fmt) is presented in Figure 3.

Table 4. List of variables and variable categories comprising the documentation file (IDDATA2.dbf).

Variable Name	Variable Name
Forensic Data Bank Number	Race Source
Duration of First Pregnancy	Age Source
Duration of Second Pregnancy	Stature Source
Duration of Third Pregnancy	Weight Source
Duration of Fourth Pregnancy	Handedness Source
Duration of Fifth Pregnancy	Date of Birth Source
Duration of Sixth Pregnancy	Place of Birth Source
Duration of Seventh Pregnancy	Occupation Source
Duration of Eighth Pregnancy	Blood Type Source
Duration of Ninth Pregnancy	No. of Births Source
Date of First Childbirth	No. of Pregnan. Source
Date of Second Childbirth	Other Sources
Date of Third Childbirth	Medical History
Date of Fourth Childbirth	Congenital Malformations
Date of Fifth Childbirth	Nature of Remains
Date of Sixth Childbirth	Dental Records
Date of Seventh Childbirth	Bone Lesions/Antemortem
Date of Eighth Childbirth	Perimortem Injuries
Date of Ninth Childbirth	Additional Comments
Sex Source	

See Appendix C for corresponding variable labels.

```
====================== FORENSIC DATA BANK  PAGE TWO =======================E
FDN:        IDNO:                RECORDER:           IDSTATUS:         SEX :
        CURATOR:                 DATE REC:           DATEOFID:         RACE
-------------------------------------------------------------------------------
  PREG/WKS  -BIRTHS/DATE-    ---------------------SOURCES----------------------
  GRA1:     PARA1:   /  /    SEX :                    DOB:
  GRA2:     PARA2:   /  /    RACE:                    POB:
  GRA3:     PARA3:   /  /    AGE :                    OCC:
  GRA4:     PARA4:   /  /    STAT:                    BLO:
  GRA5:     PARA5:   /  /    WGHT:                    NBI:
  GRA6:     PARA6:   /  /    HAND:                    NPR:
  GRA7:     PARA7:   /  /
  GRA8:     PARA8:   /  /    OTHER:
  GRA9:     PARA9:   /  /
  ---------------------------GENERAL  INFORMATION-----------------------------
   MEDICAL HISTORY:
  CONGENIT MALFORM:
  NATURE O REMAINS:
    DENTAL RECORDS:
      BONE LESIONS:
  PERIMOR INJURIES:
     ADDIT COMMENT:
==============================================================================
```

Figure 3. Computer screen format, page two (IDFORM2.fmt).

A second category of information is composed of an inventory file, in which data pertaining to the specific contents of the data bank are maintained. This includes an inventory of skeletal material by element and side (left and right), indicating the condition of the bone as either partial or complete. A general inventory indicating the completeness of the skeleton, the presence or absence of dentition, hair, and other research materials is also maintained. Finally, information pertaining to the presence of dental casts, radiographs or photographs, and other materials used in analysis of the particular remains, are preserved in the inventory file . A complete list of variables and variable categories of IDDATA3.dbf is presented in Table 5. Figure 4 and 5 illustrate the corresponding screen formats (IDFORM3A. fmt and IDFORM3B.fmt).

Table 5. List of variables and variable categories comprising the inventory file (IDDATA3.dbf).

Variable Name		Variable Name	
Forensic Data Bank Number		Man. 2nd Premolar	(R)
Cranium		Man. 1st Molar	(L)
Frontal		Man. 1st Molar	(R)
Parietal	(L)	Man. 2nd Molar	(L)
Parietal	(R)	Man. 2nd Molar	(R)
Occipital		Man. 3rd Molar	(L)
Temporal	(L)	Man. 3rd Molar	(R)
Temporal	(R)	Postcranium	
Zygomatic	(L)	Hyoid	
Zygomatic	(R)	Clavicle	(L)
Palate	(L)	Clavicle	(R)
Palate	(R)	Scapula	(L)
Maxilla	(L)	Scapula	(R)
Maxilla	(R)	Humerus	(L)
Nasal	(L)	Humerus	(R)
Nasal	(R)	Radius	(L)
Ethmoid		Radius	(R)
Lacrimal	(L)	Ulna	(L)
Lacrimal	(R)	Ulna	(R)
Vomer		Hand	(L)
Sphenoid		Hand	(R)
Mandible		Manubrium	
Mandibular Body	(L)	Sternum	
Mandibular Body	(R)	Rib	(L)
Mandibular Ramus	(L)	Rib	(R)
Mandibular Ramus	(R)	Atlas	
Dentition		Axis	
Maxillary Dentition	(L)	Cervical Vertebrae	(3-7)
Maxillary Dentition	(R)	Thoracic Vertebrae	(1-12)
Max. 1st Incisor	(L)	Lumbar Vertebrae	(1-5)
Max. 1st Incisor	(R)	Sacrum	
Max. 2nd Incisor	(L)	Ilium	(L)
Max. 2nd Incisor	(R)	Ilium	(R)
Max. Canine	(L)	Pubis	(L)
Max. Canine	(R)	Pubis	(R)
Max. 1st Premolar	(L)	Ischium	(L)
Max. 1st Premolar	(R)	Ischium	(R)
Max. 2nd Premolar	(L)	Femur	(L)
Max. 2nd Premolar	(R)	Femur	(R)
Max. 1st Molar	(L)	Patella	(L)
Max. 1st Molar	(R)	Patella	(R)
Max. 2nd Molar	(L)	Tibia	(L)
Max. 2nd Molar	(R)	Tibia	(R)
Max. 3rd Molar	(L)	Fibula	(L)
Max. 3rd Molar	(R)	Fibula	(R)
Mandibular Dentition	(L)	Calcaneus	(L)
Mandibular Dentition	(R)	Calcaneus	(R)
Man. 1st Incisor	(L)	Talus	(L)
Man. 1st Incisor	(R)	Talus	(R)

Table 5. Continued.

Variable Name		Variable Name	
Man. 2nd Incisor	(L)	Foot	(L)
Man. 2nd Incisor	(R)	Foot	(R)
Mandibular Canine	(L)	Skeletal Material	
Mandibular Canine	(R)	Dental Casts	
Man. 1st Premolar	(L)	Histological Sections	
Man. 1st Premolar	(R)	Radiographs/Photos	
Man. 2nd Premolar	(L)	Other Materials	

See Appendix C for corresponding variable labels.

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========================FORENSIC DATA BANK - PAGE THREE=====================E
FDN:         IDNO:              RECORDER:          IDSTATUS:          SEX :
       CURATOR:                 DATE REC:          DATEOFID:          RACE
-----------------------------------------------------------------------------
                                 32.SKELETAL   INVENTORY

------- CRANIUM:   -------    ---- MANDIBLE:   -----    ----POSTCRANIUM:   -----
     L X R          L X R          L  R        L  R           L X R         L X R
FRONT:      MAXIL:            BODY:        RAMU:          HYOI:        THOR:
PARIE:      NASAL:                                        CLAV:        LUMB:
OCCIP:      ETHMO:            ---- DENTITION:   ----      SCAP:        SACR:
TEMPO:      LACRI:                 L  R         L  R      HUME:        ILIU:
ZYGOM:      VOMER:            MAX:         MAN:           RADI:        PUBI:
PALAT:      SPHEN:            XI1:         NI1:           ULNA:        ISCH:
-------------------------     XI2:         NI2:           HAND:        FEMU:
1 - Complete/Present     !    XCA:         NCA:           MANU:        PATE:
2 - Fragmentary/Present  !    XP1:         NP1:           STER:        TIBI:
3 - Postmortem loss      !    XP2:         NP2:           RIBS:        FIBU:
4 - Antemortem loss      !    XM1:         NM1:           ATLA:        CALC:
5 - Unerupted (dentition)!    XM2:         NM2:           AXIS:        TALU:
6 - Congenitally absent  !    XM3:         NM3:           C3-7:        FOOT:
=============================================================================
```

Figure 4. Computer screen format, page three (IDFORM3A.fmt).

```
======================== FORENSIC DATA BANK - PAGE FOUR=====================E
FDN:         IDNO:              RECORDER:          IDSTATUS:          SEX :
       CURATOR:                 DATE REC:          DATEOFID:          RACE
-----------------------------------------------------------------------------
                                 RESEARCH  MATERIALS

 33.SKEL. MATERIAL:

 34.DENTAL CASTS   :

 35.HIST. SECTIONS:

 36.RADIOGR/PHOTOS:

 37.OTHER MATERIAL:
=============================================================================
```

Figure 5. Computer screen format, page four (IDFORM3B.fmt).

The last part of the data-base is composed of three skeletal data files including qualitative observations of age related changes in the skeleton (IDDATA4.dbf), cranial measurements (IDDATA5.dbf), and postcranial measurements (IDDATA6.dbf). Individual data records in each of these files may be related to one another and to the main identification file (IDDATA1.dbf) by the primary key (FDN). The variable names for the information contents of the three skeletal data files are listed in Tables 6 - 8. The corresponding screen format is illustrated in Figures 6 - 9.

Table 6. List of variables and variable categories comprising the skeletal age file (IDDATA4.dbf).

Variable Name	Variable Name
Forensic Data Bank Number	Endocranial Coronal (L)
Basilar Suture	Endocranial Coronal (R)
Medial Clavicle	Rib Phase, Left 1st
Atlas Anterior	Rib Phase, Right 1st
Atlas Posterior	Rib Phase, Left 2nd
Axis Anterior	Rib Phase, Right 2nd
Axis Posterior	Rib Phase, Left 3rd
Cervical Vertebral Rim	Rib Phase, Right 3rd
Thoracic Vertebral Rim	Rib Phase, Left 4th
Lumbar (5th) Body-Arch	Rib Phase, Right 4th
Lumbar Vertebral Rim	Rib Phase, Left 5th
Sacrum Element 1 & 2	Rib Phase, Right 5th
Sacrum Element 2 & 3	Rib Phase, Left 6th
Sacrum Element 3 & 4	Rib Phase, Right 6th
Innominate Primary Elements	Rib Phase, Left 7th
Ischial Tuberosity	Rib Phase, Right 7th
Iliac Crest	Rib Phase, Left 8th
Proximal Humerus	Rib Phase, Right 8th
Humerus Medial Epicondyle	Rib Phase, Left 9th
Proximal Radius	Rib Phase, Right 9th
Distal Radius	Rib Phase, Left 10th
Proximal Ulna	Rib Phase, Right 10th
Distal Ulna	Rib Phase, Left 11th
Femur Head	Rib Phase, Right 11th

Table 6. Continued.

Variable Name	Variable Name
Femur Greater Trochanter	Rib Phase, Left 12th
Distal Femur	Rib Phase, Right 12th
Proximal Tibia	Todd Pubic Symphysis (L)
Distal Tibia	Todd Pubic Symphysis (R)
Midlambdoid Suture (L)	Suchey-Brooks Pub.Sym. (L)
Midlambdoid Suture (R)	Suchey-Brooks Pub.Sym. (R)
Suture at Lambda	McKern&Stewart Ph. I (L)
Suture at Obelion	McKern&Stewart Ph. I (R)
Anterior Sagittal Suture	McKern&Stewart Ph. II (L)
Suture at Bregma	McKern&Stewart Ph. II (R)
Midcoronal Suture (L)	McKern&Stewart Ph.III (L)
Midcoronal Suture (R)	McKern&Stewart Ph.III (R)
Suture at Pterion (L)	Gilbert&McKern Ph. I (L)
Suture at Pterion (R)	Gilbert&McKern Ph. I (R)
Spheno-frontal Suture (L)	Gilbert&Mckern Ph. II (L)
Spheno-frontal Suture (R)	Gilbert&McKern Ph. II (R)
Inf. Sph.-temp. Sut. (L)	Gilbert&McKern Ph.III (L)
Inf. Sph.-temp. Sut. (R)	Gilbert&McKern Ph.III (R)
Sup. Sph._temp. Sut. (L)	Auricular Surface (L)
Sup. SPh.-temp. Sut. (R)	Auricular Surface (R)
Endocranial Sagit. Suture	Dorsal Pubic Pitting (L)
Endocran. Lamb. Sut. (L)	Dorsal Pubic Pitting (R)
Endocran. Lamb. Sut. (R)	

See Appendix C for corresponding variable labels.

```
========================= FORENSIC DATA BANK - PAGE FIVE=======================
FDN:          IDNO:               RECORDER:            DATEOFID:          SEX :
            CURATOR:              DATE REC:            IDSTATUS:          RACE
--------------------------------------------------------------------------------
-------------EPIPHYSEAL  CLOSURE------------     ------80.RIB PHASE MORPHOLOGY-----
38.BASILAR:     47.LUM RIM:     56.RADPROX:              L  R  REF   Reference:
39.MEDCLAV:     48.SAC 1/2:     57.RADDIST:        RIB# 1:           Enter initial
40.C-1 ANT:     49.SAC 2/3:     58.ULNPROX:        RIB# 2:           of 1st author
41.C-1 POS:     50.SAC 3/4:     59.ULNDIST:        RIB# 3:           last name and
42.C-2 ANT:     51.INNPRIM:     60.FEMHEAD:        RIB# 4:           last 2 digits
43.C-2 POS:     52.ISCHTUB:     61.FEMGRTR:        RIB# 5:           of year.
44.CER RIM:     53.ILIACRE:     62.FEMDIST:        RIB# 6:
45.THO RIM:     54.HUMPROX:     63.TIBPROX:        RIB# 7:          --PELVIC  AGE--
46.L5BO AR:     55.MEDEPIC:     64.TIBDIST:        RIB# 8:                  L   R
                                                   RIB# 9:          81.TODD:
----------CRANIAL SUTURE CLOSURE-----------        RIB#10:          82.SUCH:
ECTOCRAN   L X R              L  R ENDOCRAN       RIB#11:          83.M-S1:
65.MIDLAM:        70.MIDCOR:      75.SAGI:         RIB#12:             M-S2:
66.LAMBDA:        71.PTERIO:      76.LAML:                             M-S3:
67.OBELIO:        72.SPHFRO:      77.LAMR:                 L   R    84.G-M1:
68.ANTSAG:        73.ISPTEM:      78.CORL:         85.AUR SUR:         G-M2:
69.BREGMA:        74.SSPTEM:      79.CORR:         86.DOR PIT:         G-M3:
================================================================================
```

Figure 6. Computer screen format, page five (IDFORM4.fmt).

Table 7. List of variables and variable categories comprising the cranial data file (IDDATA5.dbf).

Variable Name	Variable Name
Forensic Data Bank Number	Frontal Chord
Maximum Cranial Length	Parietal Chord
Maximum Cranial Breadth	Occipital Chord
Bizygomatic Breadth	Foramen Magnum Length
Basion - Bregma Height	Foramen Magnum Breadth
Cranial Base Length	Mastoid Height (L)
Basion - Prosthion Height	Mastoid Height (R)
External Palatal Breadth	Mand. Symphysis Height
External Palatal Length	Height of Mand. Body (L)
Biauricular Breadth	Height of Mand. Body (R)
Upper Facial Height	Thickn. of Mand. Body (L)
Minimum Frontal Breadth	Thickn. of Mand. Body (R)
Upper Facial Breadth	Bigonial Breadth
Nasal Height	Bicondylar Breadth
Nasal Breadth	Minimum Ramus Breadth (L)
Orbital Breadth (L)	Minimum Ramus Breadth (R)
Orbital Breadth (R)	Maximum Ramus Height (L)
Orbital Heighth (L)	Maximum Ramus Height (R)
Orbital Height (R)	Mandibular Length
Biorbital Breadth	Mandibular Angle
Interorbital Breadth	

See Appendix C for corresponding variable labels.

```
=========================FORENSIC DATA BANK - PAGE SIX=======================E
FDN:        IDNO:                RECORDER:            IDSTATUS:        · SEX :
         CURATOR:                DATE REC:            DATEOFID:          RACE
-------------------------------------------------------------------------------
--------------------CRANIAL AND   MANDIBULAR MEASUREMENTS----------------------
                                XXX                                 L    XXX    R
    1.MAXIMUM CRANIAL LENGTH:                 13.NASAL HEIGHT:
    2.MAXIMUM CRANIAL BREADTH:                14.NASAL BREADTH:
    3.BIZYGOMATIC BREADTH:                    15.ORBITAL BREADTH:
    4.BASION-BREGMA HEIGHT:                   16.ORBITAL HEIGHT:
    5.CRANIAL BASE LENGTH:                    17.BIORBITAL BREADTH:
    6.BASION-PROSTHION LENGTH:                18.INTERORBITAL BREADTH:
    7.MAX. ALVEOLAR BREADTH:                  19.FRONTAL CHORD:
    8.MAX. ALVEOLAR LENGTH:                   20.PARIETAL CHORD:
    9.BIAURICULAR BREADTH:                    21.OCCIPITAL CHORD:
   10.UPPER FACIAL HEIGHT:                    22.FORAMEN MAGNUM LENGTH:
   11.MIN. FRONTAL BREADTH:                   00.FORAMEN MAGNUM BREADTH:
   12.UPPER FACIAL BREADTH:                   23.MASTOID LENGTH:
               L   XX   R                       L   XXX   R                L   XXX   R
  24.CHIN HT:                27.BIGONIAL DIAM:             30.MAX RAMUS HT:
  25.BODY HT:                28.BICONDYLAR BR:             31.MAND LENGTH:
  26.BODY TH:                29.MIN. RAMUS BR:             32.MAND ANGLE :
===============================================================================
```

Figure 7. Computer screen format, page six (IDFORM5.fmt).

Table 8. List of variables and variable categories comprising the postcranial data file (IDDATA6.dbf).

Variable Name		Variable Name	
Forensic Data Bank Number		Right Iliac Height	(R)
Clavicle - Epiphyses (p/a)	(L)	Iliac Breadth	(L)
Clavicle - Epiphyses (p/a)	(R)	Iliac Breadth	(R)
Clavicle Maximum Length	(L)	Pubis Length	(L)
Clavicle Maximum Length	(R)	Pubis Length	(R)
Clavicle Sagit. Diam. Mid.	(L)	Ischial Length	(L)
Clavicle Sagit. Diam. Mid.	(R)	Ischial Length	(R)
Clavicle Vert. Diam. Mid.	(L)	Femur - Epiphysis (p/a)	(L)
Clavicle Vert. Diam. Mid.	(R)	Femur - Epiphysis (p/a)	(R)
Scapula - Epiphyses (p/a)	(L)	Femur Maximum Length	(L)
Scapula - Epiphyses (p/a)	(R)	Femur Maximum Length	(R)
Scapula Anatomical Height	(L)	Femur Bicondylar Length	(L)
Scapula Anatomical Height	(R)	Femur Bicondylar Length	(R)
Scapula Anatomical Breadth	(L)	Femur Epicondylar Breadth	(L)
Scapula Anatomical Breadth	(R)	Femur Epicondylar Breadth	(R)
Humerus - Epiphyses (p/a)	(L)	Femur Max. Head Diameter	(L)
Humerus - Epiphyses (p/a)	(R)	Femur Max. Head Diameter	(R)
Humerus Maximum Length	(L)	Femur Sagittal Subtr. Diam.	(L)
Humerus Maximum Length	(R)	Femur Sagittal Subtr. Diam.	(R)
Humerus Epicondylar Br.	(L)	Femur Transv. Subtr. Diam.	(L)
Humerus Epicondylar Br.	(R)	Femur Transv. Subtr. Diam.	(R)
Humerus Vert. Head Diam.	(L)	Femur Sagit. Midsh. Diam.	(L)
Humerus Vert. Head Diam.	(R)	Femur Sagit. Midsh. Diam.	(R)
Humerus Max. Diam. Midsh.	(L)	Femur Transv. Midsh. Diam.	(L)
Humerus Max. Diam. Midsh.	(R)	Femur Transv. Midsh. Diam.	(R)
Humerus Min. Diam. Midsh.	(L)	Femur Midsh. Circumference	(L)
Humerus Min. Diam. Midsh.	(R)	Femur Midsh. Circumference	(R)
Radius - Epiphyses (p/a)	(L)	Tibia - Epiphyses (p/a)	(L)
Radius - Epiphyses (p/a)	(R)	Tibia - Epiphyses (p/a)	(R)
Radius Max. Length	(L)	Tibia Length (Malleolar)	(L)
Radius Max. Length	(R)	Tibia Length (Malleolar)	(R)
Radius Sagit. Diam. Midsh.	(L)	Tibia Max. Proximal Breadth	(L)
Radius Sagit. Diam. Midsh.	(R)	Tibia Max. Proximal Breadth	(R)
Radius Transv. Diam. Mid.	(L)	Tibia Max. Distal Breadth	(L)
Radius Transv. Diam. Mid.	(R)	Tibia Max. Distal Breadth	(R)
Ulna - Epiphyses (p/a)	(L)	Tibia Max. Diam. Nut. Foram.	(L)
Ulna - Epiphyses (p/a)	(R)	Tibia Max. Diam. Nut. Foram.	(R)
Ulna Maximum Length	(L)	Tibia Trv. Diam. Nut. Foram.	(L)
Ulna Maximum Length	(R)	Tibia Trv. Diam. Nut. Foram.	(R)
Ulna Dorso-Volar Diam.	(L)	Tibia Circumf. Nut. Foramen	(L)
Ulna Dorso-Volar Diam.	(R)	Tibia Circumf. Nut. Foramen	(R)
Ulna Transv. Diam.	(L)	Fibula - Epiphyses (p/a)	(L)
Ulna Transv. Diam.	(R)	Fibula - Epiphyses (p/a)	(R)
Ulna Physiol. Length	(L)	Fibula Maximum Length	(L)
Ulna Physiol. Length	(R)	Fibula Maximum Length	(R)
Ulna Min. Circumference	(L)	Fibula Max. Diam. Midshaft	(L)

Table 8. Continued.

Variable Name		Variable Name	
Ulna Min. Circumference	(R)	Fibula Max. Diam. Midshaft	(R)
Sacrum - No. of Segments		Calcaneus - Epiphyses (p/a)	(L)
Sacrum - Anterior Height		Calcaneus - Epiphyses (p/a)	(R)
Sacrum - Anterior Super. Br.		Calcaneus Maximum Length	(L)
Sacrum - Diameter of S 1		Calcaneus Maximum Length	(R)
Innomin. - Epiphyses (p/a)	(L)	Calcaneus Middle Breadth	(L)
Innomin. - Epiphyses (p/a)	(R)	Calcaneus Middle Breadth	(R)
Iliac Height	(L)		

See Appendix C for corresponding variable labels.

```
========================FORENSIC DATA BANK - PAGE SEVEN=====================E
FDN:        IDNO:               RECORDER:          IDSTATUS:        SEX :
         CURATOR:               DATE REC:          DATEOFID:        RACE
----------------------------------------------------------------------------
  ---------------------POSTCRANIAL  MEASUREMENTS-------------------
                                L    R                          L    R     CODES
  CLAVICLE      EPIPHYSES:                 RADIUS      EPIPHYSES:              FOR
   33.MAXIMUM LENGTH:                       43.MAXIMUM LENGTH:                EPIPHYSES
   34.SAGITTAL DIAMETER:                    44.SAGIT. DIAM. MIDSH:            ---------
   35.TRANSVERSE DIAMET:                    45.TRANSV DIAM. MIDSH:            1-Present
                                L    R                          L    R     2-Absent
  SCAPULA       EPIPHYSES:                 ULNA        EPIPHYSES:
   36.ANATOMICAL BREADTH:                   46.MAXIMUM LENGTH:
   37.ANATOMICAL LENGTH:                    47.DORSO-VOLAR DIAM.:
                                            48.TRANSVERSE DIAM.:
                                L    R      49.PHYSIOLOGICAL LT:
  HUMERUS       EPIPHYSES:                  50.MIN. CIRCUMFERENCE:
   38.MAXIMUM LENGTH:
   39.EPICONDYLAR BR:                      SACRUM    # OF SEGMENTS:
   40.MAX. HEAD DIAMETER:                   51.ANTERIOR LENGTH:
   41.MAX. DIAM MIDSHAFT:                   52 ANT. SURF. BREADTH:
   42.MIN. DIAM MIDSHAFT:                   53.MAX. BREADTH (S-1):
============================================================================
```

Figure 8. Computer screen format, page seven (IDFORM6A.fmt).

