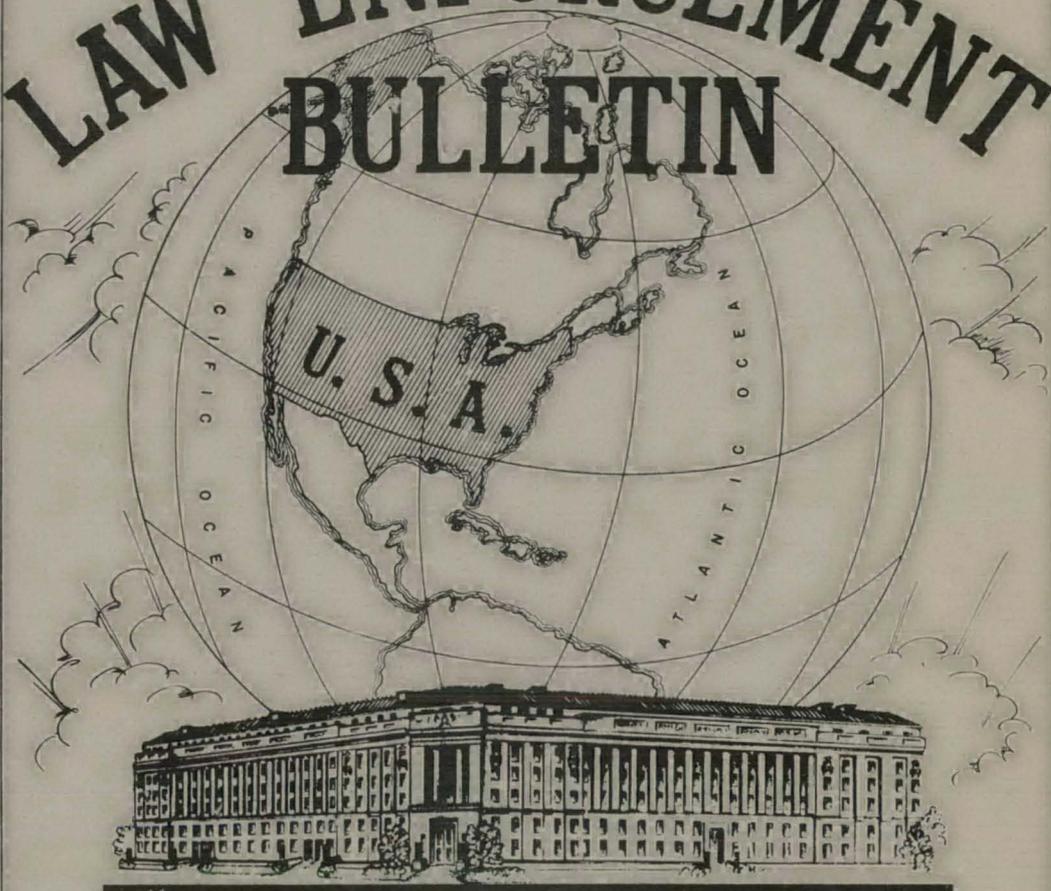


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LAW ENFORCEMENT BULLETIN



UNITED STATES DEPARTMENT OF JUSTICE BUILDING

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

JOHN EDGAR HOOVER, DIRECTOR
WASHINGTON, D. C.

VOL. 8 NO. 8 AUG. 1, 1939

The Federal Bureau of Investigation, United States Department of Justice, is charged with the duty of investigating violations of the laws of the United States and collecting evidence in cases in which the United States is or may be a party in interest.

The following list indicates some of the major violations over which the Bureau has investigative jurisdiction:-

National Motor Vehicle Theft Act
Interstate transportation of stolen property valued at \$5,000 or more
National Bankruptcy Act
Interstate flight to avoid prosecution or testifying in certain cases
White Slave Traffic Act
Impersonation of Government Officials
Larceny of Goods in Interstate Commerce
Killing or Assaulting Federal Officer
Cases involving transportation in interstate or foreign commerce of any persons who have been kidnaped
Extortion cases where mail is used to transmit threats of violence to persons or property; also cases where interstate commerce is an element and the means of communication is by telegram, telephone or other carrier
Theft, Embezzlement or Illegal Possession of Government Property
Antitrust Laws
Robbery of National Banks, insured banks of the Federal Deposit Insurance Corporation, Member Banks of the Federal Reserve System and Federal Loan and Savings Institutions
National Bank and Federal Reserve Act Violations, such as embezzlement, abstraction or misapplication of funds
Crimes on any kind of Government reservation, including Indian Reservations or in any Government building or other Government property
Neutrality violations, including the shipment of arms to friendly nations
Frauds against the Government
Crimes in connection with the Federal Penal and Correctional Institutions
Perjury, embezzlement, or bribery in connection with Federal Statutes or officials
Crimes on the high seas
Federal Anti-Racketeering Statute
The location of persons who are fugitives from justice by reason of violations of the Federal Laws over which the Bureau has jurisdiction, of escaped Federal prisoners, and parole and probation violators.