```
====================== FORENSIC DATA BANK - PAGE EIGHT =====================E
FDN:          IDNO:                RECORDER:              IDSTATUS:          SEX :
        CURATOR:                   DATE REC:              DATEOFID:          RACE
------------------------------------------------------------------------------------
  -----------------POSTCRANIAL MEASUREMENTS CONT.------------------
                                L    R                               L    R      CODES
  INNOMINATE   EPIPHYSES:                 TIBIA         EPIPHYSES:                FOR
   54.HEIGHT OF INNOM.:                    67.CONDYLO-MALLEOL BR:              EPIPHYSES
   55.ILIAC BREADTH:                       68.MAX PROX EPIPH. BR:              ---------
   56.PUBIS LENGTH:                        69.MAX DIST EPIPH. BR:              1-Present
   57.ISCHIUM LENGTH:                      70.MAX DIAM NUT FORAM:              2-Absent
                                L    R     71.TRV DIAM NUT FORAM:
  FEMUR        EPIPHYSES:                  72.CIRCUMF. NUT FORAM:
   58.MAXIMUM LENGTH:                                                L    R
   59.BICONDYLAR LENGTH:                  FIBULA        EPIPHYSES:
   60.EPICOND. BREADTH:                    73.MAXIMUM LENGTH:
   61.MAX HEAD DIAMETER:                   74.MAX. DIAM MIDSHAFT:
   62.A/P SUBTROCH. DIAM:
   63.TRV. SUBTROCH.DIAM:                                            L    R
   64.SAGITTAL DIA MIDSH:                 CALCANEUS     EPIPHYSES:
   65.TRANSV. DIAM MIDSH:                  75.MAXIMUM LENGTH:
   66.CIRCUMF. MIDSHAFT:                   76.MIDDLE BREADTH:
------------------------------------------------------------------------------------
```

Figure 9. Computer screen format, page eight (IDFORM6B.fmt).

It is appropriate to mention that a record with no information pertaining to a particular data file is not entered into the latter. Empty data records will only take up space and reduce the efficiency of the data-base. Accordingly, all records are entered into the main identification file (IDDATA1.dbf), while the cranial measurement file (IDDATA6.dbf) contain only records for which cranial measurements were recorded. Accordingly the number of data records comprising each of the five related data-base files is invariable less than the number recorded in the main identification file.

DATA SUMMARY AND DEMOGRAPHIC STRUCTURE OF CONTENTS OF THE DATA BASE

General contents

At the time of this writing 715 records, including forensic cases, anatomical specimens, and donated skeletal materials of all age groups, have been reported from 19 different forensic laboratories or depositories of recent skeletal remains, or skeletal records from across the nation (Table 9). The majority of the reported cases stem from the forensic data records gathered by the late Dr. J. Lawrence Angel, during his tenure as forensic anthropologist at the National Museum of Natural History. Other major collections providing significant contributions include the Maxwell Museum of Anthropology, Albuquerque, New Mexico, the Anthropology Department at the University of Tennessee, Knoxville, the Human Identification Laboratory at the University of Arizona Museum, the Oklahoma State Medical Examiner's Office, Louisiana State University Forensic Laboratory, and the Anthropology Department/ University of South Carolina. Several smaller depositories permitted us to to come and record available skeletal material, or submitted records on their own.

Table 9. List of laboratory and research collections and the number of data records obtained for the data bank from each.

Name of Depository	# of Records Submitted
Colorado College/Anthropology, CO	4
Cook County Medical Examiner, IL	3
Central Identification Laboratory, HI	1
Hawaii Medical Examiner, HI	1
~~Nashville Medical Examiner, TN~~	~~3~~
New Jersey Medical Examiner, NJ	1
National Museum of Natural History, DC	420
New York Medical Examiner, NY	1
Oklahoma State Medical Examiner, OK	27
Louisiana State Univ./Anthropology, LA	39
San Diego Museum of Man, CA	4
Texas Tech Univ./Anthropology, TX	6
Univ. of Arizona Human Id. Laboratory, AZ	23
Univ. of New Mexico/Maxwell Museum of Anth., NM	72
Univ. of South Carolina/ Anthropology, SC	23
Univ. of Tennessee/Anthropology, Knoxville	83
Univ. of Ulm, West Germany	1
Virginia Polytechnical University	2
Southwest Texas State University	1
Total	715

Data Classification

Each data record has been designated to one of three general levels of classification pertaining to the degree to which the associated material has been identified. Each level descibes the extent to which a particular case is documented and its potential for further applications in forensic research. These levels are referred to as the "Identification Status" of a particular record. Identification status I may be described as representing known or documented individuals for which positive identification has been achieved. Documentation pertaing to sex, age, and ethnic affiliation, stature, weight, and so forth, including appropriate sources of documentation is provided to the extent that these data are available. Of the 715 data records currently comprising the forensic data bank, 305 records, or 43% of the total number of cases, have been designated to this category of records. Identification status II, refers to data records which represent tentatively or circumstantially identified forensic cases. While records designated to this category do not reflect positively identified individuals, sex and/or race determination is substantiated from soft tissue, or other circumstantial evidence. An additional 181 records, or 25% of the total number of cases, have been designated to this category, bringing the total number of cases for which sex and/or race is documented to 485. Identification status III represents morphologically assessed, unidentified forensic cases. Together they comprise a series of records which potentially could be identified at a later point in time, at which time their identification status would be upgraded. While the records comprising this category may have some potential research function, they have not, and will not become part of the data-base used to revise, or develop human identification standards from skeletal materials. The remaining 229 records composing 32% of the total number of cases comprising the contents of the first version of the forensic data bank have been designated to this category.

Sex and Race Composition

The number of data records comprising the presently available forensic data-base favors males almost 3 to 2 over females. Of the 485 known or documented data records, 201 females represent 41.5 % of the total sample as opposed to the

284 males representing 58.5 % of the reported cases. When the sex ratio is examined in terms of ethnic affiliation, it is revealed that an exceptionally large white male sample is primarily responsible for the marked imbalance in the representation of the sexes in the sample. While the ratio of White males and females approaches the trend exhibited by the overall sample, the difference is much less in all other ethnic groups, although males continue to be favored for most all groups (Table 10).

Table 10. Sex and ethnic composition of data bank sample.

	IDENTIFICATION STATUS						
	I		II		Combined		
Ethnic Group	Female	Male	Female	Male	Female	Male	Total
Amerindian	2	10	0	3	2	13	15
Black	24	24	17	26	41	50	91
Hispanic	5	15	1	6	6	21	27
Mongoloid	2	5	0	1	2	6	8
White	89	122	57	64	146	186	332
Others	1	3	0	2	1	5	6
Unknown	2	2	1	1	3	3	6
Total	125	181	76	103	201	284	485

The ethnic diversity of the forensic data-base is also documented in Table 10. A total of White males and females or approximately 68.4 % of the total number of known cases comprise the largest ethnic group in our sample. It is followed by smaller samples of Blacks (18.8 %), and Hispanics (5.6 %). Two small groups including Amerindians and oriental Mongoloids comprise 3.1 % and 1.7 % respectively. Six additional cases (1.2 %) were assigned to a composite group ("Other") due to their small number, including among others, one Nicaraguan national, two Puerto Ricans, and one Philippino. Ethnic affiliation was not recorded for six cases (1.2 %), despite positive or circumstantial identification.

In general it can be stated that while the forensic data bank sample represents a variety of ethnic groups, there is an apparent underenumeration of some groups. Future efforts in data recording must address these shortcomings and seek to prioritize data collection strategies with the purpose of increasing sample sizes for ethnic groups other than U.S. Whites.

Age Structure

The age structure of the forensic skeletal sample maintained in the data bank forensic represents a unique deviation from most comparative research collections of today. While the latter are often marked by a tendency towards greater emphasis on middle to older age groups, the forensic sample maintains a relatively balanced representation of most age groups. Of 482 cases for which a general age classification is known, we recorded 159 adult females, and 261 adult males (age 18 or older). An additional 26 females and 8 males were classified as subadults. Eighteen female and 8 male children, and 1 foetus of each sex complete the sample (Table 11).

It is interesting to note the marked dominance of females over males among children and subadults both. It is equally interesting how this trend reverses itself in the adult category. While females comprise 72.6% of all subadult categories in Table 11, as opposed to only 27.4% males, adult males make up 62.1% of the age group of 18 years or older in contrast to only 37.9% females.

Table 11. Demographic age structure by sex for cases of identification status I and II.

Sex	Adult	Subadult	Children	Foetus/Infant
Female	159	26	18	1
Male	261	8	8	1
Total	420	34	26	2

A detailed illustration of the age structure of the sample of 341 identified cases, for whom age at time of death is documented, is presented in Table 12. While really young children are markedly absent from our sample, there is a steady increase in representation of each age group of older children and subadults.

The largest number of records includes the age groups between 18-30 years, whereafter we see a decline in number of cases in each age group. However, the decline soon reaches a plateau and maintains itself into the seventh decade. The suggestions previously discussed with regard to sex differences in the age structure are borne out by this illustration. Only in this table is one better able to interpret the possible causes for the observed differences. It is immediately apparent that young females age 17 or younger represent a majority of forensic cases of this age group (30 females or 71.4% vs 12 males or 28.6%). While young males begin to match females in number during the 18-20 year age interval (19 females or 54.3% vs 16 males or 45.7%), it is not until the later age groups that males go on to replace females as the more commonly occurring sex within the forensic sample.

Table 12. Demographic age structure by reported age at death.

	IDENTIFICATION STATUS						
	I		II		Combined		
Age in Years	Female	Male	Female	Male	Female	Male	Total
- 0 +							
1 - 5	3	2	3	0	6	2	8
6 - 10	1	2	1	1	2	3	5
11 - 15	7	3	3	1	10	4	14
16 - 17	9	1	3	2	12	3	15
18 - 20	12	10	7	6	19	16	35
21 - 25	14	14	2	12	16	26	42
26 - 30	14	18	3	6	17	24	41
31 - 35	10	13	3	1	13	14	27
36 - 40	4	12	2	4	6	16	22
41 - 45	8	17	1	4	9	21	30
46 - 50	6	7	2	2	8	9	17
51 - 55	7	8	2	2	9	10	19
56 - 60	9	11	0	1	9	12	21
61 - 65	3	8	0	0	3	8	11
66 - 70	1	7	1	1	2	8	10
71 - 75	3	12	1	2	4	14	18
76 - 80	2	1	0	0	2	1	3
81 - 85	1	0	1	1	2	1	3
Total	114	146	35	46	149	192	341

The age groups ranging from 21-45 years are in turn dominated by males (101 males or 62.4% vs 61 females or 37.6%). Both sexes experience a reduction in representation in the following decades. While males and females are approximately evenly represented in the age group 46-60 (31 males or 54.4% vs 26 females or 45.6%), the oldest age groups represented (age 61+ years), is generally dominated by males (45 males or 71.1% vs 13 females or 28.9%). The dominance of the male sex observed in the older age groups is equivalent in magnitude to that exhibited by the female sex in the younger age groups.

Assuming that our forensic sample is indeed representative of the general forensic population it is tempting to suggest that age composition may allow us to make some general statements with regard to the general population from which forensic samples. We may conclude that young females, including Runaways, prostitutes, and ordinary young women or teen-agers are more likely victims of crime, and in relative terms comprise a high risk group, forensically speaking. Males, on the other hand, become part of the forensic scene at a somewhat later time, but soon thereafter become the dominant gender among the victims comprising todays forensic cases.

The age structure of the forensic cases comprising the forensic data bank distinguishes these data from comparative anatomical collections. The larger number of younger individuals, and a rather balanced sample maintaining itself for all age groups, as opposed to an age structure emphasizing middle adult to older individuals, as is commonly observed in comparative skeletal collections of primarily donated materials.

While the differential age composition between sexes may reflect specific patterns of criminal activities, little may be realized from the age composition among ethnic groups. A general illustration of the age structure of ethnic groups available in the forensic sample is illustrated in Table 13.

Table 13. Demographic age structure by race for cases of identification status I and II.

Race	Adult	Subadult	Children	Foetus/Infant
Amerindian	12	1	0	0
Black	78	3	8	0
Hispanic	24	4	0	0
Mongoloid	8	0	0	0
White	289	20	18	2
Other	9	6	0	0
Total	420	34	26	2

It is apparent from this illustration that there is no assoiciation between ethnic affiliation and age in the forensic sample, and that each group is relatively proportionately represented within each age category.

<u>Socioeconomic and Geographic Representation</u>

An important goal of the forensic data bank is to provide a skeletal data-base representative of the present ethnic diversity of the U.S. population, and the different demographic structure of a present day (forensic) population. The intent is to accumulate a forensic skeletal sample large enough and diverse enough to reflect of different socioeconomic groups of the general population from different geographical regions of the of the United States. A wide variety of socioeconomic strata is reflected by the reported occupations of the individuals comprising the data-base. The current data-base represent a composit of blue-collar workers, farm and ranch laborers, white-collar workers, self-employed business people, clergy, professionals and technicians. Civilian and military groups, as well as criminal and non-criminal elements are all represented. Some of the occcupations recorded in our sample include Factory worker, Auto Painter, Cabinet Maker, Waitress, Cowboy, Nightclub Dancer, Prostitute, "Racketteer", "Drug-dealer", Salesman, Professional Soldier, Accountant, Clerk, University Professor, Chemist, Dentist, and Medical Doctor. In addition, such "non-professions" such as "Student" and "Hitchhiker", and other groups including "Mental Patient", "Transient", and "Recluse" are represented, to mention only a few.

The geographical distribution of the forensic comprising the data bank is illustrated in Table 14. In reviewing this table it is important to mention that the geographical distribution illustrated here is one of where a particular case was discovered, and not place of origin or birth. This is done due to the frequent lack of information regarding birth place among the cases presently in the data bank. States such as New Mexico, Tennessee, Arizona, Louisiana, South Carolina exhibit large numbers of cases primarily due to specialized efforts to incorporate the data from already existing collections into the data bank. Table 14 lists the number of males and females of the two identification categories pertaining to "known" individuals from each state. A list of the total number of males and females for the two classification levels combined, and a total number of cases, males and females combined, conclude Table 14.

The totals of Table 14 reflect in some respects our efforts to record skeletal materials from already established collections of recent forensic cases. Six states, including New Mexico, Tennessee, Louisianna, South Carolina, Arizona, and Oklahoma were targeted due to the availability of forensic skeletal collections in these states. As such, the geographical distribution does exhibit some biases. While the White sample is obtained from all regions of the country, Blacks are largely representative of the South. Hispanics represent the Southwest with only a few exceptions, while the Amerindian sample represent the Plains and Southwest regions. However, with the contribution of data records from participants in general, the geographical representation of the sample is becoming incresingly diverse.

While the cases comprising the data bank are derived from forensic cases from the continental U.S., we have receive a handful of data records from outside the United States (Table 15). With a couple of exceptions, all of these cases represent U.S. citizens or residents and as such may be considered to appropriately reflect the U.S. population as a whole.

Data Summary - Skeletal Elements

Skeletal data and documentary information are available to varying degrees for all the cases presented in the above. It is not possible to discuss here all of the variable categories for which we have accumulated data or information. Presentation of complete data sets or inventories can be furnished on a diskette or otherwise, and go beyond the purposes of this report.

Table 14. Geographic distribution of forensic cases known for sex and race within the U.S.

State	IDENTIFICATION STATUS						
	I		II		Combined		
	Female	Male	Female	Male	Female	Male	Total
Alabama	1	0	0	0	1	0	1
Alaska	1	0	0	2	1	2	3
Arizona	3	11		4	3	15	18
Arkansas	0	0	2	0	2	0	2
California	1	4	2	6	3	10	13
Colorado	2	2	0	0	2	2	4
Connecticutt	0	1	0	1	0	2	2
Delaware	1	2	1	1	2	3	5
D. C.	1	0	1	1	2	1	3
Florida	6	1	8	10	14	11	25
Georgia	2	0	0	1	2	1	3
Hawaii	2	0	0	0	2	0	2
Idaho	1	3	1	0	2	3	5
Illinois	4	2	0	0	4	2	6
Indiana	1	1	0	2	1	3	4
Iowa	1	1	0	0	1	1	2
Kansas	1	1	0	0	1	1	2
Kentucky	0	2	0	1	0	3	3
Louisianna	7	9	5	12	12	21	33
Maryland	2	4	7	15	9	19	28
Massachussetts	0	1	1	0	1	1	2
Mississippi	4	2	4	3	8	5	13
Missouri	18	8	4	1	22	9	31
Montana	1	0	4	3	5	3	8
Nevada	0	2	1	1	1	3	4
New Hampshire	0	0	1	0	1	0	1
New Jersey	2	1	2	0	4	1	5
New Mexico	18	44	2	6	20	50	70
New York	0	3	3	2	3	5	8
North Carolina	0	1	0	0	0	1	1
Ohio	1	1	3	1	4	2	6
Oklahoma	0	7	0	0	0	7	7
Oregon	0	1	0	2	0	4	4
Pennsylvania	1	0	2	2	3	2	5
South Carolina	9	8	2	1	11	9	20
South Dakota	0	1	1	0	1	1	2
Tennessee	21	28	6	3	27	31	58
Texas	0	3	1	1	1	4	5
Virginia	5	4	7	8	12	12	24
Washington	5	3	4	2	9	5	14
West Virginia	0	2	1	2	1	4	5
Wisconsin	0	1	0	0	0	1	1
Wyoming	0	0	0	1	0	1	1

Table 15. Geographic distribution of forensic cases known for sex and race from outside the U.S.

	IDENTIFICATION STATUS						
	I		II		Combined		
State	Female	Male	Female	Male	Female	Male	Total
Argentina	0	1	0	0	0	1	1
Mexico	0	2	0	0	0	2	2
Puerto Rico	0	1	0	1	0	2	2
South Vietnam	0	1	0	1	0	2	2

However, we do wish to make available some general indications of the contents of the data bank some of which have not been addressed in the present report. Illustrated below are the contents presently accumulated for some of the main variables or variable categories. Quantitative data pertaining to skeletal elements are summarized in term of crania and postcrania (Table 16). Thus far we have succesfully accumulated data records on 432 crania and 377 postcrania all of which are designated as identification status "I" or "II". While crania are more numerous, the male/female ratio is approximately the same in both.

Table 16. Data summary - crania and postcrania.

	IDENTIFICATION STATUS						
	I		II		Combined		
Element	Female	Male	Female	Male	Female	Male	Total
Crania	114	159	72	87	186	246	432
Postcrania	93	132	65	87	158	219	377

In the postcrania, we have indicated the total number of complete bones for a selected number of elements (Table 17). Many additional elements including the sacrum, innominates and others were not included in the present analysis, but are available in numbers similar to those listed for other elements in Table 17.

Much additional postcranial data are available for partial or fragmentary elements, all of which are too numerous and too varied to include here. As in the crania, Whites are most commonly represented, followed by Blacks at a much lesser magnitude.

Table 17. Data summary - postcranial elements*.

	Black		White		Other		Total	
Bone	Female	Male	Female	Male	Female	Male	Female	Male
Humerii	13	29	74	102	3	14	90	145
Radii	12	27	68	94	2	16	82	137
Ulnae	11	26	66	94	3	14	80	134
Femora	18	22	78	102	3	17	99	141
Tibiae	14	26	72	96	2	13	88	135
Fibulae	14	24	67	94	2	12	83	130

* Number indicated is the least number of complete individuals. To maximize number of individuals, right sides were substituted for left when the latter is missing.

Additional groups include Hispanics and Amerindians, Mongoloids and others. However, due to their relatively limited sample sizes, they were pooled into a single composite group in Table 17.

<u>Data Summary - Stature and Weight</u>

Information pertaining to stature and weight were commonly not available for skeletal remains processed prior to the initiation of the Data Bank project. Thanks to the special efforts on the part of participants, some information was obtained for a number of these cases. Data records of more recent forensic cases contain this type of information in much greater numbers and an extra effort on the part of participants to furnish these data is acknowledged. The number of records providing information pertaining to stature and weight, include information as recorded during life or of a cadaver, or both. The frequency by which stature and weight data occur for documented and circumstantially identified cases is illustrated in Table 18. At present, their numbers alone do not provide sufficient samples from different ethnic groups to justify revisions of current standards pertaining to the estimation of stature from skeletal remains. Yet they provide a firm basis on which to further expand, eventually providing sample sizes sufficient for further stature research in forensic anthropology.

Table 18. Data summary - stature and weight for data records of identification status I and II.

	Black		White		Other		Total	
Stature	Female	Male	Female	Male	Female	Male	Female	Male
Living	19	13	41	66	5	5	65	84
Cadaver	1	5	15	28	3	9	19	42
Weight	Female	Male	Female	Male	Female	Male	Female	Male
Living	14	11	34	52	0	4	48	67
Cadaver	0	3	13	19	1	7	14	29

Data Summary - Skeletal Age Changes

One particular information category comprising a large part of the data assembled for each data record pertains to qualitative observations of age related or metamorphous changes in the skeleton. While none of these variable categories have been incorporated into the scope of the present report, they remain important to future forensic research. While our data collection efforts have concentrated on metric and documentary data, we attempted to record age related and other metamorphic skeletal observations whenever possible. Yet the frequencies in which data records containing these data occur are relatively restricted. Two explanations may be presented to account for this shortage: 1) Epiphyseal closure is commonly not recorded for adults in which all epiphyses have closed completely. As a result the do not become part of the data-base. Additionally, certain variable categories including suture closure, auricular surface aging standards and certain pubic aging standards have only been recently developed, and could not be ascertained from earlier data records such as those maintained by Dr. Angel. However, the standard recording procedures request these data for all cases, and more recent contributions have adhered to this policy; 2) Only about one half of the data records have been computerized for this particular category of data. Once all records containing these data have been recorded we expect to see a marked increase in the frequencies of at least some of these data categories.

Data bank contents for nine variable categories selected from the data category of age related and other metamorphic changes in the skeleton are listed in Table 19. While we expect the variable categories including epiphyseal closure and pubic symphysis aging (Todd) to increase significantly with the completion of the computerization of the remainder of the data records, continued data collection is required to provide sufficient research data for forensic anthropologist. However, once again, we emphasize the importance of the foundation that these data present for future accumulation of skeletal data records pertaining to research of age changes in forensic research.

Table 19. Data summary - skeletal age observations from total forensic data bank sample.

Variable Category	No. of Cases
Epiphyseal Closure	120
Ectocranial Suture Closure	102
Endocranial Suture Closure	46
Todd Pubic Symphysis	76
Suchey-Brooks Pubic Symphysis	30
McKern and Stewart Pubic Symphysis	23
Gilbert and McKern Pubic Symphysis	17
Auricular Surface Morphology	43
Dorsal Pubic Pitting	69

CRANIOMETRIC VARIATION

Modern Forensic cases: Basic craniometric data

One of our principal goals was to assemble metrical data from modern forensic cases which would be more representative of the population producing skeletons seen by forensic anthropologists. We have previously observed that one of the strengths of our sampling framework is that the sample is drawn directly from the population to which it is to be applied. That also turns out to be a limitation in the sense that the demographics of forensic cases are heavily biased toward whites, making it diffcult to assemble samples of non-whites adequate for statistical treatment (see page 29). Tables 20 through 23 give the means and standard deviations for males and females of four groups, Blacks, Whites, Amerinds and Hispanics.

These means are based on all individuals with identification status of either 1 (positive identification) or 2 (race/sex identification from soft tissue). These data form the bases of analyses to follow. It is clear that in certain instances, particularly Amerindian and Hispanic females, the sample sizes are inadquate, but they are presented for completeness.

Comparison to Anatomical Collections

Most sex/race standards in use today were derived from skeletons in anatomical collections, primarily Terry Todd. Since these collections were assembled in the early 1900's from local areas (St. Louis and Cleveland respectively), they may not adequately represent the contemporary U.S. population. We are now in a position to test the representativeness of the anatomical collections by comparing them to our forensic cases.

Table 20. Means and standard deviations of cranial measurements:Black and White males.

Variable	Blacks N	Blacks Mean	Blacks S.D.	Whites N	Whites Mean	Whites S.D.
Age	29	43.31	18.86	123	41.43	17.46
Max. Length	34	186.38	6.36	132	187.14	7.18
Max. breadth	35	139.23	5.95	131	141.28	5.84
Bizygomatic	33	131.67	7.71	125	130.25	5.81
Basion-bregma	35	137.11	7.16	125	140.94	5.63
Basion-nasion	33	103.85	6.17	126	104.42	5.12
Basion-prosthion	30	102.67	6.40	109	96.05	5.95
Ext. alveolar br.	32	67.59	4.23	112	61.63	4.97
Ext. alveolar lgth	31	57.23	3.69	110	52.97	3.78
Nasion-prosthion	32	71.47	5.55	114	71.04	5.53
Min. frontal	33	98.12	4.41	125	97.65	5.81
Nasal height	33	51.58	3.52	117	52.39	2.44
Nasal breadth	34	26.09	2.44	119	24.09	2.28
Orbit breadth	27	41.33	2.60	70	41.01	1.88
Orbit height	31	34.84	1.88	111	33.64	2.06
Biorbital breadth	28	101.43	4.44	93	97.60	4.24
Interorbital br.	27	22.74	2.85	91	19.79	2.81
Frontal chord	31	112.65	4.99	121	114.67	4.81
Parietal chord	32	116.06	6.31	123	116.85	6.53
Occipital chord	32	98.84	5.72	120	99.76	5.31
Foramen magnum ln.	32	36.16	2.42	120	37.07	2.52
Foramen magnum br.	31	29.45	2.64	117	31.53	2.30
Mastoid length	34	32.24	4.16	122	31.83	3.11

Table 21. Means and standard deviations of cranial measurements: Black and White females.

Variable	Blacks N	Blacks Mean	Blacks S.D.	Whites N	Whites Mean	Whites S.D.
Age	22	39.91	18.09	89	38.65	16.86
Max. Length	25	179.00	5.25	100	178.40	6.57
Max. breadth	25	133.68	4.47	99	137.19	4.71
Bizygomatic	24	122.00	3.82	98	121.50	4.40
Basion-bregma	24	127.46	7.60	99	134.31	6.18
Basion-nasion	24	98.46	4.67	99	98.73	4.51
Basion-prosthion	23	100.48	6.91	89	91.91	4.87
Ext. alveolar br.	21	62.29	4.44	89	58.53	3.45
Ext. alveolar lgth	21	56.95	3.68	90	50.92	2.86
Nasion-prosthion	23	67.30	4.38	90	66.79	4.31
Min. frontal	23	93.26	4.27	99	93.72	5.13
Nasal height	21	49.14	2.50	92	49.30	2.90
Nasal breadth	23	25.74	3.06	93	22.44	1.73
Orbit breadth	20	38.85	1.66	87	39.80	1.96
Orbit height	23	34.70	1.64	96	33.43	2.13
Biorbital breadth	22	94.59	3.32	85	94.01	3.74
Interorbital br.	20	20.75	2.77	84	18.96	2.03
Frontal chord	21	107.62	4.96	98	109.04	4.87
Parietal chord	20	109.95	5.38	98	109.04	4.88
Occipital chord	20	96.70	6.25	95	97.13	5.28
Foramen magnum ln.	20	34.95	2.37	95	35.69	2.49
Foramen magnum br.	19	28.63	2.06	94	30.20	2.01
Mastoid length	21	27.62	3.12	98	27.48	3.63

Table 22. Means and standard deviations of cranial measurements: Amerindian and Hispanic males.

	Amerindians			Hispanics		
Variable	N	Mean	S.D.	N	Mean	S.D.
Age	6	39.00	8.81	12	37.92	18.52
Max. Lenght	9	172.33	10.61	16	178.56	5.70
Max. breadth	9	147.11	6.21	16	138.39	4.27
Bizygomatic	9	137.11	5.71	16	127.81	5.43
Basion-bregma	9	136.56	4.80	17	135.35	4.91
Basion-nasion	9	99.56	6.17	17	100.76	3.67
Basion-prosthion	9	96.67	5.81	17	96.29	4.13
Ext. alveolar br.	9	67.78	3.49	16	64.19	4.89
Ext. alveolar lgth	9	53.78	3.73	16	53.50	3.25
Nasion-prosthion	9	71.11	5.55	16	71.56	3.58
Min. frontal	9	93.67	4.12	16	93.00	4.87
Nasal height	9	52.22	3.49	16	52.56	3.27
Nasal breadth	9	25.78	2.64	16	23.81	1.83
Orbit breadth	4	41.00	2.16	9	39.78	1.09
Orbit height	9	36.11	5.13	16	34.75	2.14
Biorbital breadth	4	96.75	3.69	9	94.33	4.50
Interorbital br.	4	20.00	1.41	9	19.44	1.94
Frontal chord	9	110.22	6.65	16	111.19	3.85
Parietal chord	9	104.44	5.34	16	109.13	5.82
Occipital chord	9	97.67	5.48	16	97.50	7.00
Foramen magnum ln.	9	33.78	2.99	16	35.31	1.96
Foramen magnum br.	9	29.89	1.62	16	30.38	2.19
Mastoid length	9	31.78	4.32	15	32.13	2.67

Table 23. Means and standard deviations of cranial measurements: Amerindian and Hispanic females.

	Amerindians			Hispanics		
Variable	N	Mean	S.D.	N	Mean	S.D.
Age	1	59.00	-	4	33.25	29.17
Max. lenght	2	175.50	7.78	4	170.25	4.19
Max. breadth	2	132.50	13.44	4	138.25	5.91
Bizygomatic	2	120.00	8.49	4	126.25	3.78
Basion-bregma	2	133.50	0.71	4	131.75	5.12
Basion-nasion	2	97.50	2.12	4	98.76	3.51
Basion-prosthion	2	92.00	5.66	4	96.25	3.30
Ext. alveolar br.	2	60.00	1.41	4	63.00	2.45
Ext. alveolar lgth	2	52.00	0.00	3	52.00	2.66
Nasion-prosthion	2	65.50	3.54	4	67.00	4.08
Min. frontal	2	88.50	0.71	3	92.33	7.57
Nasal height	2	50.50	0.71	4	48.50	4.04
Nasal breadth	2	23.50	0.71	4	22.75	2.63
Orbit breadth	1	38.00	-	2	40.00	0.00
Orbit height	2	31.50	2.12	3	35.00	3.00
Biorbital breadth	1	85.00	-	2	94.50	3.54
Interorbital br.	1	17.00	-	2	18.00	4.24
Frontal chord	2	110.50	0.71	3	102.67	0.58
Parietal chord	2	109.00	8.49	3	110.00	4.58
Occipital chord	2	99.50	3.54	3	93.67	1.53
Foramen magnum ln.	2	34.50	3.54	3	34.67	1.15
Foramen magnum br.	2	27.00	0.00	3	29.67	1.15
Mastoid length	2	29.50	3.54	4	26.00	2.94

Cranial dimensions are available from two sources; Giles and Elliot (1963) give summary statistics for Blacks and Whites drawn from the Terry and Todd collections and Corruccinni has kindly supplied us with his summary statistics of the Terry collection.

Tables 24 and 25 show a comparison of Terry/Todd and Terry crania with the forensic sample for variables where comparison is possible. In whites, it can readily be seen that the two differences consistent over sexes and samples are basion-bregma height, and basion-nasion length. For both measurements, the forensic cases exceed the anatomical collections. There is as well a tendency for forensic cases to have longer crania overall, especially males, and to have narrower faces and vaults. Forensic crania of both sexes have wider palates than both anatomical collections and the mastoid lengths are greater than those reported for Terry/Todd.

Craniometric differences between forensic Blacks and Blacks in anatomical collections are in many respects similar to those seen in Whites, but less consistent. We observe the longer and higher crania, but in males basion-bregma is signficantly different from the anatomical collections, while in females it is basion-nasion. Palates in the Black forensic crania are wider, but this attains signficance only in Terry/Todd males. Mastoid lengths are greater in forensic crania.

Table 24. Comparison of forensic crania to Giles & Elliot's Terry/Todd sample:Whites

	Males			Females		
Dimension	Diff	SE	Diff/SE	Diff	SE	Diff/SE
Max. length	5.811	1.007	5.768***	6.947	1.009	6.883***
Max. breadth	-1.731	0.877	-1.973*	-1.515	0.808	-1.874
Bizygomatic br.	-1.672	0.800	-2.089*	-1.207	0.740	-1.632
Basion-bregma	6.624	0.807	8.207***	6.860	0.846	8.105***
Basion-nasion	3.821	0.659	5.794***	3.660	0.674	5.428***
Basion-prosth.	0.646	0.961	0.672	1.430	0.826	1.731
Ext. palate br.	1.767	0.648	2.728**	1.501	0.593	2.532*
Nasion-prosth.	0.275	0.728	0.378	0.456	0.659	0.692
Nasal breadth	-0.175	0.315	-0.556	-0.679	0.320	-2.122*
Mastoid Length	3.761	0.418	8.997***	2.266	0.485	4.675***
:Blacks						
Max. length	0.489	1.320	0.371	1.160	1.276	0.909
Max. breadth	-0.118	1.148	-0.103	-0.373	1.123	-0.332
Bizygomatic br	-1.506	1.478	-1.073	-2.400	0.939	-2.556*
Basion-bregma	5.021	1.357	3.699***	0.778	1.703	0.457
Basion-nasion	2.381	1.206	1.974	2.151	1.074	2.003*
Basion-prosth.	-0.293	1.374	-0.213	1.758	1.570	1.119
Ext. palate br.	2.207	0.855	2.583*	-0.514	1.038	-0.495
Nasion-prosth.	-1.878	1.112	-1.690	-0.763	1.044	-0.731
Nasal breadth	-1.139	0.494	-2.305*	-0.408	0.678	-0.601
Mastoid length	1.915	0.781	2.452*	1.272	0.747	1.703

* P < 0.05 ** P < 0.01 *** P < 0.001

Table 25. Comparison of forensic crania to a Terry collection sample:Whites

	Males			Females		
Dimension	Diff	SE	Diff/SE	Diff	SE	Diff/SE
Max. length	2.962	1.179	2.512*	0.932	1.106	0.843
Max. breadth	-2.094	0.862	-2.430*	-0.405	0.840	-0.482
Bizygomatic br.	-1.955	0.765	-2.555*	-1.661	0.779	-2.134*
~~Basion-bregma~~	~~3.645~~	~~0.868~~	~~4.201***~~	~~3.411~~	~~0.979~~	~~3.485***~~
Basion-nasion	2.174	0.635	3.425***	2.146	0.723	2.970**
Basion-prosth.	1.410	0.870	1.621	4.476	0.857	5.223***
Ext. palate br.	5.076	0.730	6.957***	5.200	0.784	6.631***
Ext. palate l.	0.220	0.529	0.416	1.600	0.571	2.802**
Nasion-prosth.	1.477	0.693	2.130*	3.450	0.719	4.798***
Min. front. br.	0.804	0.796	1.009	-0.476	0.782	-0.609
Nasal height	-0.282	0.426	-0.662	-0.083	0.482	-0.171
Nasal breadth	0.911	0.282	3.227**	-0.253	0.299	-0.847
Inter-orbit br.	-1.014	0.367	-2.760*	-1.052	0.379	-2.772**
:Blacks						
Max. length	0.271	1.278	0.212	0.518	1.251	0.414
Max. breadth	-0.549	1.259	-0.437	-1.718	1.102	-1.559
Bizygomatic br	-0.208	1.453	-0.143	-2.638	0.944	-2.796*
Basion-bregma	4.943	1.338	3.694***	-0.253	1.672	-0.151
Basion-nasion	2.485	1.149	2.163*	2.434	1.037	2.347*
Basion-prosth.	-0.272	1.318	-0.207	3.502	1.553	2.255*
Ext. palate br.	1.695	0.912	1.859	-0.136	1.103	-0.123
Ext. palate l.	-0.673	0.766	-0.878	1.820	0.892	2.041*
Nasion-prosth.	-0.339	1.081	-0.314	0.027	1.065	0.026
Min. front. br.	0.414	0.920	0.450	-1.558	1.064	-1.464
Nasal height	-0.132	0.678	-0.194	0.348	0.641	0.543
Nasal breadth	0.270	0.472	0.572	0.995	0.679	1.465
Inter-orbit br.	-1.443	0.624	-2.312*	-1.774	0.691	-2.569*

* P < 0.05 ** P < 0.01 *** P < 0.001

It is apparent that modern forensic crania exhibit consistent variation when compared to anatomical collections which have been the basis of craniometric race and sex standards for decades. Two explanations come to mind: (1) that Terry and Todd collections, representing Blacks and Whites of the St. Louis and Cleveland areas respectively, are not representative of Blacks and Whites nationally; (2) that Terry and Todd, representing Blacks and Whites born primarily in the last decades of the nineteenth century, are not representative of contemporary populations.

It is not possible to provide definitive evidence favoring one of these hypotheses over the other, and they are not necessarily mutually exclusive. To our knowledge, the Terry and Todd samples have not been compared morphometrically for evidence of regional variation. It does seem, however, that the second, or secular trend hypothesis is most consistent with the evidence at hand. The lower vaults and shorter bases seen in Blacks and Whites of both sexes in both anatomical collections support the notion that the temporal distance from recent populations is the important element. Moreover, the pattern of differences between earlier and modern populations is strikingly similar to that observed by Smith, Garn and Hunter (1986) between generations, comparing fathers to their sons and mothers to their daughters.

We provisionally conclude therefore, that we are witnessing secular change in the cranium analogous to the much better known secular change in adult height (e.g. Meredith 1976). It is important to emphasize that the cranial differences are not confined to size, but include shape as well.

It is clear that the differences between the anatomical collections and modern forensic cases have important implications for the metrical race and sex standards which rest primarily on the anatomical collections. We have already dealt with this issue as far as the popular Giles and Elliot (1962) discriminant functions are concerned (Ayres, Jantz and Moore-Jansen 1988). Our results show that Giles and Elliot discriminants tend to misclassify a disproportionate number of Blacks (particularly males) as Whites.

The question of sex discrimination has not as yet been examined. We do not intend to undertake an extensive examination of the question at this time, but it is essential to obtain some notion of whether bias exists. To that end we have tested two of Giles and Elliot's (1963) sex discriminats, numbers 1 and 19 for whites and numbers 2 and 20 for Blacks. Numbers 1 and 2 use cranial length, width, height, basion-nasion length, bizygomatic breadth, basion-prosthion length, nasion-prosthion height, palate breadth and mastoid length. Numbers 19 and 20 use cranial length, basion-nasion length, bizygomatic width, basion-prosthion length and nasion-prosthion height.

Table 26 gives the classification Table for our forensic sample. The white forensic sample compares favorably with Giles and Elliot's results for both functions as far as overall correct classification is concerned, the correct classification rate coming within 1% of theirs. However, it is apparent that the misclassification rate is asymmetrical for sexes, males being correctly assigned more often than females. The departure from equal misclassification is signficant by chi square at P < 0.05 for all except function except number 20.

Table 26. Sex classification of forensic sample on Giles and Elliot's discriminant functions.

D.F. No.	Race	Males	%	Females	%	Total	%
1	W	96/102	94.1	70/87	80.5	166/189	87.8
2	B	19/28	67.8	17/17	100.0	36/45	80.0
19	W	95/106	89.6	68/88	77.3	163/194	84.0
20	B	20/29	69.0	19/21	90.5	39/50	78.0

The measurements involved in functions 1 and 19 are generally larger in the forensic sample than in the Terry/Todd sample employed by Giles and Elliot. Since sex discriminants captilize on size differences, the larger crania of modern populations result in too many females classifying as male and too few males misclassifying as female. Adjusting the sectioning point would make Giles and Elliot's discriminants appropriate for modern cases.

The test on Blacks is less satisfactory because sample sizes are smaller. Blacks behave differently than Whites, males rather than females tending to misclassify at the highest rate. The overall misclassification is about 5 % below that obtained by Giles and Elliot. The Black results may be explained in part by recalling that size differences between modern forensic cases and Terry/Todd are less pronounced than in Whites.

<u>Craniometric Variation among Groups</u>

The present population of the U.S. is ethnically diverse and becoming more so all the time, yet the statistical tools for race classification force investigators into a White-Black-Amerindian framework for assessing racial or ethnic affinities of forensic crania. We had hoped to be able to broaden considerably the ethnic base upon which race discriminants rest. This turned out to be difficult due in part to the demographics of forensic cases. We do have sufficient material to examine relationships among Whites, Blacks and Hispanics, the latter figuring more prominently in case loads of forensic anthropologists in the Southwest U.S. We also have examined a small number of recent Amerindian crania, primarily from the Southwest U.S.

The White, Black, Hispanic and Amerindian samples were subjected to canonical discriminant analysis using the CANDISC subroutine in the SAS package. We selected a subset of 14 variables which would maximize sample size. Table 27 shows the Mahalanobis distances among groups and the probability associated with each distance (note:these distances are D and not D^2).

Table 27. Mahalanobis distances among groups. Males are above the diagonal, females below.

	AMIN	WHITE	BLACK	HISP
AMIN	0.00	3.73**	3.51**	2.76
WHITE	3.25	0.00	2.48**	2.01**
BLACK	4.54	3.10**	0.00	2.44**
HISP	4.24	2.57	2.95	0.00

* $P < 0.05$ ** $P < 0.01$

Female Amerindians and Hispanics have such small samples that their distances are not demonstrably different from each other or from Blacks and Whites. The distance separating female

Blacks and Whites is highly significant. In males, Amerindians differ significantly from both Whites and Blacks but not from Hispanics. Hispanics also differ from Whites and Blacks. The D value shows Hispanics to be slightly closer to Whites than to Amerindians.

The canonical discriminant scores can be used to depict group distances in a small number of dimensions. The analysis yielded three signficant canonical axes. Figure 10 shows the sample means on CAN 1 and CAN 3. CAN 2 is not shown since it is primarily concerned with separating sexes. Table 28 shows the correlation of original variables with canonical scores to allow interpretation of variable contribution to canonical scores.

It is evident from figure 10 that CAN 1 is primarily concerned with separating Whites from Blacks, while CAN 3 separates Amerindians from Whites and Blacks. Hispanics are intermediate on both axes, presumably a craniometric reflection of their hybrid status. Table 28 shows that nearly all variables are related to CAN 1; only nasion-prosthion height approaches a zero correlation. The positive values on basion-prosthion, nasal breadth and orbit height indicate that Blacks have greater values than Whites, while the negative values, especially on basion-bregma, frontal chord, basion-nasion and cranial length indicate that Blacks have smaller values. Metrically, Black-White differences can be characterized as follows: White crania are longer and higher in the vault, less prognathic with higher, narrower noses. These characterizations are in accord with well established notions on the nature of Black-White cranial differences (e.g. Krogman and Iscan 1986).

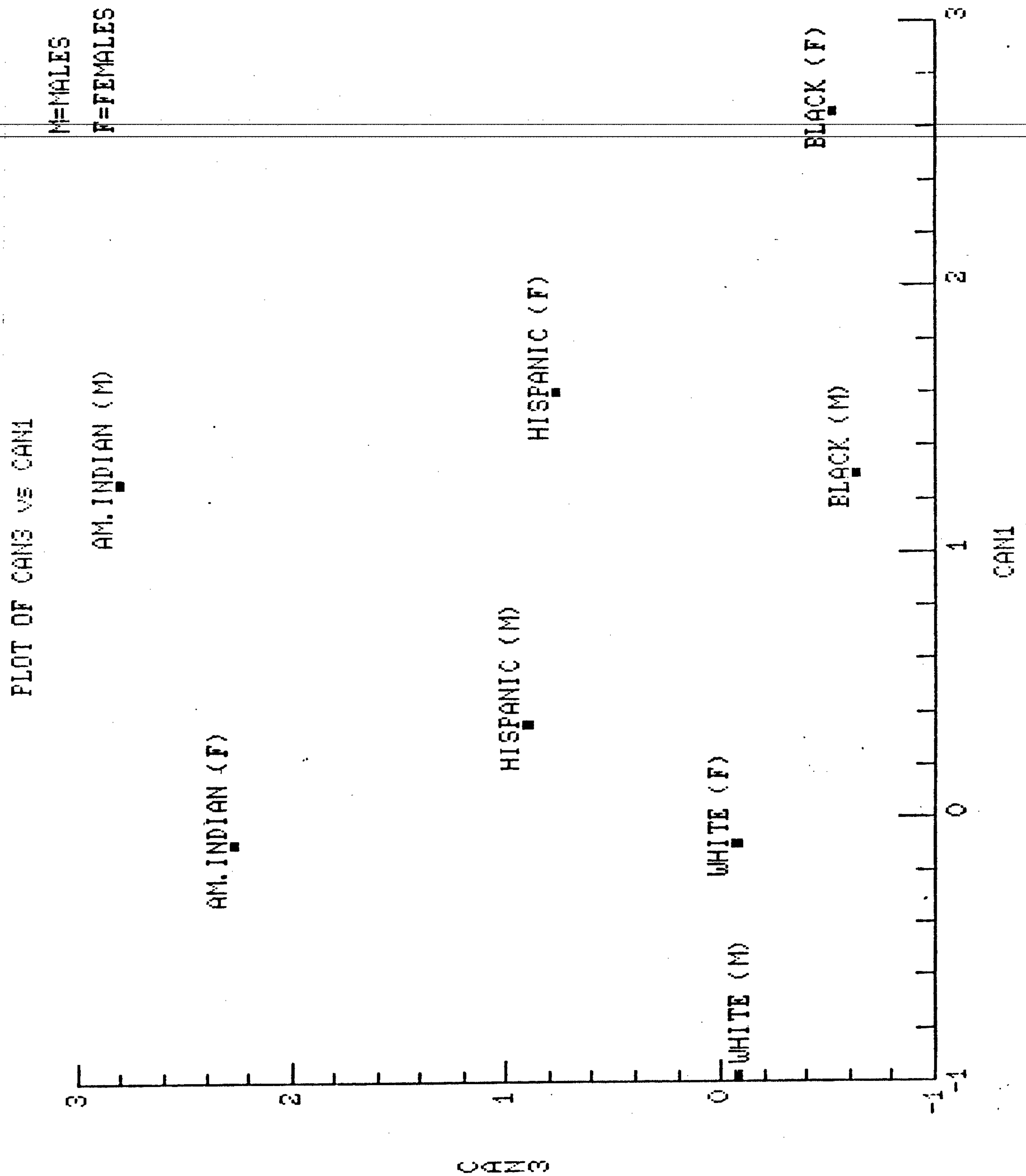
PLOT OF CAN3 vs CAN1
M=MALES
F=FEMALES
AM.INDIAN (M)
AM.INDIAN (F)
HISPANIC (F)
HISPANIC (M)
WHITE (F)
WHITE (M)
BLACK (F)
BLACK (M)
CAN1
CAN3
3
2
1
0
-1

Table 28. Correlations of original variables with canonical discriminant scores.

Variable	CAN 1	CAN 2	CAN 3
Glab. occ. lgth.	-0.352	0.585	-0.548
Max. cran. br.	-0.290	0.382	0.400
Bizygomatic br.	-0.176	0.830	0.376
Basion-Bregma ht.	-0.580	0.451	0.033
Basioin-nasion lgth.	-0.368	0.551	-0.178
Basion-prosthion lgth.	0.388	0.629	-0.260
Nasion-prosthion lgth	-0.097	0.525	0.063
Min. Front. br.	-0.216	0.415	-0.308
Nasal ht.	-0.314	0.576	0.194
Nasal br.	0.375	0.552	-0.021
Orbit ht.	0.321	0.194	0.221
Frontal chord	-0.421	0.556	-0.135
Parietal chord	-0.336	0.330	-0.565
Occipital chord	-0.203	0.244	-0.081

The correlations in Table 28 show that Amerindians differ from both Blacks and Whites in having shorter wider vaults, and wider faces. The minimum frontal, however, is smaller, and the high loading for pareital chord indicates that the smaller cranial length is primarily a consequence of smaller pareitals. These patterns too, are in accord with established ideas of cranial variation.

Race Discrimination

In addition to documenting craniometric variation among groups, it is also desirable to ascertain the extent to which crania can be assigned to their correct group using a vector of measurements. This effort will be plagued by the limited sample sizes for all groups except Whites. For females, it will be feasible to calculate only a White/Black discriminant, but for males we attempt a preliminary 4 group function. First, however, we present a White/Black function for both sexes, since these two groups are better sampled and since race identification frequently centers upon White vs. Black.

We first obtained a reduced measurement set using the STEPDISC subroutine in the SAS package with backward elimination. A level of 0.05 was set for a variable to remain. Tables 29 and 30 show the results of the stepwise elimination for males and females respectively.

Table 29. Results of backward elimination for Black and White males.

Step	Variable Removed	F	P	WILKS'	CAN CORR^2
0				0.519	0.481
1	Nasion-prosthion	0.08	0.77	0.519	0.480
2	Frontal chord	0.12	0.73	0.520	0.480
3	Parietal chord	0.26	0.61	0.521	0.479
4	Max. cran. length	0.19	0.66	0.522	0.478
5	Bizygomatic br.	0.68	0.41	0.525	0.475
6	Occipital chord	0.68	0.41	0.528	0.472
7	Nasal height	2.11	0.15	0.538	0.462

For males seven variables are removed leaving seven in the reduced model. The seven remaining variables consist of the three measurements from basion, two widths (cranial and minimum frontal), nasal breadth and orbital height. The vault chords are among the first variables removed indicating their limited value in Black-White discrimination. The reduced model allows WILKS' LAMBDA to increase only slightly, indicating that it is nearly as efficient as the full model.

Table 30. Results of backward elimination for Black and White females.

Step	Variable removed	F	P	WILKS'	CAN CORR^2
0				0.317	0.683
1	Parietal chord	0.00	0.96	0.317	0.683
2	Occipital chord	0.10	0.76	0.318	0.682
3	Minimum frontal br.	0.40	0.53	0.319	0.681
4	Max. Cran. length	0.40	0.53	0.321	0.679
5	Nasion-prosthion	0.38	0.54	0.322	0.678
6	Nasal height	0.24	0.63	0.324	0.677
7	Frontal chord	0.53	0.47	0.325	0.675
8	Bizygomatic br.	1.82	0.18	0.331	0.669

Females present a similar pattern of variable removal but proceed one step further. Thus the final model in females includes one less variable than males. As in the males the increase in WILKS' LAMBDA and decrease in the squared multiple correlation is gradual and small. Noteworthy is the smaller female WILKS' LAMBDA, indicating a higher discriminating capacity for females.

Table 31 shows the discriminating capability of the full and reduced models. The percent correct column is an estimate based on the assumption of normal distribution (Davies 1971:291). There are two features worthy of note; First, as suggested by WILKS' LAMBDA above the females exhibit much higher rates of correct classification than males. Second, in both sexes Blacks misclassify as Whites more often than vice versa.

Table 31. Efficiency of Black-White cranial discriminant functions for full and reduced models.

	D^2	D/2	%	White	%	Black	%
			MALES				
Full	5.27	1.15	87.5	87/98	88.8	22/28	78.6
Reduced	5.06	1.13	87.1	113/132	85.6	23/29	79.3
			FEMALES				
Full	13.59	1.84	96.7	79/80	98.8	17/19	89.5
Reduced	12.64	1.78	96.3	86/88	97.7	18/21	85.7

Both of these might reasonably be attributed to the small samples available for Blacks, although the one for males is not all that bad. The sex difference in classification is something that as far as we know has not been previously observed, although it has not really been searched for. The basis for it can be appreciated visually from figure 10 above, where the distance between Black and White males is less than than between Black and White females.

The unbalanced misclassification could be corrected by adjusting the sectioning point. There are two possibilities which may explain this observation. First, the covariance matrices of the two groups may be unequal, which in turn calls for a quadratic discriminant function. Second, we may be seeing evidence of social race classifications which do not agree with biological ones. This is clearly a matter for more in-depth investigation when larger samples become available.

Table 32 gives the discriminant coefficients, group means and sectioning points to be used in classifying an unknown cranium. If an unknown falls above the sectioning point, it should be classified Black, below, White. Because the Black samples, particularly females, are small, we consider these functions provisional. However, the direction and magnitude of the coefficients is similar in the sexes, indicating that the male and female functions are identifying similar race differences. This allows a certain confidence that the functions have identified real race differences and are not merely captolizing on sampling error to achieve discrimination. As more Blacks enter the data bank, we will take the opportunity to recompute these functions on larger samples.

Our final effort in race discrimination consists of a four group function for males to ascertain the extent to which Blacks, Whites, Indians and Hispanics can be discriminated. This effort is preliminary due to limited sample sizes, but should indicate the potential for allocating such crania into their correct groups. We also carried out a stepwise backward elimination to choose an optimal variable set using the above mentioned four groups. The results were similar to the Black-White analysis for males described above, and the same set of seven variables was selected. We present only the seven-variable discriminant for the four group function.

Table 32. Discriminant coefficients, group means and sectioning points for Black-White classification

Variable	Male	Female
Max. breadth	-0.070103	-0.063754
Basion-bregma	-0.066245	-0.056871
Basion-nasion	-0.122604	-0.127035
Basion-prosthion	0.152699	0.198088
Minimum frontal	0.077145	-
Nasal breadth	0.156295	0.249499
Orbit height	0.205818	0.227995
Black mean	3.031190	6.024326
White mean	0.780894	2.469136
Sectioning point	1.90604	4.246731

Table 33 shows the discriminant functions required to classify a cranium, and Table 34 gives the classification results for our calibration sample. It should be emphasized that the procedure for classifying an unknown cranium differs somewhat from the one using sectioning points in the two group discriminant functions discussed above. These functions are purely classification functions and cannot be used to display groups in reduced dimensions. They are defined as $W^{-1} * X_j$, where W is the pooled within group covariance matrix and X_j is the mean vector for group j. The SAS manual can be consulted for additional details and references.

An unknown specimen is classified by multiplying its measurements by the corresponding coefficients for each of the four functions given in Table 33 and adding the constant. The specimen has the highest probability of classifying into the group for which the classification function yields the highest value.

Table 33. Classification functions for males of four groups.

Variable	Amin	Black	White	Hispanic
Max. Length	1.831119	2.180459	2.227659	2.036431
Max. breadth	3.236397	2.821663	2.941361	2.919222
Basion-nasion	0.231362	-0.010680	0.337042	0.247480
Basion-prosth.	1.148314	1.230417	0.860304	1.044055
Minimum front.	0.533636	0.845406	0.733256	0.632866
Nasal breadth	1.834466	1.831405	1.460920	1.485264
Orbit ht.	4.551944	4.347703	3.979907	4.330488
Constant	-593.678986	-603.242418	-595.386951	-568.749519

The classification matrix (Table 34) reveals some interesting patterns. The diagonal gives the number (and percent) correct classification for teach group. Overall, it is 119/157 (75.8 %). Blacks classify correctly least often, Hispanics the most often. Blacks misclassify about equally into Whites and Hispanics, although Hispanics misclassify only as Blacks. Larger Hispanic samples sizes would undoubtedly result in misclassifications into other groups. However, the misclassfications are a reflection of their intermediate status (see Figure 10). Whites misclassify most often into Hispanics, next into Blacks and finally into Amerindians.

Table 34. Classification matrix of four male groups.

From group	To Group				
Amin	Amin	Black	White	Hisp	Total
Amin	7 (77.8)	1 (11.1)	1 (11.1)	0 (0.0)	9
Black	0 (0.0)	20 (69.0)	4 (13.8)	5 (17.2)	29
White	2 (1.9)	7 (6.8)	78 (75.7)	16 (15.5)	103
Hispanic	0 (0.0)	2 (12.5)	0 (0.0)	14 (87.5)	16

Sex Discrimination

The cranial measurements we have assembled thus far permit updated sex discriminants to be calculated which should be more appropriate for forensic work than existing discriminants. Using the White sample, we first calculated a sex discriminant using the 14 variables referred to above. Then we estimated a reduced set using the STEPDISC subroutine in the SAS package. Backward elimination of variables was used, which begins with all variables in the model and removes at each step the variable allowing the smallest increase in WILKS' LAMBDA and which meets the criterion to remain in the model. We used the relatively restrictive criterion of F=.01 to remain. Table 35 shows the results of the stepwise analysis.

It is evident from the Table that removal of the first 6 variables has virtually no impact on the discriminating ability of the model as shown by WILKS' LAMBDA or the squared canonical correlation. There after, the discriminatory power of the model diminishes slightly with each step. The final step, which removes orbit height has the greatest effect, but the final reduced model is still nearly as good as the full model. The final model consists of five variables, maximum cranial breadth, bizygomatic breadth, nasal height, frontal chord and pareital chord, all of which have probabilities of < 0.003 to remain in the model.

Table 35. Summary of backward elimination statistics for Whites (N=98 males and 80 females)

Step	Variable Removed	F	P	WILKS'	CAN CORR^2
0				0.382	0.618
1	Basion-nasion length	0.06	0.81	0.382	0.618
2	Basion-prosthion	0.03	0.87	0.382	0.618
3	Max. length	0.13	0.72	0.383	0.617
4	Occipital chord	0.13	0.72	0.383	0.617
5	Basion-bregma ht.	0.07	0.79	0.383	0.617
6	Min. frontal br.	0.19	0.67	0.384	0.616
7	Nasal br.	0.64	0.43	0.385	0.615
8	Nasion-prosthion	1.67	0.20	0.389	0.611
9	Orbit ht.	3.94	0.05	0.398	0.602

Table 36 shows the discriminatory power of the reduced model. The percent correct classification column is an estimate based on the assumption of normal distributions (Davies 1971:291). It is probably the best estimate of the discriminant's performance for specimens outside the calibration sample. The empirical classification rate is derived from the calibration sample and will be slightly biased toward higher correct classification. The empirical classification is about 1.5 % above the estimated rate.

Table 36. Sex Discriminatory power of reduced model.

D^2	D/2	%	Males	%	Females	%
6.155	1.240	89.3	98/108	90.7	79/87	90.8

Our sex discriminants also slightly outperform Giles and Elliot's; their best function for Whites classified 86 % of the calibration sample correctly and yielded an estimated correct classification rate of 86.6. While the differences are small and probably insignficant, we have been able to achieve it with five variables while Giles and Elliot required eight. Also important to note is that from our stepwise selection procedure, the variables chosen are two breadths, and three sagittal dimensions, no variables from from basion being retained. Two of our variables, frontal and occipital chords, are not commonly taken, but are relatively easy and require no special instruments. Three of the five measurements are vault dimensions, emphasizing its importance in sex dimorphism.

Table 37 presents the discriminant function coefficients for the reduced model, along with the sex means and sectioning point. We have elected to present the discriminant scores in original units rather than centering them since it avoids the constant.

We consider this sex function to be the best and most appropriate available for sexing crania of Whites in forensic contexts. It is based on a large, geographically diverse sample of contemporary Americans. Using forensic cases avoids the question of whether a restricted sample, such as the Terry or Todd collection, will yield results generalizable to the larger forensic context. It is appropriate to test our function as additional material becomes available.

Table 37. Sex discriminant for whites. Crania with scores above the sectioning point are classed as males, below as females.

Variable	Coefficient
Max. breadth	-0.06442
Bizygomatic breadth	0.17926
Nasal height	0.13242
Frontal chord	0.07915
Parietal chord	0.03789
Male mean	34.7868
Female mean	32.3058
Sectioning point	33.5463

POSTCRANIAL VARIABILITY

The postcranial skeleton figures most heavily in sex determination and stature estimation. Postcranial data are not as well represented in our data base as are cranial, but are sufficient to enable us to evaluate the representativeness of the anatomical collections and to update some of the sexing criteria. The basic statistics summarizing the postcranial metric data are given in Tables 38 and 39. These are limited to Whites and Blacks, other groups containing insufficient numbers at this point.

Comparison to Anatomical Collections

The anatomical collections, especially the Terry collection form the basis of many of our metrical sexing criteria (see Krogman and Iscan 1986 for review). As in crania, the question of the degree to which skeletons in anatomical collections represent contemporary people being seen by forensic anthropologists may be raised. We have compared our measurements to those presented by Iscan and Miller-Shaivitz (1984a) for Black and White femora, Iscan and Miller-Shaivitz (1984b; 1984c) for Black and White tibiae, and Thieme and Schull (1957) for Black Humeri. All present data on samples derived from the Terry collection. Table 40 shows the difference between means, the standard error and the difference divided by the standard error. In all cases the difference is derived by subtracting the Terry collection mean from the forensic means, the latter as shown in Table 40.

Table 38. Postcranial means and standard deviatiions:Blacks

Humerus	Males			Females		
	N	Mean	SD	N	Mean	SD
Max. length	29	340.52	23.68	13	310.31	18.87
Epicondylar br.	27	65.15	4.74	11	55.27	2.19
Max. head diam.	26	47.54	3.66	12	40.92	2.43
Max. diam. mid.	26	24.04	2.24	13	20.23	2.05
Min. diam. mid.	26	20.31	2.21	13	15.69	1.44
Radius						
Max. length	27	264.15	17.22	12	234.75	13.22
Sag. diam. mids.	7	14.29	0.95	5	11.00	0.71
Transv. diam. mids.	7	18.29	1.25	5	14.00	0.71
Ulna						
Max. length	26	283.19	17.60	11	252.09	14.39
Dorso-volar diam.	8	20.50	1.20	5	14.60	1.95
Tranvs. diam.	8	15.88	1.64	5	10.60	0.55
Physiol. length	7	271.14	12.08	5	219.60	13.72
Femur						
Max. length	27	475.48	29.51	18	456.72	33.50
Bicondylar length	26	471.65	29.84	16	448.63	32.59
Epicondylar br.	25	84.52	5.48	14	73.29	3.73
Femur head diam.	26	48.31	3.82	17	41.94	2.22
A-P subtroch.	25	29.08	2.77	18	25.89	2.08
Trans. subtroch.	25	32.88	3.00	18	29.44	2.41
A-P midshaft	25	31.60	2.74	16	27.75	1.98
Trans. midshaft	25	28.36	1.68	16	24.06	1.88
Circum. midshaft	7	99.29	5.99	9	83.55	5.52
Tibia						
Cond.-mall. lgth	26	405.62	31.67	14	371.07	29.96
Proximal breadth	23	79.39	3.91	12	69.50	3.32
Distal breadth	22	53.27	4.08	14	46.50	3.01
Max. diam. nut. f.	24	38.13	2.37	15	31.93	2.76
Trans. dia. nut.f.	23	28.04	3.20	15	23.73	2.37
Circum. nut. f.	8	109.38	7.01	7	87.43	6.73
Fibula						
Max. length	24	398.67	31.18	14	360.93	28.85
Max. diam. midsh.	8	16.38	1.41	6	13.50	1.22

Table 39. Postcranial means and standard deviatiions:Whites

	Males			Females		
Humerus	N	Mean	SD	N	Mean	SD
Max. length	102	334.38	19.60	74	306.68	13.79
Epicondylar br.	94	64.17	3.61	72	55.69	2.79
Max. head diam.	95	49.15	2.56	71	42.44	2.16
Max. diam. mid.	98	23.19	2.04	75	19.59	1.63
Min. diam. mid.	98	18.86	1.70	74	15.27	1.44
Radius						
Max. length	94	250.60	13.99	68	225.79	15.07
Sag. diam. mids.	61	13.16	2.11	28	11.00	1.91
Transv. diam. mids.	61	16.21	2.20	27	13.33	2.06
Ulna						
Max. lenght	94	268.32	14.39	66	242.88	14.49
Dorso-volar diam.	32	17.28	2.13	15	14.93	1.53
Tranvs. diam.	32	13.94	1.70	15	10.67	0.98
Physiol. length	29	238.59	11.56	14	218.86	13.76
Femur						
Max. length	102	471.87	25.00	78	437.00	20.04
Bicondylar length	95	469.17	24.61	71	433.99	20.04
Epicondylar br.	91	84.75	4.98	68	74.60	3.69
Femur head diam.	99	48.80	2.68	71	42.37	2.39
A-P subtroch.	108	28.49	2.21	80	25.29	1.82
Trans. subtroch.	108	32.04	2.47	80	28.50	1.76
A-P midshaft	100	30.72	2.46	78	27.05	2.01
Trans. midshaft	100	27.66	2.28	78	24.51	1.78
Circum. midshaft	30	90.43	4.58	14	79.79	3.98
Tibia						
Cond.-mall. lgth	96	386.21	23.85	72	357.28	19.29
Proximal breadth	79	79.00	4.07	61	68.80	2.87
Distal breadth	76	52.80	3.11	60	46.83	2.77
Max. diam. nut. f.	95	36.06	2.85	74	31.12	2.31
Trans. dia. nut.f.	82	25.37	2.31	71	21.83	1.88
Circum. nut. f.	29	96.79	5.32	13	82.76	4.49
Fibula						
Max. length	94	381.29	22.57	67	349.94	18.70
Max. diam. midsh.	28	15.75	1.69	11	13.54	1.37

Table 40. Comparison of means of forensic and anatomical Collections:Whites

	Males			Females		
Measurement	Diff	SE	Diff/SE	Diff	SE	Diff/SE
Femur						
Max. length	20.263	3.992	5.075***	11.930	3.933	3.033***
Head diam.	0.598	0.431	1.387	0.166	0.421	0.395
A-P midsh.	1.740	0.428	4.068***	1.981	0.392	2.501**
Trans. midsh.	-1.630	0.426	-3.827***	-1.507	0.355	-4.243***
Epicond. br.	1.787	0.757	2.362*	0.543	0.669	0.811
Tibia						
Cond. mall.	15.178	4.595	3.303***	7.128	4.609	1.546
Proximal br.	3.500	0.733	4.776**	0.393	0.664	0.592
Distal br.	5.003	0.623	8.033***	3.273	0.566	5.783***
A-P nut. for.	1.463	0.598	2.446*	0.532	0.513	1.038
Tran. nut. for	-1.264	0.677	-1.866	-1.839	0.574	-3.206**
BLACKS						
Femur						
Max. length	-2.239	6.698	-0.334	19.392	8.460	2.292*
Head diam.	0.528	0.823	0.642	-0.029	0.616	-0.047
A-P midsh.	1.680	0.699	2.404*	0.700	0.560	1.249
Trans. midsh.	-1.118	0.537	-2.082*	0.160	0.542	0.295
Epicond. br.	1.280	1.232	1.039	-0.694	1.100	-0.631
Tibia						
Cond. mall.	1.135	8.230	0.138	5.441	8.688	0.626
Proximal br.	2.161	1.045	2.069*	1.420	1.106	1.284
Distal br.	5.343	1.035	5.161***	3.400	0.917	3.706***
A-P nut. for.	2.675	0.645	4.144**	-0.467	0.830	-0.562
Tran. nut. for	0.063	0.826	0.077	-0.997	0.711	-1.401
Humerus						
Max. length	1.537	4.780	0.322	4.418	5.556	0.795
Head diam.	1.258	0.981	1.282	-1.487	0.740	-2.009*

* P < 0.05 ** P < 0.01 *** P < 0.001

Table 40 shows two important differences for white femora and tibae. The first is size. Modern femora and tibae exceed those of the Terry collection for most dimensions. This is true for lengths as well as measures of robusticity. Robusticity differences are most apparent in the distal and proximal breadth of the tibia, least apparent in femur head diameter, where they do not attain statistical signficance. In general, modern-Terry differences appear greater for males than for females.

The other difference concerns shape of the bone shafts, the femur at midshaft and the tibia at the nutrient foramen. The effect is most marked in the femur, where modern femora are longer in the A-P dimension, but narrower transversly when compared to Terry femora. Thus the modern femur cross-section could be described as more ellipital, while Terry is more round. The same description to a lesser extent applies to the tibia cross section.

The sample size of Blacks is much smaller and the comparisons accordingly must be regarded as preliminary. The only indication of a length difference comes from the femur in females. In males the modern-Terry differences in shaft shape of the femur, and to some extent the tibia, parallel those seen in Whites.

It is apparent from the foregoing, at least for Whites, that skeletons in standard anatomical collections differ from modern forensic skeletons in a number of ways. It is important to consider briefly why these differences exist, and to ask whether sexing criteria based on anatomical collections are signficantly biased as a result.

The greater lengths of bones of modern forensic cases can reasonably be considered a component of the well known secular increase in height (e.g. Meredith, 1976). However, it is important to emphasize that much more is known about secular changes in height than about its components as seen in the long bones. Trotter and Gleser (1958) found no difference in height between World War II and Korean war dead. However, the latter had signficantly longer tibiae, indicating variation in proportional contributions to height. The femur and tibia lengths of our modern forensic Whites are only marginally greater than the Korean War dead reported by Trotter and Gleser (1958) (473.3 vs 471.5 and 386.9 vs 384.6 for femur and tibia respectively). The Korean War dead represent a segment of the American population only slightly earlier than the forensic sample, so it is reassuring to observe the similarity in values despite very different sampling strategies.

The shape differences in femora and tibia shafts represent a less well known phenonomon so the causes are less easily discerned. A fruitful area of inquiry would be biomechanical and/or nutritional changes (Angel 1976).

Our concern at the moment is whether sexing criteria based on anatomical collections are applicable to modern forensic cases. To that end we have applied sex discriminants for Whites based on the Terry collection to the forensic cases. The results are shown in Table 41.

Table 41. Sex discriminants derived from the Terry collection applied to forensic sample.

	Calibration*			Forensic**		
Variables	Male	Female	Total	Male	Female	Total
Femur						
Distal breadth	89.3	89.1	89.2	92.9	82.8	88.3
Distal breadth Head diameter	89.3	92.7	90.9	92.8	93.0	92.9
Head diameter Transv. diameter	91.1	92.7	91.9	86.3	93.4	89.6
Tibia						
Proximal breadth Distal breadth	85.0	84.6	84.8	96.6	72.0	85.3
Cond. mall length Proximal breadth	82.5	87.2	84.8	93.3	84.9	89.4

* Calibration sample is from the Terry collection. Femur discriminants are from Iscan and Miller-Shaivitz (1984a); Tibia discriminants are from Iscan and Miller-Shaivitz (1984b).

** Sample sizes in the forensic sample vary slightly around 72 males and 58 females for the femur and 61 males and 51 females for the tibia.

Comparison of the total percentage of correct classifications shows that the Terry collection discriminants perform about as well on forensic cases as they do on the Terry skeletons themselves, in some cases even better. In looking at the sex specific results it is apparent that the discriminants yield unbalanced classifications on the forensic sample. Both tibia functions disproportionately misclassify females as males, while in the femur the imbalance is variable. The modern-Terry differences identified above (see Table 40) affect classification rates, in some cases rendering them unacceptable.

Sex Discriminants Based on the Forensic Sample

Our sample sizes are large enough to yield reliable discriminants for Whites, but will not calculate sex discriminats for other groups at this time. As with the cranium, we attempt to construct an optimal measurement set using the SAS STEPWISE procedure. Backward elimination of measurements was used, with an probability of 0.01 to stay in the model. This analysis was conducted on the femur, tibia and humerus using all of the variables in Table 39 except for circumferences. Table 42 shows the results of the stepwise analysis.

There are several important observations to be made from the stepwise results. All three bones allow variables to be removed without significantly degrading discriminating efficiency. For the femur, both maximum and bicondylar length are retained as signficant discriminators even though intuitively one might suppose they are a measure of nearly the same thing. Presumably, sex differences of distal condylar angle is what is important in bicondylar length. Also, femoral midshaft and subtrochanteric diameters fail to remain in the model, removing support for the assumption that they are efficient sex discriminators.

WILKS' LAMBDA allows us to evaluate the discriminating efficiency of the three bones. From best to worst the rank order is humerus, tibia and femur. This order is the reverse of effort invested in developing sexing criteria and suggests that sexing postcranial remains will be more successfully carried out with the humerus than other bones.

Table 42. Summary of stepwise elimination of variables for femur tibia and humerus for sex discrimination:Whites

Step	Variable removed	F	P	WILKS	CAN CORR^2
Femur (Males=87; Females=67)					
0				0.336	0.664
1	A-P Midshaft	0.11	0.74	0.336	0.664
2	Transverse midsh.	0.39	0.53	0.337	0.663
3	Transverse subtroc.	0.28	0.28	0.337	0.662
4	A-P Subtroch	1.39	0.24	0.341	0.659
Tibia (Males=72; Females=56)					
0				0.302	0.698
1	Cond. mall length	0.37	0.54	0.303	0.697
2	Distal breadth	0.50	0.48	0.304	0.696
3	Transv. nut. for.	0.92	0.34	0.306	0.693
Humerus (Males=90; females=65)					
0				0.262	0.738
1	Max. length	0.05	0.82	0.262	0.738
2	Max. midsh. diam.	1.38	0.24	0.264	0.736

We have calculated the discriminants using the reduced models for each bone. The discriminating statistics are presented in Table 43. As with crania, the performance of the function was estimated using D/2 under the assumption of normality. It can be seen from table 43 that the empirical classifications are very similar to their expectation. The unexpected feature of the classification rates is that they are markedly unbalanced; nearly all the misclassifications are males as females. For both humerus and femur all females are correctly classified, and only two females misclassify on the tibia.

Table 43. Sex discriminating efficiency of humerus, femur and tibia: Whites

		Humerus	Tibia	Femur
Number of males		90	78	88
Number of females		65	61	67
Mahalanobis D^2		11.295	8.676	7.737
D/2		1.680	1.473	1.391
Estimated percent		95.4	93.0	91.8
Empirical:	Males	91.0	91.0	90.9
	Females	100.0	96.7	100.0
	Total	94.8	93.5	94.8

One normally expects misclassifications to be approximately symmetrical, so it is interesting to inquire into the present, apparently anomolous situation. The possibility first coming to mind is that the variances and covariances in the sexes are not equal. That this is probably the case can be observed from table xx, which shows that male standard deviations are uniformly larger than those for females for the variables used in the discriminant function. Inspection of the group covariance matrices (not shown) bears this out. These data then do not meet the assumption of equal covariance matrices for linear discriminant functions. Presumably a quadratic function would yield a better model, something we have not yet had the opportunity to explore.

We present the linear discriminants since in spite of unequal variances and covariances, since their performance is superior to existing functions. Table 44 presents the discriminant coefficients, along with the sectioning points, means and standard deviations of the discriminant scores. The scores are presented uncentered, since this avoids the constant.

Table 44. Means, standard deviations and sectioning points for sex discriminants.

	Males		Females		
Bone	Mean	S.D.	Mean	S.D.	S.P
Humerus	23.000	1.113	19.639	0.817	21.319
Tibia	22.431	1.129	19.486	0.805	20.959
Femur	22.083	1.104	19.302	0.844	20.692

Humerus: Z= 0.1181(Distal breadth) + 0.221(head diam.) + 0.24148(Min. midsh. diam.)

Tibia: Z= 0.2302(prox. breadth) + 0.1174(A-P nut. for.)

Femur: Z= -0.1268(Max. length)+0.13144(Bicond. length) + 0.0991(distal breadth) + 0.24457(head diam.)

Stature Estimation

Our original intention was to utilize the long bone lengths along with statures in life to calculate new regression formulae for estimating stature. We have been able to assemble a small sample of heights in life but it is insufficient to calculate new regressions. An even more serious problem is the one of obtaining an accurate estimate of height in life. These tend to come from a variety of sources such as driver's licenses, missing persons reports, and statements from relatives. In addition, we have obtained a number of cadaveral lengths. Obviously these sources will vary considerably in their reliability, with none approaching the reliability of measured stature.

We have begun a program in Tennessee to obtain heights from driver's licenses from the Department of Safety. This will eventually result estimates from a common source. Driver's licenses do not necessarily yield an accurate height, but at least the variation around measured stature can be estimated (Willey and Falsetti 1987).

A final point regarding stature estimation is that it does not seem as critical as some of the foregoing, since Trotter and Gleser's (1958) sample is seen to be very similar to modern forensic cases as far as long bone length is concenred.

SUMMARY AND CONCLUSIONS

Forensic anthropologists have the opportunity to study the skeletons of contempoaray Americans when they are brought into forensic laboratories for identification. When such skeletons are identified, they are normally returned for burial. We have established a data base to preserve information obtained from forensic cases, since this is the only source of information about skeletal variation in contemporary Americans.

We have produced a manual containing guidelines for observing and recording skeletal data in a systematic and uniform fashion. This manual has been distributed to forensic anthropologists in the U.S. They in turn record information and forward the information to the Department of Anthropology, University of Tennessee for computerization.

The data base is managed using dBase III plus on an IBM XT computer. The data reside in six files, each with its own organization. The files may be briefly described as follows: (1) an identification file, containing information such as age, race, sex, height, weight and circumstances of discovery. (2) A documentation file containing mainly sources of information contained in the identification file. (3) An inventory file, containing an inventory of the skeletal parts representing the individual. (4) A skeletal age file containing status of skeletal maturity indicators, such as epiphyseal and suture closure, pubic symphysis phases, rib phases and auricular surface phases. (5) A craniometric file, containing standard measurements of the crania. (6) A postcraniometric file containing standard measurements of the postcranial skeleton.

Information about any individual in any file can be retrieved with reference to a unique identifying number assigned to each each case. At the present time, the data base contains information on 715 individuals, 485 of which have either been positively identified, or at least identified as to race and sex from soft tissue.

Our rationale in establishing a data base is that the anatomical collections upon which most forensic research rests are inappropriate for this purpose. Anatomical collections consist of individuals born in the late 19th or early 20th century and they tend to be demographically homogeneous. By contrast, the skeletons in our data base are drawn from a wide range of age, ethnic and socioeconomic categories.

Our sampling strategy yields a sample reflecting the kinds of people whose skeletons require identification. This is at once a strength and a weakness. The strength is that the sample is drawn directly from the population of interest, making it the most appropriate sample available upon which to base forensic research. The weakness is that it reflects the demographic characteristics of forensic cases, making it difficult to assemble statistically adequate samples of certain groups. For example, at the moment our data base contains information about skeletons with race/ethnic identification as follows: White 67 %, Black 19 %, Hispanic 6 % and Native American 3 %. The age range is wide, from foetus to old age. Both sexes are well represented, although males outnumber females at most ages. At present, forensic cases originating in 42 states, the District of

Columbia, and 4 foreign countries are contained in the data base.

Metric comparison of the forensic to anatomical skeletons shows that forensic cases are different in a number of respects. Forensic crania have higher and narrower cranial vaults and somewhat longer bases compared to those in anatomical collections. We have shown that race and sex identification critera based on anatomical collections do not yield reliable results when applied to forensic cases.

Postcranially, forensic cases have longer and more robust long bones. Sexing criteria based on anatomical collections are inappropriate for modern forensic cases.

We have used the metric data in our data base to revise sex and race identification criteria and examine morphological relationships among groups. Being based on modern forensic cases, they are the most appropriate standards for forensic practitioners to employ. In some cases, especially those involving Amerindians and Hispanics, the criteria must be regarded as preliminary as we await accumulation of larger samples. However, our preliminary results show that Hispanics exhibit morphological relationships intermediatge between Whites, Indians as might be expected from their hybrid status.

Cranial race and sex discriminants calculated from our data start from a larger set of measurements then previous ones. We show that the measurements involved in race classification are different from the ones which classify sexes. The Black- White discriminant function classifies males about 80 % correctly and females about 85 %.

Our cranial sex classification function for Whites is able to classify sexes correctly at a rate of about 90 % using only five easy to take measurements.

We calculated sex discriminant functions for whites using the femur, tibia and humerus. We discovered that the humerus is the bone providing the best sex classification, the femur the worst. Correct sex classifcation exceeds 90 % for all three long bones, and approaches 95 % for the humerus.

<u>Conclusion</u>

After two years of operation, it is clear that the data banking concept as applied to forensic anthropology is capable of yielding a data base which can serve several purposes. It will offer forensic anthropologists metrical data that accurately describe the population they routinely work with. Ultimately, it will provide more insight into biological variability of several kinds then can ever be achieved through anatomical collections.

Looking ahead, it seems that our greatest need is to fill out the samples of less numerous groups, and to enhance our sample of aging criteria. Future data collection will also focus on the preadult age categories.

It should also be stressed that the ability to obtain large samples from Whites will make it possible to investigate certain questions in considerably depth. For example adult age changes in cranial morphology or regional geographic variation may be future analyses which can further refine identifcation capabilities.

Finally, we are now at the stage in the evolution of the data bank where it can be used as a research and identification tool by forensic anthropologists. Our next task, therefore, is to make its potential known to users, and take the necessary steps to make it available to them.

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APPENDIX A

FORENSIC RECORDING FORM

FDN:______

FORENSIC RECORD

COLLECTION ID/CASE #:________________ I.D. NAME:________________
CURATOR/ADDRESS:________________ MEANS OF I.D.:________________
RECORDER:____________ DATE:______ POSITIVE IDENTIFICATION:______ DATE:______

----------------------------GENERAL INFORMATION (Pages 3-7)----------------------------

	Source			Source
1. SEX:	___ ________		7. DATE OF BIRTH:	______ ________
2. RACE:	___ ________		8. PLACE OF BIRTH:	______ ________
3. AGE:	___ ________		9. OCCUPATION:	______ ________
4. STATURE:	___ ________		10. BLOOD TYPE:	______ ________
5. WEIGHT:	___ ________		11. NO. OF BIRTHS:	______ ________
6. HANDEDNESS:	___ ________		12. NO. OF PREGN.:	______ ________

13. DATE REPORTED MISSING:____________ 18. DEPOSIT/EXPOSURE:____________
14. DATE OF DISCOVERY:____________
15. DATE OF DEATH:____________
16. TIME SINCE DEATH:____________ 19. DEPTH IN CM (if buried):____________
17. MANNER OF DEATH:____________ 20. EST. PERIOD OF DECAY:____________

21. PLACE OF DISCOVERY (Area):________________________

22. STATE:______ 23. COUNTY:____________ 24. MUNICIPALITY:____________

25. MEDICAL HISTORY:________________________

26. CONGENITAL MALFORMATIONS:________________________

27. NATURE OF REMAINS:________________________

28. DENTAL RECORDS (specify):________________________

29. BONE LESIONS (Antemortem):________________________

30. PERIMORTEM INJURIES:________________________

31. ADDITIONAL COMMENTS (continue on separate sheet):________________________

PM-J/krj
6/87

COLLECTION ID/CASE #: ____________ I.D. NAME: ____________
CURATOR/ADDRESS: ____________ MEANS OF I.D.: ____________
RECORDER: ____________ DATE: ______ POSITIVE IDENTIFICATION: ______ DATE: ______

------------------------------SKELETAL INVENTORY (Page 7)------------------------------

32. INVENTORY: Codes:
1 - present complete
2 - present fragmentary
3 - absent (postmortem)
4 - antemortem loss
5 - unerupted (dentition)
6 - congenitally missing

Cranium: ____

	Left:		Right:
Frontal:		___	
Parietal:	___		___
Occipital:		___	
Temporal:	___		___
Zygomatic:	___		___
Palate:	___		___

	Left:		Right:
Maxilla:	___		___
Nasal:	___		___
Ethmoid:		___	
Lacrimal:	___		___
Vomer:		___	
Sphenoid:		___	

Mandible: ____

	Left:	Right:
Body:	___	___
Ramus:	___	___

Dentition: ____

	Left:	Right:
Max. I1:	___	___
Max. I2:	___	___
Max. C:	___	___
Max. P1:	___	___
Max. P2:	___	___
Max. M1:	___	___
Max. M2:	___	___
Max. M3:	___	___

	Left:	Right:
Mand. I1:	___	___
Mand. I2:	___	___
Mand. C:	___	___
Mand. P1:	___	___
Mand. P2:	___	___
Mand. M1:	___	___
Mand. M2:	___	___
Mand. M3:	___	___

Postcranium: ____

	Left:		Right:
Hyoid:		___	
Clavicle:	___		___
Scapula:	___		___
Humerus:	___		___
Radius:	___		___
Ulna:	___		___
Hand:	___		___
Manubrium:		___	
Sternal Body:		___	
Ribs:	___		___
Atlas:		___	
Axis		___	
Cervical 3-7:		___	

	Left:		Right:
Thoracic 1-12:		___	
Lumbar 1-5		___	
Sacrum:		___	
Ilium:	___		___
Pubis:	___		___
Ischium:	___		___
Femur:	___		___
Patella:	___		___
Tibia:	___		___
Fibula:	___		___
Calcaneus:	___		___
Talus:	___		___
Foot:	___		___

------------------------------RESEARCH MATERIALS------------------------------

33. SKELETAL MATERIALS: ____________
34. DENTAL CASTS: ____________
35. HISTOLOGICAL SECTIONS: ____________
36. RADIOGRAPHS/PHOTOS: ____________
37. OTHER (hair, etc.): ____________

FORENSIC RECORD

COLLECTION ID/CASE #:________________ I.D. NAME:________________
CURATOR/ADDRESS:________________ MEANS OF I.D.:________________
RECORDER:________________ DATE:______ POSITIVE IDENTIFICATION:______ DATE:______

----------EPIPHYSEAL CLOSURE (Pages 8-9)----------

Codes: 1 - No Union 2 - Partial Union 3 - Complete Union

38. BASILAR SUTURE: ___	47. LUMB. VERT. RIM: ___	56. PROXIMAL RADIUS: ___
39. MEDIAL CLAVICLE: ___	48. SACRUM (1/2): ___	57. DISTAL RADIUS: ___
40. ATLAS-ANTERIOR: ___	49. SACRUM (S2/3): ___	58. PROX. ULNA: ___
41. ATLAS-POSTERIOR: ___	50. SACRUM (3/4): ___	59. DISTAL ULNA: ___
42. AXIS-ANTERIOR: ___	51. INNOM. PRIM. ELEM.: ___	60. FEMUR HEAD: ___
43. AXIS-POSTERIOR: ___	52. ISCH. TUBEROSITY: ___	61. GR. TROCH.: ___
44. CERV. VERT. RIM: ___	53. ILIAC CREST (ANT 1/3): ___	62. DIST. FEMUR: ___
45. THOR. VERT. RIM: ___	54. PROX. HUMERUS: ___	63. PROX. TIBIA: ___
46. L5 BODY-ARCH: ___	55. MED. EPIC. HUM.: ___	64. DISTAL TIBIA: ___

----------CRANIAL SUTURE CLOSURE (Pages 10-13)----------

Ectocranial	L:	R:		L:	R:	Endocranial
65. MIDLAMBDOID	___	___	70. MIDCORONAL:	___	___	75. SAGITTAL: ___
66. LAMBDA:	___		71. PTERION:	___	___	76. LAMBDOID(L): ___
67. OBELION:	___		72. SPHENOFRONTAL:	___	___	77. LAMBDOID(R): ___
68. ANTERIOR SAGITTAL:	___		73. INF. SPHENOTEMP:	___	___	78. CORONAL(L): ___
69. BREGMA:	___		74. SUP. SPHENOTEMP:	___	___	79. CORONAL(R): ___

----------RIB END CHANGES (Pages 14-22)----------

80. RIB NO.: ______ Left: Phase: ______ Right: Phase: ______

----------PELVIC CHANGES (Pages 23-45)----------

PUBIC SYMPHYSIS:	Left:	Right:
81. TODD (1920)/(1921):	________	________
82. SUCHEY-BROOKS (Suchey and Katz 1986):	________	________
83. McKERN AND STEWART (1957):	I:___ II:___ III:___	I:___ II:___ III:___
84. GILBERT AND McKERN (1973):	I:___ II:___ III:___	I:___ II:___ III:___
85. AURICULAR SURFACE:	________	________
86. DORSAL PUBIC PITTING:	1. ABSENT: ___ 2. TRACE-SMALL: ___ 3. MODERATE-LARGE: ___	1. ABSENT: ___ 2. TRACE-SMALL: ___ 3. MODERATE-LARGE: ___

FORENSIC RECORD

COLLECTION ID/CASE #: ____________ I.D. NAME: ____________
CURATOR/ADDRESS: ____________ MEANS OF I.D.: ____________
RECORDER: ____________ DATE: ______ POSITIVE IDENTIFICATION: ______ DATE: ______

-------------------------CRANIAL MEASUREMENTS (Pages 53-62)-------------------------

1. MAXIMUM LENGTH (g-op): ____
2. MAXIMUM BREADTH (eu-eu): ____
3. BIZYGOMATIC BREADTH (zy-zy): ____
4. BASION-BREGMA (ba-b): ____
5. CRANIAL BASE LENGTH (ba-n): ____
6. BASION-PROSTHION L. (ba-pr): ____
7. MAX.-ALVEOLAR BR. (ecm-ecm): ____
8. MAX.-ALVEOLAR L. (pr-alv): ____
9. BIAURICULAR BREADTH: ____
10. UPPER FACIAL HGT. (n-pr): ____
11. MIN. FRONTAL BR. (ft-ft): ____
12. UPPER FACIAL BR. (fmt-fmt): ____

		Right
13. NASAL HEIGHT (n-ns):	____	
14. NASAL BREADTH (al-al):	____	
15. ORBITAL BREADTH (mf-ec):	____	____
16. ORBITAL HEIGHT:	____	____
17. BIORBITAL BR. (ec-ec):	____	
18. INTERORBITAL BR. (mf-mf):	____	
19. FRONTAL CHORD (n-b):	____	
20. PARIETAL CHORD (b-l):	____	
21. OCCIPITAL CHORD (l-o):	____	
22. FORAMEN MAGNUM L. (ba-o):	____	
00. FORAMEN MAGNUM BR.:	____	
23. MASTOID LENGTH:	____	____

-------------------------MANDIBULAR MEASUREMENTS (Pages 62-65)-------------------------

		Right
24. CHIN HEIGHT (gn-id):	____	
25. BODY HEIGHT at MENTAL FOR.:	____	____
26. BODY THICKNESS at M. FOR.:	____	____
27. BIGONIAL DIAMETER (go-go):	____	
28. BICONDYLAR BR. (cdl-cdl):	____	

		Right
29. MIN. RAMUS BREADTH:	____	____
30. MAX. RAMUS HEIGHT:	____	____
31. MAND. LENGTH:	____	
32. MAND. ANGLE:	____	

-------------------------POSTCRANIAL MEASUREMENTS (Pages 65-79)-------------------------

CLAVICLE: Epiph. P/A:	Left	Right
33. MAXIMUM LENGTH:	____	____
34. SAGITTAL DIAM. at MIDSH.:	____	____
35. VERTICAL DIAM. at MIDSH.:	____	____

SCAPULA: Epiph. P/A:	Left	Right
36. ANATOMICAL BREADTH (HGT):	____	____
37. ANATOMICAL LENGTH (BR):	____	____

HUMERUS: Epiph. P/A:	Left	Right
38. MAXIMUM LENGTH:	____	____
39. EPICONDYLAR BREADTH:	____	____
40. MAX. VERTICAL DIAM. of HEAD:	____	____
41. MAX. DIAM. at MIDSHAFT:	____	____
42. MIN. DIAM. at MIDSHAFT:	____	____

RADIUS: Epiph. P/A:	Left	Right
43. MAXIMUM LENGTH:	____	____
44. SAGITTAL DIAM. at MIDSH.:	____	____
45. TRANSV. DIAM. at MIDSH.:	____	____

ULNA: Epiph. P/A:	Left	Right
46. MAXIMUM LENGTH:	____	____
47. DORSO-VOLAR DIAMETER:	____	____
48. TRANSVERSE DIAMETER:	____	____
49. PHYSIOLOGICAL LENGTH:	____	____
50. MIN. CIRCUMFERENCE:	____	____

SACRUM: No. Segments: ____

51. ANTERIOR LENGTH:	____
52. ANTERIOR-SURFACE BR.:	____
53. MAX. BREADTH (S-1):	____

INNOMINATE: Epiph. P/A:	Left	Right
54. HEIGHT:	____	____
55. ILIAC BREADTH:	____	____
56. PUBIS LENGTH:	____	____
57. ISCHIUM LENGTH:	____	____

FEMUR: Epiph. P/A:	Left	Right
58. MAXIMUM LENGTH:	____	____
59. BICONDYLAR LENGTH:	____	____
60. EPICONDYLAR BREADTH:	____	____
61. MAX. DIAM. of HEAD:	____	____
62. A/P SUBTROCH. DIAMETER:	____	____
63. TRANSV. SUBTROCH. DIAM.:	____	____
64. SAGITTAL DIAM. at MIDSH.:	____	____
65. TRANSV. DIAM. at MIDSH.:	____	____
66. CIRCUMFERENCE AT MIDSH.:	____	____

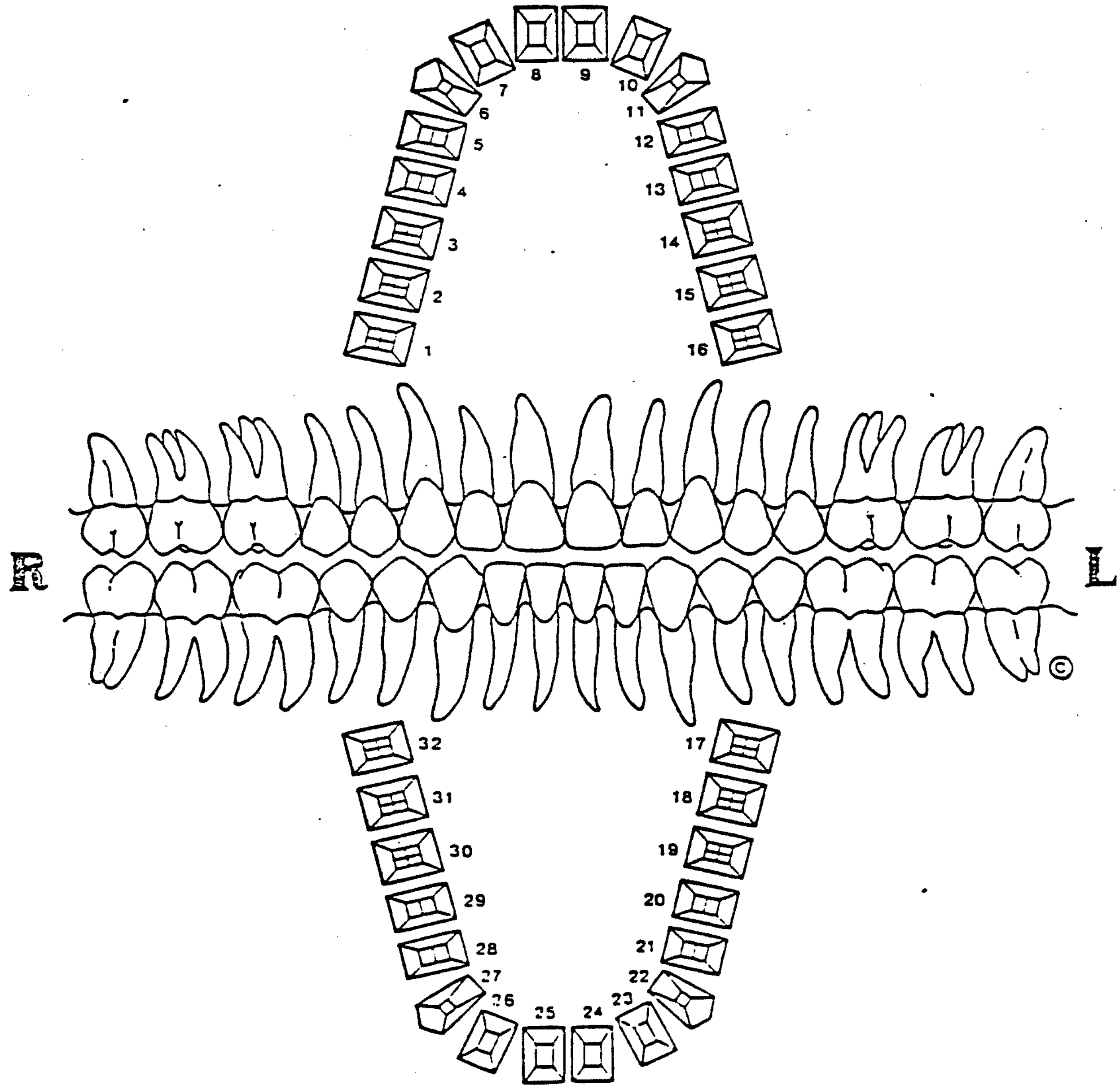
TIBIA: Epiph. P/A:	Left	Right
67. CONDYLO-MALLEOLAR LENGTH:	____	____
68. MAX. PROX. EPIPHYSEAL BR.:	____	____
69. MAX. DIST. EPIPHYSEAL BR.:	____	____
70. MAX. DIAM. at NUTRIENT FOR.:	____	____
71. TRANSV. DIAM. at NUTR. FOR.:	____	____
72. CIRCUM. AT NUTRIENT :	____	____

FIBULA: Epiph. P/A:	Left	Right
73. MAXIMUM LENGTH:	____	____
74. MAX. DIAM. at MIDSHAFT:	____	____

CALCANEUS: Epiph. P/A:	Left	Right
75. MAXIMUM LENGTH:	____	____
76. MIDDLE BREADTH:	____	____

FORENSIC RECORD

COLLECTION ID/CASE #:____________ I.D. NAME:____________
CURATOR/ADDRESS:____________ MEANS OF I.D.:____________
RECORDER:____________ DATE:______ POSITIVE IDENTIFICATION:______ DATE:______



APPENDIX B

INDEX OF VARIABLES AND VARIABLE CATEGORIES, DATA-BASE FILES AND SCREEN FORMATS, BY VARIABLE LABEL

Appendix B. Index of variables and variable categories, data-base files and screen formats, by variable label.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
ADDCOMMENT	ADDITIONAL COMMENT	IDDATA2.dbf	IDFORM2.fmt	60
AGEATDEATH	AGE AT DEATH	IDDATA1.dbf	IDFORM1.fmt	2
AGEGROUP	AGE GROUP (GROSS ESTIMATE)	IDDATA1.dbf	IDFORM1.fmt	1
AGERANGE	AGE RANGE (ESTIMATE)	IDDATA1.dbf	IDFORM1.fmt	5
AGESOURCE	AGE SOURCE DOCUMENTATION	IDDATA2.dbf	IDFORM2.fmt	20
ALA	NASAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	2
ANL	TIBIA MAX. DIAM. NUT. FOR. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
ANR	TIBIA MAX. DIAM. NUT. FOR. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
ANTSAG	ANTERIOR SAGITTAL SUTURE	IDDATA4.dbf	IDFORM4.fmt	1
ASL	FEMUR SAGIT. SUBTR. DIAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
ASR	FEMUR SAGIT. SUBTR. DIAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
ATLAS	ATLAS INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
AUB	BIAURICULAR BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
AURSUR_L	AURICULAR SURFACE (L)	IDDATA4.dbf	IDFORM4.fmt	1
AURSUR_R	AURICULAR SURFACE (R)	IDDATA4.dbf	IDFORM4.fmt	1
AXIS	AXIS INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
BAB	BASION-BREGMA HEIGHT	IDDATA4.dbf	IDFORM5.fmt	3
BAN	CRANIAL BASE LENGTH	IDDATA5.dbf	IDFORM5.fmt	3
BAP	BASION-PROSTHION HEIGHT	IDDATA5.dbf	IDFORM5.fmt	3
BASILAR	BASILAR SUTURE CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
BEL	FIBULA - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6B.fmt	1
BER	FIBULA - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6B.fmt	1
BLOSOURCE	BLOOD TYPE SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
BLOTYPABO	BLOOD TYPE (ABO)	IDDATA1.dbf	IDFORM1.fmt	4
BLOTYPDUFF	BLOOD TYPE (DUFFY)	IDDATA1.dbf	IDFORM1.fmt	4
BLOTYPKELL	BLOOD TYPE (KELL)	IDDATA1.dbf	IDFORM1.fmt	4
BLOTYPKIDD	BLOOD TYPE (KIDD)	IDDATA1.dbf	IDFORM1.fmt	4
BLOTYPMNSS	BLOOD TYPE (MNSS)	IDDATA1.dbf	IDFORM1.fmt	4
BLOTYPRH	BLOOD TYPE (Rh)	IDDATA1.dbf	IDFORM1.fmt	4
BML	FIBULA MAX. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
BMR	FIBULA MAX. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
BOD_L	MANDIBULAR BODY (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
BOD_R	MANDIBULAR BODY (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
BONELESION	BONE LESIONS/ANTEMORTEM	IDDATA2.dbf	IDFORM2.fmt	60
BREGMA	SUTURE AT BREGMA	IDDATA4.dbf	IDFORM4.fmt	1
BXL	FIBULA MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	3

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
BXR	FIBULA MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	3
C1ANT	ATLAS - ANTERIOR CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
C1POS	ATLAS - POSTERIOR CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
C2ANT	AXIS - ANTERIOR CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
C2POS	AXIS - POSTERIOR CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
CAL_L	CALCANEUS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CAL_R	CALCANEUS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CDL	BICONDYLAR BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
CEL	CLAVICLE - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6A.fmt	1
CER	CLAVICLE - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6A.fmt	1
CERV3-7	CERVICAL VERT. (3-7) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CERVRIM	CERVICAL VERTEBRAL RIM CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
CLAV_L	CLAVICLE (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CLAV_R	CLAVICLE (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CNL	TIBIA CIRCUM. NUT. FORAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	3
CNR	TIBIA CIRCUM. NUT. FORAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	3
CONGENMAL	CONGENITAL MALFORMATIONS	IDDATA2.dbf	IDFORM2.fmt	60
COR_L	ENDOCRAN. CORONAL SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1
COR_R	ENDOCRAN. CORONAL SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
CRANIUM	CRANIUM INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
CSL	CLAVICLE SAG. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
CSR	CLAVICLE SAG. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
CURATOR	CURATOR/ADDRESS	IDDATA1.dbf	IDFORM1.fmt	4
CVL	CLAVICLE VRT. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
CVR	CLAVICLE VRT. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
CXL	CLAVICLE MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
CXR	CLAVICLE MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
DATEOFID	DATE OF POSIT. IDENTIFICATION	IDDATA1.dbf	IDFORM1.fmt	8
DATEREC	DATE RECORDED	IDDATA1.dbf	IDFORM1.fmt	8
DDEATH	DATE OF DEATH	IDDATA1.dbf	IDFORM1.fmt	8
DDIS	DATE OF DISCOVERY	IDDATA1.dbf	IDFORM1.fmt	8
DECASTATUS	DECAY STATUS	IDDATA1.dbf	IDFORM1.fmt	1
DENTAL	DENTAL MATERIAL/CONDITION	IDDATA3.dbf	IDFORM3B.fmt	1
DENTALREC	DENTAL RECORDS	IDDATA2.dbf	IDFORM2.fmt	60
DENTI	DENTITION INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
DENT_CASTS	DENTAL CASTS/DESCRIPTION	IDDATA3.dbf	IDFORM3B.fmt	50
DEPOSEXPOS	DEPOSIT/EXPOSURE	IDDATA1.dbf	IDFORM1.fmt	31

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
DEPTHINCM	DEPTH IN CM (if buried)	IDDATA1.dbf	IDFORM1.fmt	4
DMIS	DATE REPORTED MISSING	IDDATA1.dbf	IDFORM1.fmt	8
DOB	DATE OF BIRTH	IDDATA1.dbf	IDFORM1.fmt	8
DOBSOURCE	DATE OF BIRTH SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
DORPIT_L	DORSAL PUBIC PITTING (L)	IDDATA4.dbf	IDFORM4.fmt	1
DORPIT_R	DORSAL PUBIC PITTING (R)	IDDATA4.dbf	IDFORM4.fmt	1
ECE	BIORBITAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
ETHMO	ETHMOID INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ETHNICITY	ETHNICITY OR GROUP AFFILIATION	IDDATA1.dbf	IDFORM1.fmt	11
FBL	FEMUR BICONDYLAR LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	3
FBR	FEMUR BICONDYLAR LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	3
FOB	FORAMEN MAGNUM BREADTH	IDDATA5.dbf	IDFORM5.fmt	2
FCL	FEMUR MIDSHAFT CIRCUMF. (L)	IDDATA6.dbf	IDFORM6B.fmt	3
FCR	FEMUR MIDSHAFT CIRCUMF. (R)	IDDATA6.dbf	IDFORM6B.fmt	3
FDL	FEMUR EPICONDYLAR BREADTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
FDN	FORENSIC DATA BANK NUMBER	ALL 7 .dbf	ALL 7.fmt	4
FDR	FEMUR EPICONDYLAR BREADTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
FEL	FEMUR - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6B.fmt	1
FEMDIST	DISTAL FEMUR EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
FEMGRTR	FEMUR GR. TROCH. EPIPH CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
FEMHEAD	FEMUR HEAD EPIPHYSEAL CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
FEM_L	FEMUR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FEM_R	FEMUR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FER	FEMUR - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6B.fmt	1
FHL	FEMUR MAXIMUM HEAD DIAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
FHR	FEMUR MAXIMUM HEAD DIAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
FIB_L	FIBULA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FIB_R	FIBULA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FMT	UPPER FACIAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
FNAME	NAME (FIRST)	IDDATA1.dbf	IDFORM1.fmt	15
FOOT_L	FOOT (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FOOT_R	FOOT (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FRC	FRONTAL CHORD	IDDATA5.dbf	IDFORM5.fmt	3
FRONT	FRONTAL INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
FXL	FEMUR MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	3
FXR	FEMUR MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	3
GIMCK1_L	GILBERT & McKERN PHASE I (L)	IDDATA4.dbf	IDFORM4.fmt	1

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
GIMCK1_R	GILBERT & McKERN PHASE I (R)	IDDATA4.dbf	IDFORM4.fmt	1
GIMCK2_L	GILBERT & McKERN PHASE II (L)	IDDATA4.dbf	IDFORM4.fmt	1
GIMCK2_R	GILBERT & McKERN PHASE II (R)	IDDATA4.dbf	IDFORM4.fmt	1
GIMCK3_L	GILBERT & McKERN PHASE III (L)	IDDATA4.dbf	IDFORM4.fmt	1
GIMCK3_R	GILBERT & McKERN PHASE III (R)	IDDATA4.dbf	IDFORM4.fmt	1
GNI	CHIN HEIGHT	IDDATA5.dbf	IDFORM5.fmt	2
GOG	BIGONIAL WIDTH	IDDATA5.dbf	IDFORM5.fmt	3
GOL	MAXIMUM CRANIAL LENGTH	IDDATA5.dbf	IDFORM5.fmt	3
GRA1	DURATION OF 1ST PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA2	DURATION OF 2ND PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA3	DURATION OF 3RD PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA4	DURATION OF 4TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA5	DURATION OF 5TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA6	DURATION OF 6TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA7	DURATION OF 7TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA8	DURATION OF 8TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
GRA9	DURATION OF 9TH PREGNANCY	IDDATA2.dbf	IDFORM2.fmt	2
HANDEDNESS	HANDEDNESS	IDDATA1.dbf	IDFORM1.fmt	5
HANDSOURCE	HANDEDNESS SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
HAND_L	HAND (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
HAND_R	HAND (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
HBL	HEIGHT OF MANDIBULAR BODY (L)	IDDATA5.dbf	IDFORM5.fmt	2
HBR	HEIGHT OF MANDIBULAR BODY (R)	IDDATA5.dbf	IDFORM5.fmt	2
HDL	HUMERUS EPICONDYLAR BR. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
HDR	HUMERUS EPICONDYLAR BR. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
HEL	HUMERUS - EPIPHYSIS (L)	IDDATA5.dbf	IDFORM6A.fmt	1
HER	HUMERUS - EPIPHYSIS (R)	IDDATA5.dbf	IDFORM6A.fmt	1
HHL	HUMERUS VERT. HEAD DIAM. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
HHR	HUMERUS VERT. HEAD DIAM. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
HIST_SECT	HISTOLOGICAL SECTIONS/DESCRIPT	IDDATA3.dbf	IDFORM3B.fmt	50
HML	HUMERUS MAX. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
HMR	HUMERUS MAX. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
HUMPROX	PROXIMAL HUMERUS EPIPH. CLOS.	IDDATA4.dbf	IDFORM4.fmt	1
HUM_L	HUMERUS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
HUM_R	HUMERUS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
HWL	HUMERUS MIN. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
HWR	HUMERUS MIN. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
HXL	HUMERUS MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
HXR	HUMERUS MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
HYOID	HYOID INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
IBL	ILIAC BREADTH (L)	IDDATA6.dbf	IDFORM6B.fmt	3
IBR	ILIAC BREADTH (R)	IDDATA6.dbf	IDFORM6B.fmt	3
IDNO	COLLECTION/CASE NUMBER	IDDATA1.dbf	IDFORM1.fmt	10
IDSTATUS	IDENTIFICATION STATUS	IDDATA1.dbf	IDFORM1.fmt	1
IEL	INNOMIN. - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6B.fmt	1
IER	INNOMIN. - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6B.fmt	1
IHL	INNOMINATE HEIGHT (L)	IDDATA6.dbf	IDFORM6B.fmt	3
IHR	INNOMINATE HEIGHT (L)	IDDATA6.dbf	IDFORM6B.fmt	3
ILIACRE	ILIAC CREST (ANT 1/3) CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
ILIUM_L	ILIUM (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ILIUM_R	ILIUM (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
INNPRIM	INNOMINATE PRIMARY ELEM. CLOS.	IDDATA4.dbf	IDFORM4.fmt	1
ISCHTUB	ISCHIAL TUBEROSITY CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
ISCH_L	ISCHIUM (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ISCH_R	ISCHIUM (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ISL	ISCHIUM LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
ISPTEM_L	INF. SPHENO-TEMP. SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1
ISPTEM_R	INF. SPHENO-TEMP. SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
ISR	ISCHIUM LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
KBL	CALCANEUS MIDDLE BREADTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
KBR	CALCANEUS MIDDLE BREADTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
KEL	CALCANEUS - EPIPHYSIS (P/A)(L)	IDDATA6.dbf	IDFORM6B.fmt	1
KER	CALCANEUS - EPIPHYSIS (P/A)(R)	IDDATA6.dbf	IDFORM6B.fmt	1
KXL	CALCANEUS MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
KXR	CALCANEUS MAXIMIM LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
L5BOARC	LUMBAR (5TH) BODY-ARCH CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
LAC_L	LACRIMAL (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LAC_R	LACRIMAL (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LAMBDA	SUTURE AT LAMBDA	IDDATA4.dbf	IDFORM4.fmt	1
LAM_L	ENDOCRAN. LAMBDOIDAL SUT. (L)	IDDATA4.dbf	IDFORM4.fmt	1
LAM_R	ENDOCRAN. LAMBDOIDAL SUT. (R)	IDDATA4.dbf	IDFORM4.fmt	1
LNAME	NAME (LAST)	IDDATA1.dbf	IDFORM1.fmt	15
LNC	MAN. CANINE (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNI1	MAN. 1ST INCISOR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
LNI2	MAN. 2ND INCISOR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNM1	MAN. 1ST MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNM2	MAN. 2ND MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNM3	MAN. 3RD MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNP1	MAN. 1ST PREMOLAR (L)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LNP2	MAN. 2ND PREMOLAR (L)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LOWER_L	MAN. DENTITION (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LOWER_R	MAN. DENTITION (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LUMB1-5	LUMBAR VERTEBRAE (1-5)	IDDATA3.dbf	IDFORM3A.fmt	1
LUMRIM	LUMBAR VERTEBRAL RIM CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
LXC	MAX. CANINE (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXI1	MAX. 1ST INCISOR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXI2	MAX. 2ND INCISOR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXM1	MAX. 1ST MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXM3	MAX. 3RD MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXP1	MAX. 1ST PREMOLAR (L)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
LXP2	MAX. 2ND PREMOLAR (L)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
MAB	EXTERNAL PALATAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	2
MAL	EXTERNAL PALATAL LENGTH	IDDATA5.dbf	IDFORM5.fmt	2
MAN	MANDIBULAR ANGLE	IDDATA5.dbf	IDFORM5.fmt	3
MANDI	MANDIBLE INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
MANNODEATH	MANNER OF DEATH	IDDATA1.dbf	IDFORM1.fmt	10
MANUB	MANUBRIUM INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
MAX_L	MAXILLA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
MAX_R	MAXILLA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
MCKST1_L	McKERN & STEWART PHASE I (L)	IDDATA4.dbf	IDFORM4.fmt	1
MCKST1_R	McKERN & STEWART PHASE I (R)	IDDATA4.dbf	IDFORM4.fmt	1
MCKST2_L	McKERN & STEWART PHASE II (L)	IDDATA4.dbf	IDFORM4.fmt	1
MCKST2_R	McKERN & STEWART PHASE II (R)	IDDATA4.dbf	IDFORM4.fmt	1
MCKST3_L	McKERN & STEWART PHASE III (L)	IDDATA4.dbf	IDFORM4.fmt	1
MCKST3_R	McKERN & STEWART PHASE III (R)	IDDATA4.dbf	IDFORM4.fmt	1
MDL	MASTOID LENGTH (L)	IDDATA5.dbf	IDFORM5.fmt	2
MDR	MASTOID HEIGHT (R)	IDDATA5.dbf	IDFORM5.fmt	2
MEDCLAV	MEDIAL CLAVICLE EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
MEDEPIC	HUMERUS MEDIAL EPIC. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
MEDHIST	MEDICAL HISTORY	IDDATA2.dbf	IDFORM2.fmt	60
MFM	INTERORBITAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	2

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
MIDCOR_L	MIDCORONAL SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1
MIDCOR_R	MIDCORONAL SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
MIDLAM_L	MIDLAMBDOID SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1
MIDLAM_R	MIDLAMBDOID SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
MLT	MANDIBULAR LENGTH	IDDATA5.dbf	IDFORM5.fmt	3
MNAME	NAME (MIDDLE)	IDDATA1.dbf	IDFORM1.fmt	15
MNSOIDNO1	MEANS OF IDENTIFICATION (1)	IDDATA1.dbf	IDFORM1.fmt	15
MNSOIDNO2	MEANS OF IDENTIFICATION (2)	IDDATA1.dbf	IDFORM1.fmt	15
NAP	UPPER FACIAL HEIGHT	IDDATA5.dbf	IDFORM5.fmt	2
NAS_L	NASAL (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
NAS_R	NASAL (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
NATUREMAIN	NATURE OF REMAINS	IDDATA2.dbf	IDFORM2.fmt	60
NBISOURCE	NUMBER OF BIRTHS SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
NNS	NASAL HEIGHT	IDDATA5.dbf	IDFORM5.fmt	2
NOBIRTHS	NUMBER OF BIRTHS	IDDATA1.dbf	IDFORM1.fmt	2
NOPREGN	NUMBER OF PREGNANCIES	IDDATA1.dbf	IDFORM1.fmt	2
NPRSOURCE	NUMBER OF PREGN. SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
OBELION	SUTURE AT OBELION	IDDATA4.dbf	IDFORM4.fmt	1
OBL	ORBITAL BREADTH (L)	IDDATA5.dbf	IDFORM5.fmt	2
OBR	ORBITAL BREADTH (R)	IDDATA5.dbf	IDFORM5.fmt	2
OCC	OCCIPITAL CHORD	IDDATA5.dbf	IDFORM5.fmt	3
OCCIP	OCCIPITAL INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
OCCSOURCE	OCCUPATION SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
OCCUPATION	OCCUPATION	IDDATA1.dbf	IDFORM1.fmt	15
OHL	ORBITAL HEIGHT (L)	IDDATA5.dbf	IDFORM5.fmt	2
OHR	ORBITAL HEIGHT (R)	IDDATA5.dbf	IDFORM5.fmt	2
OPB	FORAMEN MAGNUM LENGTH	IDDATA5.dbf	IDFORM5.fmt	2
OTHER_MAT	OTHER MATERIALS/DESCRIPTION	IDDATA3.dbf	IDFORM3B.fmt	50
OTHSOURCE	ADDITIONAL SOURCES	IDDATA2.dbf	IDFORM2.fmt	20
PAC	PARIETAL CHORD	IDDATA5.dbf	IDFORM5.fmt	3
PAL_L	PALATE (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PAL_R	PALATE (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PARA1	DATE OF 1ST CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA2	DATE OF 2ND CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA3	DATE OF 3RD CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA4	DATE OF 4TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA5	DATE OF 5TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
PARA6	DATE OF 6TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA7	DATE OF 7TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA8	DATE OF 8TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PARA9	DATE OF 9TH CHILDBIRTH	IDDATA2.dbf	IDFORM2.fmt	8
PAR_L	PARIETAL (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PAR_R	PARIETAL (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PAT_L	PATELLA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PAT_R	PATELLA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PERIMOINJU	PERIMORTEM INJURIES	IDDATA2.dbf	IDFORM2.fmt	60
PERIODECAY	ESTIMATED PERIOD OF DECAY	IDDATA1.dbf	IDFORM1.fmt	6
PLAOBIRCOU	PLACE OF BIRTH (COUNTY)	IDDATA1.dbf	IDFORM1.fmt	2
PLAOBIRMUN	PLACE OF BIRTH (MUNICIPALITY)	IDDATA1.dbf	IDFORM1.fmt	15
PLAOBIRSTA	PLACE OF BIRTH (STATE)	IDDATA1.dbf	IDFORM1.fmt	2
PLL	PUBIS LENGTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
PLODISAREA	PLACE OF DISCOVERY (AREA)	IDDATA1.dbf	IDFORM1.fmt	30
PLODISCOUN	PLACE OF DISCOVERY (COUNTY)	IDDATA1.dbf	IDFORM1.fmt	2
PLODISMUNI	PLACE OF DISCOVERY (MUNICIP.)	IDDATA1.dbf	IDFORM1.fmt	15
PLODISSTAT	PLACE OF DISCOVERY (STATE)	IDDATA1.dbf	IDFORM1.fmt	2
PLR	PUBIS LENGTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
POBSOURCE	PLACE OF BIRTH SOURCE DOCUM.	IDDATA2.dbf	IDFORM2.fmt	20
POSTCRAN	POSTCRANIUM INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PTERION_L	SUTURE AT PTERION (L)	IDDATA4.dbf	IDFORM4.fmt	1
PTERION_R	SUTURE AT PTERION (R)	IDDATA4.dbf	IDFORM4.fmt	1
PUBIS_L	PUBIS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
PUBIS_R	PUBIS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RACE	RACE	IDDATA1.dbf	IDFORM1.fmt	4
RACESOURCE	RACE SOURCE DOCUMENTATION	IDDATA2.dbf	IDFORM2.fmt	20
RACESTATUS	RACE STATUS/ LEVEL OF IDENT.	IDDATA1.dbf	IDFORM1.fmt	1
RADDIST	DISTAL RADIUS EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
RADIO_PHO	RADIOGRAPHS/PHOTGRAPHS	IDDATA3.dbf	IDFORM3B.fmt	50
RADPROX	PROXIMAL RADIUS EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
RAD_L	RADIUS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RAD_R	RADIUS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RAM_L	MANDIBULAR RAMUS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RAM_R	MANDIBULAR RAMUS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RECORDER	RECORDER	IDDATA1.dbf	IDFORM1.fmt	8
REL	RADIUS - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6A.fmt	1

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
RER	RADIUS - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6A.fmt	1
RIB10_L	RIB PHASE, LEFT 10TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB10_R	RIB PHASE, RIGHT 10TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB11_L	RIB PHASE, LEFT 11TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB11_R	RIB PHASE, RIGHT 11TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB12_L	RIB PHASE, LEFT 12TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB12_R	RIB PHASE, RIGHT 12TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB1_L	RIB PHASE, LEFT 1ST	IDDATA4.dbf	IDFORM4.fmt	1
RIB1_R	RIB PHASE, RIGHT 1ST	IDDATA4.dbf	IDFORM4.fmt	1
RIB2_L	RIB PHASE, LEFT 2ND	IDDATA4.dbf	IDFORM4.fmt	1
RIB2_R	RIB PHASE, RIGHT 2ND	IDDATA4.dbf	IDFORM4.fmt	1
RIB3_L	RIB PHASE, LEFT 3RD	IDDATA4.dbf	IDFORM4.fmt	1
RIB3_R	RIB PHASE, RIGHT 3RD	IDDATA4.dbf	IDFORM4.fmt	1
RIB4-R	RIB PHASE, RIGHT 4TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB4_L	RIB PHASE, LEFT 4TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB5_L	RIB PHASE, LEFT 5TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB5_R	RIB PHASE, RIGHT 5TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB6_L	RIB PHASE, LEFT 6TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB6_R	RIB PHASE, RIGHT 6TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB7_L	RIB PHASE, LEFT 7TH	IDDATA5.dbf	IDFORM5.fmt	1
RIB7_R	RIB PHASE, RIGHT 7TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB8_L	RIB PHASE, LEFT 8TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB8_R	RIB PHASE, RIGHT 8TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB9_L	RIB PHASE, LEFT 9TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB9_R	RIB PHASE, RIGHT 9TH	IDDATA4.dbf	IDFORM4.fmt	1
RIB_L	RIBS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RIB_R	RIBS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNC	MAN. CANINE (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNI1	MAN. 1ST INCISOR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNI2	MAN. 2ND INCISOR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNM1	MAN. 1ST MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNM2	MAN. 2ND MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNM3	MAN. 3RD MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNP1	MAN. 1ST PREMOLAR (R)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RNP2	MAN. 2ND PREMOLAR (R)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RSL	RADIUS SAGIT. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
RSR	RADIUS SAGIT. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
RTL	RADIUS TRV. DIAM. MIDSH. (L)	IDDATA6.dbf	IDFORM6A.fmt	2
RTR	RADIUS TRV. DIAM. MIDSH. (R)	IDDATA6.dbf	IDFORM6A.fmt	2
RXC	MAX. CANINE (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXI1	MAX. 1ST INCISOR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXI2	MAX. 2ND INCISOR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXL	RADIUS MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
RXM1	MAX. 1ST MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXM2	MAX. 2ND MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXM2	MAX. 2ND MOLAR (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXM3	MAX. 3RD MOLAR (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXP1	MAX. 1ST PREMOLAR (R)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXP2	MAX. 2ND PREMOLAR (R)INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
RXR	RADIUS MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
SAB	SACRUM ANT. SUPERIOR BREADTH	IDDATA6.dbf	IDFORM6A.fmt	3
SAC1_2	SACRAL ELEMENT 1 - 2 CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
SAC2_3	SACRAL ELEMENT 2 - 3 CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
SAC3_4	SACRAL ELEMENT 3 - 4 CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
SACRUM	SACRUM INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
SAGI	ENDOCRANIAL SAGITTAL SUTURE	IDDATA4.dbf	IDFORM4.fmt	1
SAT	SACRUM ANTERIOR HEIGHT	IDDATA6.dbf	IDFORM6A.fmt	3
SBL	SCAPULA ANATOMICAL BREADTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
SBR	SCAPULA ANATOMICAL BREADTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
SCAP_L	SCAPULA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
SCAP_R	SCAPULA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
SEL	SCAPULA - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6A.fmt	1
SER	SCAPULA - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6A.fmt	1
SEX	SEX	IDDATA1.dbf	IDFORM1.fmt	1
SEXSOURCE	SEX SOURCE DOCUMENTATION	IDDATA2.dbf	IDFORM2.fmt	20
SEXSTATUS	SEX STATUS LEVEL OF IDENTIFIC.	IDDATA1.dbf	IDFORM1.fmt	1
SKEL_MAT	SKELETAL RESEARCH MATERIALS	IDDATA3.dbf	IDFORM3B.fmt	50
SLL	SCAPULA ANATOMICAL HEIGHT (L)	IDDATA6.dbf	IDFORM6A.fmt	3
SLR	SCAPULA ANATOMICAL HEIGHT (R)	IDDATA6.dbf	IDFORM6A.fmt	3
SMB	SACRUM MAX TRANSV DIAM. S1	IDDATA6.dbf	IDFORM6A.fmt	2
SML	FEMUR SAGIT. MIDSH. DIAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
SMR	FEMUR SAGIT. MIDSH. DIAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
SPHEN	SPHENOID INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
SPHFRO_L	SPHENO-FRONTAL SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
SPHFRO_R	SPHENO-FRONTAL SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
SSEG	SACRUM - NUMBER OF SEGMENTS	IDDATA6.dbf	IDFORM6A.fmt	1
SSPTEM_L	SUP. SPHENO-TEMP. SUTURE (L)	IDDATA4.dbf	IDFORM4.fmt	1
SSPTEM_R	SUP. SPHENO-TEMP. SUTURE (R)	IDDATA4.dbf	IDFORM4.fmt	1
STATALIVE	STATURE IN CM. (LIVING)	IDDATA1.dbf	IDFORM1.fmt	3
STATCADAV	STATURE IN CM. (CADAVER)	IDDATA1.dbf	IDFORM1.fmt	3
STATSOURCE	STATURE SOURCE DOCUMENTATION	IDDATA2.dbf	IDFORM2.fmt	20
STERN	STERNUM INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
SUCH_L	SUCHEY-BROOKS PUBIC SYMPH. (L)	IDDATA4.dbf	IDFORM4.fmt	2
SUCH_R	SUCHEY-BROOKS PUBIC SYMPH. (R)	IDDATA4.dbf	IDFORM4.fmt	2
TAL_L	TALUS (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TAL_R	TALUS (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TDL	TIBIA MAX. DIST BREADTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
TDR	TIBIA MAX. DIST BREADTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
TEL	TIBIA - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6B.fmt	1
TEM_L	TEMPORAL (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TEM_R	TEMPORAL (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TER	TIBIA - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6B.fmt	1
THOR1-12	THORACIC VERTEBRAE (1-12)	IDDATA3.dbf	IDFORM3A.fmt	1
THORRIM	THORACIC VERT. RIM CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
TIBDIST	DISTAL TIBIA EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
TIBPROX	PROXIMAL TIBIA EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
TIB_L	TIBIA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TIB_R	TIBIA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
TIMESDEATH	TIME SINCE DEATH	IDDATA1.dbf	IDFORM1.fmt	10
TML	THICKN. OF MANDIBULAR BODY (L)	IDDATA5.dbf	IDFORM5.fmt	2
TMR	THICKN. OF MANDIBULAR BODY (R)	IDDATA5.dbf	IDFORM5.fmt	2
TODD_L	TODD PUBIC SYMPHYSIS (L)	IDDATA4.dbf	IDFORM4.fmt	2
TODD_R	TODD PUBIC SYMPHYSIS (R)	IDDATA5.dbf	IDFORM4.fmt	1
TPL	TIBIA MAX. PROX. BREADTH (L)	IDDATA6.dbf	IDFORM6B.fmt	2
TPR	TIBIA MAX. PROX. BREADTH (R)	IDDATA6.dbf	IDFORM6B.fmt	2
TXL	TIBIAL LENGTH (MALLEOLAR) (L)	IDDATA6.dbf	IDFORM6B.fmt	3
TXR	TIBIAL LENGTH (MALLEOLAR) (R)	IDDATA6.dbf	IDFORM6B.fmt	3
UCL	ULNA MINIMUM CIRCUMFERENCE (L)	IDDATA6.dbf	IDFORM6A.fmt	2
UCR	ULNA MINIMUM CIRCUMFERENCE (R)	IDDATA6.dbf	IDFORM6A.fmt	2
UDL	ULNA DORSO-VOLAR DIAMETER (L)	IDDATA6.dbf	IDFORM6A.fmt	2
UDR	ULNA DORSO-VOLAR DIAMETER (R)	IDDATA6.dbf	IDFORM6A.fmt	2

Appendix B. Continued.

VARIABLE LABEL	VARIABLE NAME	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
UEL	ULNA - EPIPHYSIS (P/A) (L)	IDDATA6.dbf	IDFORM6A.fmt	1
UER	ULNA - EPIPHYSIS (P/A) (R)	IDDATA6.dbf	IDFORM6A.fmt	1
ULNA_L	ULNA (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ULNA_R	ULNA (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ULNDIST	DISTAL ULNA EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
ULNPROX	PROXIMAL ULNA EPIPH. CLOSURE	IDDATA4.dbf	IDFORM4.fmt	1
UPL	ULNA PHYSIOLOGICAL LENGTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
UPPER_L	MAX. DENTITION (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
UPPER_R	MAX. DENTITION (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
UPR	ULNA PHYSIOLOGICAL LENGTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
UTL	ULNA TRANSVERSE DIAMETER (L)	IDDATA6.dbf	IDFORM6A.fmt	2
UTR	ULNA TRANSVERSE DIAMETER (R)	IDDATA6.dbf	IDFORM6A.fmt	2
UXL	ULNA MAXIMUM LENGTH (L)	IDDATA6.dbf	IDFORM6A.fmt	3
UXR	ULNA MAXIMUM LENGTH (R)	IDDATA6.dbf	IDFORM6A.fmt	3
VML	FEMUR TRANSV. MIDSH. DIAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
VMR	FEMUR TRANSV. MIDSH. DIAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
VNL	TIBIA TRV. DIAM. NUT. FOR. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
VNR	TIBIA TRV. DIAM. NUT. FOR. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
VOMER	VOMER INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
VSL	FEMUR TRV. SUBTROCH. DIAM. (L)	IDDATA6.dbf	IDFORM6B.fmt	2
VSR	FEMUR TRV. SUBTROCH. DIAM. (R)	IDDATA6.dbf	IDFORM6B.fmt	2
WFB	MINIMUM FRONTAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
WGHTALIVE	WEIGHT IN LBS. (ALIVE)	IDDATA1.dbf	IDFORM1.fmt	3
WGHTCADAV	WEIGHT IN LBS. (CADAVER)	IDDATA1.dbf	IDFORM1.fmt	3
WGHTSOURCE	WEIGHT SOURCE DOCUMENTATION	IDDATA2.dbf	IDFORM2.fmt	20
WRL	MINIMUM RAMUS BREADTH (L)	IDDATA5.dbf	IDFORM5.fmt	2
WRR	MINIMUM RAMUS BREADTH (R)	IDDATA5.dbf	IDFORM5.fmt	2
XCB	MAXIMUM CRANIAL BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
XRL	MAXIMUM RAMUS HEIGHT (L)	IDDATA5.dbf	IDFORM5.fmt	2
XRR	MAXIMUM RAMUS HEIGHT (R)	IDDATA5.dbf	IDFORM5.fmt	2
YRSOFEMPLO	YEARS OF EMPLOYMENT	IDDATA1.dbf	IDFORM1.fmt	2
ZYB	BIZYGOMATIC BREADTH	IDDATA5.dbf	IDFORM5.fmt	3
ZYG_L	ZYGOMATIC (L) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1
ZYG_R	ZYGOMATIC (R) INVENTORY	IDDATA3.dbf	IDFORM3A.fmt	1

APPENDIX C

INDEX OF VARIABLES AND VARIABLE CATEGORIES, DATA-BASE FILES AND SCREEN FORMATS, BY VARIABLE NAME

Appendix C. Index of variables and variable categories, data-base files and screen formats, by variable name.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
ADDITIONAL COMMENT	ADDCOMMENT	IDDATA2.dbf	IDFORM2.fmt	60
ADDITIONAL SOURCES	OTHSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
AGE AT DEATH	AGEATDEATH	IDDATA1.dbf	IDFORM1.fmt	2
AGE GROUP (GROSS ESTIMATE)	AGEGROUP	IDDATA1.dbf	IDFORM1.fmt	1
AGE RANGE (ESTIMATE)	AGERANGE	IDDATA1.dbf	IDFORM1.fmt	5
AGE SOURCE DOCUMENTATION	AGESOURCE	IDDATA2.dbf	IDFORM2.fmt	20
ANTERIOR SAGITTAL SUTURE	ANTSAG	IDDATA4.dbf	IDFORM4.fmt	1
ATLAS INVENTORY	ATLAS	IDDATA3.dbf	IDFORM3A.fmt	1
ATLAS - ANTERIOR CLOSURE	C1ANT	IDDATA4.dbf	IDFORM4.fmt	1
ATLAS - POSTERIOR CLOSURE	C1POS	IDDATA4.dbf	IDFORM4.fmt	1
AURICULAR SURFACE (L)	AURSUR_L	IDDATA4.dbf	IDFORM4.fmt	1
AURICULAR SURFACE (R)	AURSUR_R	IDDATA4.dbf	IDFORM4.fmt	1
AXIS INVENTORY	AXIS	IDDATA3.dbf	IDFORM3A.fmt	1
AXIS - ANTERIOR CLOSURE	C2ANT	IDDATA4.dbf	IDFORM4.fmt	1
AXIS - POSTERIOR CLOSURE	C2POS	IDDATA4.dbf	IDFORM4.fmt	1
BASILAR SUTURE CLOSURE	BASILAR	IDDATA4.dbf	IDFORM4.fmt	1
BASION-BREGMA HEIGHT	BAB	IDDATA4.dbf	IDFORM5.fmt	3
BASION-PROSTHION HEIGHT	BAP	IDDATA5.dbf	IDFORM5.fmt	3
BIAURICULAR BREADTH	AUB	IDDATA5.dbf	IDFORM5.fmt	3
BICONDYLAR BREADTH	CDL	IDDATA5.dbf	IDFORM5.fmt	3
BIGONIAL WIDTH	GOG	IDDATA5.dbf	IDFORM5.fmt	3
BIORBITAL BREADTH	ECE	IDDATA5.dbf	IDFORM5.fmt	3
BIZYGOMATIC BREADTH	ZYB	IDDATA5.dbf	IDFORM5.fmt	3
BLOOD TYPE (ABO)	BLOTYPABO	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE (DUFFY)	BLOTYPDUFF	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE (KELL)	BLOTYPKELL	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE (KIDD)	BLOTYPKIDD	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE (MNSS)	BLOTYPMNSS	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE (Rh)	BLOTYPRH	IDDATA1.dbf	IDFORM1.fmt	4
BLOOD TYPE SOURCE DOCUM..	BLOSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
BONE LESIONS/ANTEMORTEM	BONELESION	IDDATA2.dbf	IDFORM2.fmt	60
CALCANEUS (L) INVENTORY	CAL_L	IDDATA3.dbf	IDFORM3A.fmt	1
CALCANEUS (R) INVENTORY	CAL_R	IDDATA3.dbf	IDFORM3A.fmt	1
CALCANEUS - EPIPHYSIS (P/A)(L)	KEL	IDDATA6.dbf	IDFORM6B.fmt	1
CALCANEUS - EPIPHYSIS (P/A)(R)	KER	IDDATA6.dbf	IDFORM6B.fmt	1
CALCANEUS MAXIMIM LENGTH (L)	KXR	IDDATA6.dbf	IDFORM6B.fmt	2

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
CALCANEUS MAXIMUM LENGTH (R)	KXL	IDDATA6.dbf	IDFORM6B.fmt	2
CALCANEUS MIDDLE BREADTH (L)	KBL	IDDATA6.dbf	IDFORM6B.fmt	2
CALCANEUS MIDDLE BREADTH (R)	KBR	IDDATA6.dbf	IDFORM6B.fmt	2
CERVICAL VERT. (3-7) INVENTORY	CERV3-7	IDDATA3.dbf	IDFORM3A.fmt	1
CERVICAL VERTEBRAL RIM CLOSURE	CERVRIM	IDDATA4.dbf	IDFORM4.fmt	1
CHIN HEIGHT	GNI	IDDATA5.dbf	IDFORM5.fmt	2
CLAVICLE (L) INVENTORY	CLAV_L	IDDATA3.dbf	IDFORM3A.fmt	1
CLAVICLE (R) INVENTORY	CLAV_R	IDDATA3.dbf	IDFORM3A.fmt	1
CLAVICLE - EPIPHYSIS (P/A) (L)	CEL	IDDATA6.dbf	IDFORM6A.fmt	1
CLAVICLE - EPIPHYSIS (P/A) (R)	CER	IDDATA6.dbf	IDFORM6A.fmt	1
CLAVICLE MAXIMUM LENGTH (L)	CXL	IDDATA6.dbf	IDFORM6A.fmt	3
CLAVICLE MAXIMUM LENGTH (R)	CXR	IDDATA6.dbf	IDFORM6A.fmt	3
CLAVICLE SAG. DIAM. MIDSH. (L)	CSL	IDDATA6.dbf	IDFORM6A.fmt	2
CLAVICLE SAG. DIAM. MIDSH. (R)	CSR	IDDATA6.dbf	IDFORM6A.fmt	2
CLAVICLE VRT. DIAM. MIDSH. (L)	CVL	IDDATA6.dbf	IDFORM6A.fmt	2
CLAVICLE VRT. DIAM. MIDSH. (R)	CVR	IDDATA6.dbf	IDFORM6A.fmt	2
COLLECTION/CASE NUMBER	IDNO	IDDATA1.dbf	IDFORM1.fmt	10
CONGENITAL MALFORMATIONS	CONGENMAL	IDDATA2.dbf	IDFORM2.fmt	60
CRANIAL BASE LENGTH	BAN	IDDATA5.dbf	IDFORM5.fmt	3
CRANIUM INVENTORY	CRANIUM	IDDATA3.dbf	IDFORM3A.fmt	1
CURATOR/ADDRESS	CURATOR	IDDATA1.dbf	IDFORM1.fmt	4
DATE OF 1ST CHILDBIRTH	PARA1	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 2ND CHILDBIRTH	PARA2	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 3RD CHILDBIRTH	PARA3	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 4TH CHILDBIRTH	PARA4	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 5TH CHILDBIRTH	PARA5	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 6TH CHILDBIRTH	PARA6	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 7TH CHILDBIRTH	PARA7	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 8TH CHILDBIRTH	PARA8	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF 9TH CHILDBIRTH	PARA9	IDDATA2.dbf	IDFORM2.fmt	8
DATE OF BIRTH	DOB	IDDATA1.dbf	IDFORM1.fmt	8
DATE OF BIRTH SOURCE DOCUM.	DOBSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
DATE OF DEATH	DDEATH	IDDATA1.dbf	IDFORM1.fmt	8
DATE OF DISCOVERY	DDIS	IDDATA1.dbf	IDFORM1.fmt	8
DATE OF POSIT. IDENTIFICATION	DATEOFID	IDDATA1.dbf	IDFORM1.fmt	8
DATE RECORDED	DATEREC	IDDATA1.dbf	IDFORM1.fmt	8
DATE REPORTED MISSING	DMIS	IDDATA1.dbf	IDFORM1.fmt	8

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
DECAY STATUS	DECASTATUS	IDDATA1.dbf	IDFORM1.fmt	1
DENTAL CASTS/DESCRIPTION	DENT_CASTS	IDDATA3.dbf	IDFORM3B.fmt	50
DENTAL MATERIAL/CONDITION	DENTAL	IDDATA3.dbf	IDFORM3B.fmt	1
DENTAL RECORDS	DENTALREC	IDDATA2.dbf	IDFORM2.fmt	60
DENTITION INVENTORY	DENTI	IDDATA3.dbf	IDFORM3A.fmt	1
DEPOSIT/EXPOSURE	DEPOSEXPOS	IDDATA1.dbf	IDFORM1.fmt	31
DEPTH IN CM (if buried)	DEPTHINCM	IDDATA1.dbf	IDFORM1.fmt	4
DISTAL FEMUR EPIPH. CLOSURE	FEMDIST	IDDATA4.dbf	IDFORM4.fmt	1
DISTAL RADIUS EPIPH. CLOSURE	RADDIST	IDDATA4.dbf	IDFORM4.fmt	1
DISTAL TIBIA EPIPH. CLOSURE	TIBDIST	IDDATA4.dbf	IDFORM4.fmt	1
DISTAL ULNA EPIPH. CLOSURE	ULNDIST	IDDATA4.dbf	IDFORM4.fmt	1
DORSAL PUBIC PITTING (L)	DORPIT_L	IDDATA4.dbf	IDFORM4.fmt	1
DORSAL PUBIC PITTING (R)	DORPIT_R	IDDATA4.dbf	IDFORM4.fmt	1
DURATION OF 1ST PREGNANCY	GRA1	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 2ND PREGNANCY	GRA2	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 3RD PREGNANCY	GRA3	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 4TH PREGNANCY	GRA4	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 5TH PREGNANCY	GRA5	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 6TH PREGNANCY	GRA6	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 7TH PREGNANCY	GRA7	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 8TH PREGNANCY	GRA8	IDDATA2.dbf	IDFORM2.fmt	2
DURATION OF 9TH PREGNANCY	GRA9	IDDATA2.dbf	IDFORM2.fmt	2
ENDOCRAN. CORONAL SUTURE (L)	COR_L	IDDATA4.dbf	IDFORM4.fmt	1
ENDOCRAN. CORONAL SUTURE (R)	COR_R	IDDATA4.dbf	IDFORM4.fmt	1
ENDOCRAN. LAMBDOIDAL SUT. (L)	LAM_L	IDDATA4.dbf	IDFORM4.fmt	1
ENDOCRAN. LAMBDOIDAL SUT. (R)	LAM_R	IDDATA4.dbf	IDFORM4.fmt	1
ENDOCRANIAL SAGITTAL SUTURE	SAGI	IDDATA4.dbf	IDFORM4.fmt	1
ESTIMATED PERIOD OF DECAY	PERIODECAY	IDDATA1.dbf	IDFORM1.fmt	6
ETHMOID INVENTORY	ETHMO	IDDATA3.dbf	IDFORM3A.fmt	1
ETHNICITY OR GROUP AFFILIATION	ETHNICITY	IDDATA1.dbf	IDFORM1.fmt	11
EXTERNAL PALATAL BREADTH	MAB	IDDATA5.dbf	IDFORM5.fmt	2
EXTERNAL PALATAL LENGTH	MAL	IDDATA5.dbf	IDFORM5.fmt	2
FEMUR (L) INVENTORY	FEM_L	IDDATA3.dbf	IDFORM3A.fmt	1
FEMUR (R) INVENTORY	FEM_R	IDDATA3.dbf	IDFORM3A.fmt	1
FEMUR - EPIPHYSIS (P/A) (L)	FEL	IDDATA6.dbf	IDFORM6B.fmt	1
FEMUR - EPIPHYSIS (P/A) (R)	FER	IDDATA6.dbf	IDFORM6B.fmt	1
FEMUR BICONDYLAR LENGTH (L)	FBL	IDDATA6.dbf	IDFORM6B.fmt	3

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
FEMUR BICONDYLAR LENGTH (R)	FBR	IDDATA6.dbf	IDFORM6B.fmt	3
FEMUR EPICONDYLAR BREADTH (L)	FDL	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR EPICONDYLAR BREADTH (R)	FDR	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR GR. TROCH. EPIPH CLOSURE	FEMGRTR	IDDATA4.dbf	IDFORM4.fmt	1
FEMUR HEAD EPIPHYSEAL CLOSURE	FEMHEAD	IDDATA4.dbf	IDFORM4.fmt	1
FEMUR MAXIMUM HEAD DIAM. (L)	FHL	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR MAXIMUM HEAD DIAM. (R)	FHR	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR MAXIMUM LENGTH (L)	FXL	IDDATA6.dbf	IDFORM6B.fmt	3
FEMUR MAXIMUM LENGTH (R)	FXR	IDDATA6.dbf	IDFORM6B.fmt	3
FEMUR MIDSHAFT CIRCUMF. (L)	FCL	IDDATA6.dbf	IDFORM6B.fmt	3
FEMUR MIDSHAFT CIRCUMF. (R)	FCR	IDDATA6.dbf	IDFORM6B.fmt	3
FEMUR SAGIT. MIDSH. DIAM. (L)	SML	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR SAGIT. MIDSH. DIAM. (R)	SMR	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR SAGIT. SUBTR. DIAM. (L)	ASL	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR SAGIT. SUBTR. DIAM. (R)	ASR	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR TRANSV. MIDSH. DIAM. (L)	VMR	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR TRANSV. MIDSH. DIAM. (R)	VML	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR TRV. SUBTROCH. DIAM. (L)	VSL	IDDATA6.dbf	IDFORM6B.fmt	2
FEMUR TRV. SUBTROCH. DIAM. (R)	VSR	IDDATA6.dbf	IDFORM6B.fmt	2
FIBULA (L) INVENTORY	FIB_L	IDDATA3.dbf	IDFORM3A.fmt	1
FIBULA (R) INVENTORY	FIB_R	IDDATA3.dbf	IDFORM3A.fmt	1
FIBULA - EPIPHYSIS (P/A) (L)	BEL	IDDATA6.dbf	IDFORM6B.fmt	1
FIBULA - EPIPHYSIS (P/A) (R)	BER	IDDATA6.dbf	IDFORM6B.fmt	1
FIBULA MAX. DIAM. MIDSH. (L)	BML	IDDATA6.dbf	IDFORM6B.fmt	2
FIBULA MAX. DIAM. MIDSH. (R)	BMR	IDDATA6.dbf	IDFORM6B.fmt	2
FIBULA MAXIMUM LENGTH (L)	BXL	IDDATA6.dbf	IDFORM6B.fmt	3
FIBULA MAXIMUM LENGTH (R)	BXR	IDDATA6.dbf	IDFORM6B.fmt	3
FOOT (L) INVENTORY	FOOT_L	IDDATA3.dbf	IDFORM3A.fmt	1
FOOT (R) INVENTORY	FOOT_R	IDDATA3.dbf	IDFORM3A.fmt	1
FORAMEN MAGNUM BREADTH	FOB	IDDATA5.dbf	IDFORM5.fmt	2
FORAMEN MAGNUM LENGTH	OPB	IDDATA5.dbf	IDFORM5.fmt	2
FORENSIC DATA BANK NUMBER	FDN	ALL 7 .dbf	ALL 7.fmt	4
FRONTAL INVENTORY	FRONT	IDDATA3.dbf	IDFORM3A.fmt	1
FRONTAL CHORD	FRC	IDDATA5.dbf	IDFORM5.fmt	3
GILBERT & McKERN PHASE I (L)	GIMCK1_L	IDDATA4.dbf	IDFORM4.fmt	1
GILBERT & McKERN PHASE I (R)	GIMCK1_R	IDDATA4.dbf	IDFORM4.fmt	1
GILBERT & McKERN PHASE II (L)	GIMCK2_L	IDDATA4.dbf	IDFORM4.fmt	1

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
GILBERT & McKERN PHASE II (R)	GIMCK2_R	IDDATA4.dbf	IDFORM4.fmt	1
GILBERT & McKERN PHASE III (L)	GIMCK3_L	IDDATA4.dbf	IDFORM4.fmt	1
GILBERT & McKERN PHASE III (R)	GIMCK3_R	IDDATA4.dbf	IDFORM4.fmt	1
HAND (L) INVENTORY	HAND_L	IDDATA3.dbf	IDFORM3A.fmt	1
HAND (R) INVENTORY	HAND_R	IDDATA3.dbf	IDFORM3A.fmt	1
HANDEDNESS	HANDEDNESS	IDDATA1.dbf	IDFORM1.fmt	5
HANDEDNESS SOURCE DOCUM.	HANDSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
HEIGHT OF MANDIBULAR BODY (L)	HBL	IDDATA5.dbf	IDFORM5.fmt	2
HEIGHT OF MANDIBULAR BODY (R)	HBR	IDDATA5.dbf	IDFORM5.fmt	2
HISTOLOGICAL SECTIONS/DESCRIPT	HIST_SECT	IDDATA3.dbf	IDFORM3B.fmt	50
HUMERUS (L) INVENTORY	HUM_L	IDDATA3.dbf	IDFORM3A.fmt	1
HUMERUS (R) INVENTORY	HUM_R	IDDATA3.dbf	IDFORM3A.fmt	1
HUMERUS - EPIPHYSIS (L)	HEL	IDDATA5.dbf	IDFORM6A.fmt	1
HUMERUS - EPIPHYSIS (R)	HER	IDDATA5.dbf	IDFORM6A.fmt	1
HUMERUS EPICONDYLAR BR. (L)	HDL	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS EPICONDYLAR BR. (R)	HDR	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS MAX. DIAM. MIDSH. (L)	HML	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS MAX. DIAM. MIDSH. (R)	HMR	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS MAXIMUM LENGTH (L)	HXL	IDDATA6.dbf	IDFORM6A.fmt	3
HUMERUS MAXIMUM LENGTH (R)	HXR	IDDATA6.dbf	IDFORM6A.fmt	3
HUMERUS MEDIAL EPIC. CLOSURE	MEDEPIC	IDDATA4.dbf	IDFORM4.fmt	1
HUMERUS MIN. DIAM. MIDSH. (L)	HWL	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS MIN. DIAM. MIDSH. (R)	HWR	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS VERT. HEAD DIAM. (L)	HHL	IDDATA6.dbf	IDFORM6A.fmt	2
HUMERUS VERT. HEAD DIAM. (R)	HHR	IDDATA6.dbf	IDFORM6A.fmt	2
HYOID INVENTORY	HYOID	IDDATA3.dbf	IDFORM3A.fmt	1
IDENTIFICATION STATUS	IDSTATUS	IDDATA1.dbf	IDFORM1.fmt	1
ILIAC BREADTH (L)	IBL	IDDATA6.dbf	IDFORM6B.fmt	3
ILIAC BREADTH (R)	IBR	IDDATA6.dbf	IDFORM6B.fmt	3
ILIAC CREST (ANT 1/3) CLOSURE	ILIACRE	IDDATA4.dbf	IDFORM4.fmt	1
ILIUM (L) INVENTORY	ILIUM_L	IDDATA3.dbf	IDFORM3A.fmt	1
ILIUM (R) INVENTORY	ILIUM_R	IDDATA3.dbf	IDFORM3A.fmt	1
INF. SPHENO-TEMP. SUTURE (L)	ISPTEM_L	IDDATA4.dbf	IDFORM4.fmt	1
INF. SPHENO-TEMP. SUTURE (R)	ISPTEM_R	IDDATA4.dbf	IDFORM4.fmt	1
INNOMIN. - EPIPHYSIS (P/A) (L)	IEL	IDDATA6.dbf	IDFORM6B.fmt	1
INNOMIN. - EPIPHYSIS (P/A) (R)	IER	IDDATA6.dbf	IDFORM6B.fmt	1
INNOMINATE HEIGHT (L)	IHR	IDDATA6.dbf	IDFORM6B.fmt	3

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
INNOMINATE HEIGHT (L)	IHL	IDDATA6.dbf	IDFORM6B.fmt	3
INNOMINATE PRIMARY ELEM. CLOS.	INNPRIM	IDDATA4.dbf	IDFORM4.fmt	1
INTERORBITAL BREADTH	MFM	IDDATA5.dbf	IDFORM5.fmt	2
ISCHIAL TUBEROSITY CLOSURE	ISCHTUB	IDDATA4.dbf	IDFORM4.fmt	1
ISCHIUM (L) INVENTORY	ISCH_L	IDDATA3.dbf	IDFORM3A.fmt	1
ISCHIUM (R) INVENTORY	ISCH_R	IDDATA3.dbf	IDFORM3A.fmt	1
ISCHIUM LENGTH (L)	ISL	IDDATA6.dbf	IDFORM6B.fmt	2
ISCHIUM LENGTH (R)	ISR	IDDATA6.dbf	IDFORM6B.fmt	2
LACRIMAL (L) INVENTORY	LAC_L	IDDATA3.dbf	IDFORM3A.fmt	1
LACRIMAL (R) INVENTORY	LAC_R	IDDATA3.dbf	IDFORM3A.fmt	1
LUMBAR (5TH) BODY-ARCH CLOSURE	L5BOARC	IDDATA4.dbf	IDFORM4.fmt	1
LUMBAR VERTEBRAE (1-5)	LUMB1-5	IDDATA3.dbf	IDFORM3A.fmt	1
LUMBAR VERTEBRAL RIM CLOSURE	LUMRIM	IDDATA4.dbf	IDFORM4.fmt	1
MAN. 1ST INCISOR (L) INVENTORY	LNI1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 1ST INCISOR (R) INVENTORY	RNI1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 1ST MOLAR (L) INVENTORY	LNM1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 1ST MOLAR (R) INVENTORY	RNM1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 1ST PREMOLAR (L)INVENTORY	LNP1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 1ST PREMOLAR (R)INVENTORY	RNP1	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND INCISOR (L) INVENTORY	LNI2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND INCISOR (R) INVENTORY	RNI2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND MOLAR (L) INVENTORY	LNM2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND MOLAR (R) INVENTORY	RNM2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND PREMOLAR (L)INVENTORY	LNP2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 2ND PREMOLAR (R)INVENTORY	RNP2	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 3RD MOLAR (L) INVENTORY	LNM3	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. 3RD MOLAR (R) INVENTORY	RNM3	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. CANINE (L) INVENTORY	LNC	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. CANINE (R) INVENTORY	RNC	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. DENTITION (L) INVENTORY	LOWER_L	IDDATA3.dbf	IDFORM3A.fmt	1
MAN. DENTITION (R) INVENTORY	LOWER_R	IDDATA3.dbf	IDFORM3A.fmt	1
MANDIBLE INVENTORY	MANDI	IDDATA3.dbf	IDFORM3A.fmt	1
MANDIBULAR ANGLE	MAN	IDDATA5.dbf	IDFORM5.fmt	3
MANDIBULAR BODY (R) INVENTORY	BOD_R	IDDATA3.dbf	IDFORM3A.fmt	1
MANDIBULAR BODY (L) INVENTORY	BOD_L	IDDATA3.dbf	IDFORM3A.fmt	1
MANDIBULAR LENGTH	MLT	IDDATA5.dbf	IDFORM5.fmt	3
MANDIBULAR RAMUS (L) INVENTORY	RAM_L	IDDATA3.dbf	IDFORM3A.fmt	1

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
MANDIBULAR RAMUS (R) INVENTORY	RAM_R	IDDATA3.dbf	IDFORM3A.fmt	1
MANNER OF DEATH	MANÑODEATH	IDDATA1.dbf	IDFORM1.fmt	10
MANUBRIUM INVENTORY	MANUB	IDDATA3.dbf	IDFORM3A.fmt	1
MASTOID HEIGHT (R)	MDR	IDDATA5.dbf	IDFORM5.fmt	2
MASTOID LENGTH (L)	MDL	IDDATA5.dbf	IDFORM5.fmt	2
MAX. 1ST INCISOR (L) INVENTORY	LXI1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 1ST INCISOR (R) INVENTORY	RXI1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 1ST MOLAR (L) INVENTORY	LXM1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 1ST MOLAR (R) INVENTORY	RXM1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 1ST PREMOLAR (L)INVENTORY	LXP1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 1ST PREMOLAR (R)INVENTORY	RXP1	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND INCISOR (L) INVENTORY	LXI2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND INCISOR (R) INVENTORY	RXI2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND MOLAR (L) INVENTORY	RXM2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND MOLAR (R) INVENTORY	RXM2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND PREMOLAR (L)INVENTORY	LXP2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 2ND PREMOLAR (R)INVENTORY	RXP2	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 3RD MOLAR (L) INVENTORY	LXM3	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. 3RD MOLAR (R) INVENTORY	RXM3	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. CANINE (L) INVENTORY	LXC	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. CANINE (R) INVENTORY	RXC	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. DENTITION (L) INVENTORY	UPPER_L	IDDATA3.dbf	IDFORM3A.fmt	1
MAX. DENTITION (R) INVENTORY	UPPER_R	IDDATA3.dbf	IDFORM3A.fmt	1
MAXILLA (L) INVENTORY	MAX_L	IDDATA3.dbf	IDFORM3A.fmt	1
MAXILLA (R) INVENTORY	MAX_R	IDDATA3.dbf	IDFORM3A.fmt	1
MAXIMUM CRANIAL BREADTH	XCB	IDDATA5.dbf	IDFORM5.fmt	3
MAXIMUM CRANIAL LENGTH	GOL	IDDATA5.dbf	IDFORM5.fmt	3
MAXIMUM RAMUS HEIGHT (L)	XRL	IDDATA5.dbf	IDFORM5.fmt	2
MAXIMUM RAMUS HEIGHT (R)	XRR	IDDATA5.dbf	IDFORM5.fmt	2
MEANS OF IDENTIFICATION (1)	MNSOIDNO1	IDDATA1.dbf	IDFORM1.fmt	15
MEANS OF IDENTIFICATION (2)	MNSOIDNO2	IDDATA1.dbf	IDFORM1.fmt	15
MEDIAL CLAVICLE EPIPH. CLOSURE	MEDCLAV	IDDATA4.dbf	IDFORM4.fmt	1
MEDICAL HISTORY	MEDHIST	IDDATA2.dbf	IDFORM2.fmt	60
MIDCORONAL SUTURE (L)	MIDCOR_L	IDDATA4.dbf	IDFORM4.fmt	1
MIDCORONAL SUTURE (R)	MIDCOR_R	IDDATA4.dbf	IDFORM4.fmt	1
MIDLAMBDOID SUTURE (L)	MIDLAM_L	IDDATA4.dbf	IDFORM4.fmt	1
MIDLAMBDOID SUTURE (R)	MIDLAM_R	IDDATA4.dbf	IDFORM4.fmt	1

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
MINIMUM FRONTAL BREADTH	WFB	IDDATA5.dbf	IDFORM5.fmt	3
MINIMUM RAMUS BREADTH (L)	WRL	IDDATA5.dbf	IDFORM5.fmt	2
MINIMUM RAMUS BREADTH (R)	WRR	IDDATA5.dbf	IDFORM5.fmt	2
McKERN & STEWART PHASE I (L)	MCKST1_L	IDDATA4.dbf	IDFORM4.fmt	1
McKERN & STEWART PHASE I (R)	MCKST1_R	IDDATA4.dbf	IDFORM4.fmt	1
McKERN & STEWART PHASE II (L)	MCKST2_L	IDDATA4.dbf	IDFORM4.fmt	1
McKERN & STEWART PHASE II (R)	MCKST2_R	IDDATA4.dbf	IDFORM4.fmt	1
McKERN & STEWART PHASE III (L)	MCKST3_L	IDDATA4.dbf	IDFORM4.fmt	1
McKERN & STEWART PHASE III (R)	MCKST3_R	IDDATA4.dbf	IDFORM4.fmt	1
NAME (FIRST)	FNAME	IDDATA1.dbf	IDFORM1.fmt	15
NAME (LAST)	LNAME	IDDATA1.dbf	IDFORM1.fmt	15
NAME (MIDDLE)	MNAME	IDDATA1.dbf	IDFORM1.fmt	15
NASAL (L) INVENTORY	NAS_L	IDDATA3.dbf	IDFORM3A.fmt	1
NASAL (R) INVENTORY	NAS_R	IDDATA3.dbf	IDFORM3A.fmt	1
NASAL BREADTH	ALA	IDDATA5.dbf	IDFORM5.fmt	2
NASAL HEIGHT	NNS	IDDATA5.dbf	IDFORM5.fmt	2
NATURE OF REMAINS	NATUREMAIN	IDDATA2.dbf	IDFORM2.fmt	60
NUMBER OF BIRTHS	NOBIRTHS	IDDATA1.dbf	IDFORM1.fmt	2
NUMBER OF BIRTHS SOURCE DOCUM.	NBISOURCE	IDDATA2.dbf	IDFORM2.fmt	20
NUMBER OF PREGN. SOURCE DOCUM.	NPRSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
NUMBER OF PREGNANCIES	NOPREGN	IDDATA1.dbf	IDFORM1.fmt	2
OCCIPITAL INVENTORY	OCCIP	IDDATA3.dbf	IDFORM3A.fmt	1
OCCIPITAL CHORD	OCC	IDDATA5.dbf	IDFORM5.fmt	3
OCCUPATION	OCCUPATION	IDDATA1.dbf	IDFORM1.fmt	15
OCCUPATION SOURCE DOCUM.	OCCSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
ORBITAL BREADTH (L)	OBL	IDDATA5.dbf	IDFORM5.fmt	2
ORBITAL BREADTH (R)	OBR	IDDATA5.dbf	IDFORM5.fmt	2
ORBITAL HEIGHT (L)	OHL	IDDATA5.dbf	IDFORM5.fmt	2
ORBITAL HEIGHT (R)	OHR	IDDATA5.dbf	IDFORM5.fmt	2
OTHER MATERIALS/DESCRIPTION	OTHER_MAT	IDDATA3.dbf	IDFORM3B.fmt	50
PALATE (L) INVENTORY	PAL_L	IDDATA3.dbf	IDFORM3A.fmt	1
PALATE (R) INVENTORY	PAL_R	IDDATA3.dbf	IDFORM3A.fmt	1
PARIETAL (L) INVENTORY	PAR_L	IDDATA3.dbf	IDFORM3A.fmt	1
PARIETAL (R) INVENTORY	PAR_R	IDDATA3.dbf	IDFORM3A.fmt	1
PARIETAL CHORD	PAC	IDDATA5.dbf	IDFORM5.fmt	3
PATELLA (L) INVENTORY	PAT_L	IDDATA3.dbf	IDFORM3A.fmt	1
PATELLA (R) INVENTORY	PAT_R	IDDATA3.dbf	IDFORM3A.fmt	1

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
PERIMORTEM INJURIES	PERIMOINJU	IDDATA2.dbf	IDFORM2.fmt	60
PLACE OF BIRTH (COUNTY)	PLAOBIRCOU	IDDATA1.dbf	IDFORM1.fmt	2
PLACE OF BIRTH (MUNICIPALITY)	PLAOBIRMUN	IDDATA1.dbf	IDFORM1.fmt	15
PLACE OF BIRTH (STATE)	PLAOBIRSTA	IDDATA1.dbf	IDFORM1.fmt	2
PLACE OF BIRTH SOURCE DOCUM.	POBSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
PLACE OF DISCOVERY (AREA)	PLODISAREA	IDDATA1.dbf	IDFORM1.fmt	30
PLACE OF DISCOVERY (COUNTY)	PLODISCOUN	IDDATA1.dbf	IDFORM1.fmt	2
PLACE OF DISCOVERY (MUNICIP.)	PLODISMUNI	IDDATA1.dbf	IDFORM1.fmt	15
PLACE OF DISCOVERY (STATE)	PLODISSTAT	IDDATA1.dbf	IDFORM1.fmt	2
POSTCRANIUM INVENTORY	POSTCRAN	IDDATA3.dbf	IDFORM3A.fmt	1
PROXIMAL HUMERUS EPIPH. CLOS.	HUMPROX	IDDATA4.dbf	IDFORM4.fmt	1
PROXIMAL RADIUS EPIPH. CLOSURE	RADPROX	IDDATA4.dbf	IDFORM4.fmt	1
PROXIMAL TIBIA EPIPH. CLOSURE	TIBPROX	IDDATA4.dbf	IDFORM4.fmt	1
PROXIMAL ULNA EPIPH. CLOSURE	ULNPROX	IDDATA4.dbf	IDFORM4.fmt	1
PUBIS (L) INVENTORY	PUBIS_L	IDDATA3.dbf	IDFORM3A.fmt	1
PUBIS (R) INVENTORY	PUBIS_R	IDDATA3.dbf	IDFORM3A.fmt	1
PUBIS LENGTH (L)	PLL	IDDATA6.dbf	IDFORM6B.fmt	2
PUBIS LENGTH (R)	PLR	IDDATA6.dbf	IDFORM6B.fmt	2
RACE	RACE	IDDATA1.dbf	IDFORM1.fmt	4
RACE SOURCE DOCUMENTATION	RACESOURCE	IDDATA2.dbf	IDFORM2.fmt	20
RACE STATUS/ LEVEL OF IDENT.	RACESTATUS	IDDATA1.dbf	IDFORM1.fmt	1
RADIOGRAPHS/PHOTGRAPHS	RADIO_PHO	IDDATA3.dbf	IDFORM3B.fmt	50
RADIUS (L) INVENTORY	RAD_L	IDDATA3.dbf	IDFORM3A.fmt	1
RADIUS (R) INVENTORY	RAD_R	IDDATA3.dbf	IDFORM3A.fmt	1
RADIUS - EPIPHYSIS (P/A) (L)	REL	IDDATA6.dbf	IDFORM6A.fmt	1
RADIUS - EPIPHYSIS (P/A) (R)	RER	IDDATA6.dbf	IDFORM6A.fmt	1
RADIUS MAXIMUM LENGTH (L)	RXL	IDDATA6.dbf	IDFORM6A.fmt	3
RADIUS MAXIMUM LENGTH (R)	RXR	IDDATA6.dbf	IDFORM6A.fmt	3
RADIUS SAGIT. DIAM. MIDSH. (L)	RSR	IDDATA6.dbf	IDFORM6A.fmt	2
RADIUS SAGIT. DIAM. MIDSH. (R)	RSL	IDDATA6.dbf	IDFORM6A.fmt	2
RADIUS TRV. DIAM. MIDSH. (L)	RTL	IDDATA6.dbf	IDFORM6A.fmt	2
RADIUS TRV. DIAM. MIDSH. (R)	RTR	IDDATA6.dbf	IDFORM6A.fmt	2
RECORDER	RECORDER	IDDATA1.dbf	IDFORM1.fmt	8
RIB PHASE, LEFT 10TH	RIB10_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 11TH	RIB11_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 12TH	RIB12_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 1ST	RIB1_L	IDDATA4.dbf	IDFORM4.fmt	1

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
RIB PHASE, LEFT 2ND	RIB2_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 3RD	RIB3_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 4TH	RIB4_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 5TH	RIB5_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 6TH	RIB6_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 7TH	RIB7_L	IDDATA5.dbf	IDFORM5.fmt	1
RIB PHASE, LEFT 8TH	RIB8_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, LEFT 9TH	RIB9_L	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 10TH	RIB10_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 11TH	RIB11_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 12TH	RIB12_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 1ST	RIB1_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 2ND	RIB2_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 3RD	RIB3_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 4TH	RIB4-R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 5TH	RIB5_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 6TH	RIB6_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 7TH	RIB7_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 8TH	RIB8_R	IDDATA4.dbf	IDFORM4.fmt	1
RIB PHASE, RIGHT 9TH	RIB9_R	IDDATA4.dbf	IDFORM4.fmt	1
RIBS (L) INVENTORY	RIB_L	IDDATA3.dbf	IDFORM3A.fmt	1
RIBS (R) INVENTORY	RIB_R	IDDATA3.dbf	IDFORM3A.fmt	1
SACRAL ELEMENT 1 - 2 CLOSURE	SAC1_2	IDDATA4.dbf	IDFORM4.fmt	1
SACRAL ELEMENT 2 - 3 CLOSURE	SAC2_3	IDDATA4.dbf	IDFORM4.fmt	1
SACRAL ELEMENT 3 - 4 CLOSURE	SAC3_4	IDDATA4.dbf	IDFORM4.fmt	1
SACRUM INVENTORY	SACRUM	IDDATA3.dbf	IDFORM3A.fmt	1
SACRUM - NUMBER OF SEGMENTS	SSEG	IDDATA6.dbf	IDFORM6A.fmt	1
SACRUM ANT. SUPERIOR BREADTH	SAB	IDDATA6.dbf	IDFORM6A.fmt	3
SACRUM ANTERIOR HEIGHT	SAT	IDDATA6.dbf	IDFORM6A.fmt	3
SACRUM MAX TRANSV DIAM. S1	SMB	IDDATA6.dbf	IDFORM6A.fmt	2
SCAPULA (L) INVENTORY	SCAP_L	IDDATA3.dbf	IDFORM3A.fmt	1
SCAPULA (R) INVENTORY	SCAP_R	IDDATA3.dbf	IDFORM3A.fmt	1
SCAPULA - EPIPHYSIS (P/A) (L)	SEL	IDDATA6.dbf	IDFORM6A.fmt	1
SCAPULA - EPIPHYSIS (P/A) (R)	SER	IDDATA6.dbf	IDFORM6A.fmt	1
SCAPULA ANATOMICAL BREADTH (L)	SBL	IDDATA6.dbf	IDFORM6A.fmt	3
SCAPULA ANATOMICAL BREADTH (R)	SBR	IDDATA6.dbf	IDFORM6A.fmt	3
SCAPULA ANATOMICAL HEIGHT (L)	SLL	IDDATA6.dbf	IDFORM6A.fmt	3

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
SCAPULA ANATOMICAL HEIGHT (R)	SLR	IDDATA6.dbf	IDFORM6A.fmt	3
SEX	SEX	IDDATA1.dbf	IDFORM1.fmt	1
SEX SOURCE DOCUMENTATION	SEXSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
SEX STATUS LEVEL OF IDENTIFIC.	SEXSTATUS	IDDATA1.dbf	IDFORM1.fmt	1
SKELETAL RESEARCH MATERIALS	SKEL_MAT	IDDATA3.dbf	IDFORM3B.fmt	50
SPHENO-FRONTAL SUTURE (L)	SPHFRO_L	IDDATA4.dbf	IDFORM4.fmt	1
SPHENO-FRONTAL SUTURE (R)	SPHFRO_R	IDDATA4.dbf	IDFORM4.fmt	1
SPHENOID INVENTORY	SPHEN	IDDATA3.dbf	IDFORM3A.fmt	1
STATURE IN CM. (CADAVER)	STATCADAV	IDDATA1.dbf	IDFORM1.fmt	3
STATURE IN CM. (LIVING)	STATALIVE	IDDATA1.dbf	IDFORM1.fmt	3
STATURE SOURCE DOCUMENTATION	STATSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
STERNUM INVENTORY	STERN	IDDATA3.dbf	IDFORM3A.fmt	1
SUCHEY-BROOKS PUBIC SYMPH. (L)	SUCH_L	IDDATA4.dbf	IDFORM4.fmt	2
SUCHEY-BROOKS PUBIC SYMPH. (R)	SUCH_R	IDDATA4.dbf	IDFORM4.fmt	2
SUP. SPHENO-TEMP. SUTURE (L)	SSPTEM_L	IDDATA4.dbf	IDFORM4.fmt	1
SUP. SPHENO-TEMP. SUTURE (R)	SSPTEM_R	IDDATA4.dbf	IDFORM4.fmt	1
SUTURE AT BREGMA	BREGMA	IDDATA4.dbf	IDFORM4.fmt	1
SUTURE AT LAMBDA	LAMBDA	IDDATA4.dbf	IDFORM4.fmt	1
SUTURE AT OBELION	OBELION	IDDATA4.dbf	IDFORM4.fmt	1
SUTURE AT PTERION (L)	PTERION_L	IDDATA4.dbf	IDFORM4.fmt	1
SUTURE AT PTERION (R)	PTERION_R	IDDATA4.dbf	IDFORM4.fmt	1
TALUS (L) INVENTORY	TAL_L	IDDATA3.dbf	IDFORM3A.fmt	1
TALUS (R) INVENTORY	TAL_R	IDDATA3.dbf	IDFORM3A.fmt	1
TEMPORAL (L) INVENTORY	TEM_L	IDDATA3.dbf	IDFORM3A.fmt	1
TEMPORAL (R) INVENTORY	TEM_R	IDDATA3.dbf	IDFORM3A.fmt	1
THICKN. OF MANDIBULAR BODY (L)	TML	IDDATA5.dbf	IDFORM5.fmt	2
THICKN. OF MANDIBULAR BODY (R)	TMR	IDDATA5.dbf	IDFORM5.fmt	2
THORACIC VERT. RIM CLOSURE	THORRIM	IDDATA4.dbf	IDFORM4.fmt	1
THORACIC VERTEBRAE (1-12)	THOR1-12	IDDATA3.dbf	IDFORM3A.fmt	1
TIBIA (L) INVENTORY	TIB_L	IDDATA3.dbf	IDFORM3A.fmt	1
TIBIA (R) INVENTORY	TIB_R	IDDATA3.dbf	IDFORM3A.fmt	1
TIBIA - EPIPHYSIS (P/A) (L)	TEL	IDDATA6.dbf	IDFORM6B.fmt	1
TIBIA - EPIPHYSIS (P/A) (R)	TER	IDDATA6.dbf	IDFORM6B.fmt	1
TIBIA CIRCUM. NUT. FORAM. (L)	CNL	IDDATA6.dbf	IDFORM6B.fmt	3
TIBIA CIRCUM. NUT. FORAM. (R)	CNR	IDDATA6.dbf	IDFORM6B.fmt	3
TIBIA MAX. DIAM. NUT. FOR. (L)	ANL	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA MAX. DIAM. NUT. FOR. (R)	ANR	IDDATA6.dbf	IDFORM6B.fmt	2

Appendix C. Continued.

VARIABLE NAME	VARIABLE LABEL	DATA-BASE FILE	SCREEN FORMAT	VARIABLE LENGTH
TIBIA MAX. DIST BREADTH (L)	TDL	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA MAX. DIST BREADTH (R)	TDR	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA MAX. PROX. BREADTH (L)	TPL	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA MAX. PROX. BREADTH (R)	TPR	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA TRV. DIAM. NUT. FOR. (L)	VNL	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIA TRV. DIAM. NUT. FOR. (R)	VNR	IDDATA6.dbf	IDFORM6B.fmt	2
TIBIAL LENGTH (MALLEOLAR) (L)	TXL	IDDATA6.dbf	IDFORM6B.fmt	3
TIBIAL LENGTH (MALLEOLAR) (R)	TXR	IDDATA6.dbf	IDFORM6B.fmt	3
TIME SINCE DEATH	TIMESDEATH	IDDATA1.dbf	IDFORM1.fmt	10
TODD PUBIC SYMPHYSIS (L)	TODD_L	IDDATA4.dbf	IDFORM4.fmt	2
TODD PUBIC SYMPHYSIS (R)	TODD_R	IDDATA5.dbf	IDFORM4.fmt	1
ULNA (L) INVENTORY	ULNA_L	IDDATA3.dbf	IDFORM3A.fmt	1
ULNA (R) INVENTORY	ULNA_R	IDDATA3.dbf	IDFORM3A.fmt	1
ULNA - EPIPHYSIS (P/A) (L)	UEL	IDDATA6.dbf	IDFORM6A.fmt	1
ULNA - EPIPHYSIS (P/A) (R)	UER	IDDATA6.dbf	IDFORM6A.fmt	1
ULNA DORSO-VOLAR DIAMETER (L)	UDL	IDDATA6.dbf	IDFORM6A.fmt	2
ULNA DORSO-VOLAR DIAMETER (R)	UDR	IDDATA6.dbf	IDFORM6A.fmt	2
ULNA MAXIMUM LENGTH (L)	UXL	IDDATA6.dbf	IDFORM6A.fmt	3
ULNA MAXIMUM LENGTH (R)	UXR	IDDATA6.dbf	IDFORM6A.fmt	3
ULNA MINIMUM CIRCUMFERENCE (L)	UCL	IDDATA6.dbf	IDFORM6A.fmt	2
ULNA MINIMUM CIRCUMFERENCE (R)	UCR	IDDATA6.dbf	IDFORM6A.fmt	2
ULNA PHYSIOLOGICAL LENGTH (L)	UPL	IDDATA6.dbf	IDFORM6A.fmt	3
ULNA PHYSIOLOGICAL LENGTH (R)	UPR	IDDATA6.dbf	IDFORM6A.fmt	3
ULNA TRANSVERSE DIAMETER (L)	UTL	IDDATA6.dbf	IDFORM6A.fmt	2
ULNA TRANSVERSE DIAMETER (R)	UTR	IDDATA6.dbf	IDFORM6A.fmt	2
UPPER FACIAL BREADTH	FMT	IDDATA5.dbf	IDFORM5.fmt	3
UPPER FACIAL HEIGHT	NAP	IDDATA5.dbf	IDFORM5.fmt	2
VOMER INVENTORY	VOMER	IDDATA3.dbf	IDFORM3A.fmt	1
WEIGHT IN LBS. (ALIVE)	WGHTALIVE	IDDATA1.dbf	IDFORM1.fmt	3
WEIGHT IN LBS. (CADAVER)	WGHTCADAV	IDDATA1.dbf	IDFORM1.fmt	3
WEIGHT SOURCE DOCUMENTATION	WGHTSOURCE	IDDATA2.dbf	IDFORM2.fmt	20
YEARS OF EMPLOYMENT	YRSOFEMPLO	IDDATA1.dbf	IDFORM1.fmt	2
ZYGOMATIC (L) INVENTORY	ZYG_L	IDDATA3.dbf	IDFORM3A.fmt	1
ZYGOMATIC (R) INVENTORY	ZYG_R	IDDATA3.dbf	IDFORM3A.fmt	1