The Bureau does not have investigative jurisdiction over the violations of Counterfeiting, Narcotic, Customs, Immigration, or Postal Laws, except where the mail is used to extort something of value under threat of violence.

Law enforcement officials possessing information concerning violations over which the Bureau has investigative jurisdiction are requested to promptly forward the same to the Special Agent in Charge of the nearest field division of the Federal Bureau of Investigation, United States Department of Justice. The address of each field division of this Bureau appears on the inside back cover of this bulletin. Government Rate Collect telegrams or telephone calls will be accepted if information indicates that immediate action is necessary.

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The FBI Law Enforcement Bulletin is issued monthly to law enforcement agencies throughout the United States. Much of the data appearing herein is of a confidential nature and its circulation should be restricted to law enforcement officers; therefore, material contained in this Bulletin may not be reprinted without prior authorization by the Federal Bureau of Investigation.

The FBI LAW ENFORCEMENT BULLETIN is published by the Federal Bureau of Investigation, United States Department of Justice each month. Its material is compiled for the assistance of all Law Enforcement Officials and is a current catalogue of continuous reference for the Law Enforcement Officers of the Nation.

John Edgar Hoover, Director
Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

The effectiveness of law enforcement is ultimately determined by its personnel. Qualified and highly-trained personnel are necessary to adequately protect the life and property of the citizens in the community. Law enforcement officers must be adequately trained and equipped with the latest scientific instruments and knowledge; they must keep abreast of the times by constant study; they must not be shackled in the performance of their duties by the stifling influences of corrupt politics.

With these thoughts in mind, the Federal Bureau of Investigation in 1938 inaugurated a program of retraining for the graduates of the FBI National Police Academy. This venture was so successful that from September 25 to 30, 1939, the FBI will again hold a retraining school for National Police Academy graduates in an effort to furnish them, through the various experts in each particular field of law enforcement, a thorough knowledge of the latest developments which have occurred during the past twelve months.

During the past few years police departments in practically every state in the Union have inaugurated training schools and through this training have accomplished splendid results. These local departments could well afford to inaugurate a retraining program of shorter duration than the original training in order that the officers might learn the very latest techniques developed by experts in the law enforcement profession.

J. Edgar Hoover

Director

FEDERAL BUREAU OF INVESTIGATION UNITED STATES DEPARTMENT OF JUSTICE



John Edgar Hoover, Director



THE FBI PLEDGE FOR LAW ENFORCEMENT OFFICERS

HUMBLY RECOGNIZING THE RESPONSIBILITIES ENTRUSTED TO ME, I DO VOW THAT I SHALL ALWAYS CONSIDER THE HIGH CALLING OF LAW ENFORCEMENT TO BE AN HONORABLE PROFESSION, THE DUTIES OF WHICH ARE RECOGNIZED BY ME AS BOTH AN ART AND A SCIENCE. I RECOGNIZE FULLY MY RESPONSIBILITIES TO DEFEND THE RIGHT, TO PROTECT THE WEAK, TO AID THE DISTRESSED, AND TO UPHOLD THE LAW IN PUBLIC DUTY AND IN PRIVATE LIVING. I ACCEPT THE OBLIGATION IN CONNECTION WITH MY ASSIGNMENTS TO REPORT FACTS AND TO TESTIFY WITHOUT BIAS OR DISPLAY OF EMOTION, AND TO CONSIDER THE INFORMATION, COMING TO MY KNOWLEDGE BY VIRTUE OF MY POSITION, AS A SACRED TRUST, TO BE USED SOLELY FOR OFFICIAL PURPOSES. TO THE RESPONSIBILITIES ENTRUSTED TO ME OF SEEKING TO PREVENT CRIME, OF FINDING THE FACTS OF LAW VIOLATIONS AND OF APPREHENDING FUGITIVES AND CRIMINALS, I SHALL GIVE MY LOYAL AND FAITHFUL ATTENTION AND SHALL ALWAYS BE EQUALLY ALERT IN STRIVING TO ACQUIT THE INNOCENT AND TO CONVICT THE GUILTY. IN THE PERFORMANCE OF MY DUTIES AND ASSIGNMENTS, I SHALL NOT ENGAGE IN UNLAWFUL AND UNETHICAL PRACTICES BUT SHALL PERFORM THE FUNCTIONS OF MY OFFICE WITHOUT FEAR, WITHOUT FAVOR, AND WITHOUT PREJUDICE. AT NO TIME SHALL I DISCLOSE TO AN UNAUTHORIZED PERSON ANY FACT, TESTIMONY, OR INFORMATION IN ANY PENDING MATTER COMING TO MY OFFICIAL KNOWLEDGE WHICH MAY BE CALCULATED TO PREJUDICE THE MINDS OF EXISTING OR PROSPECTIVE JUDICIAL BODIES EITHER TO FAVOR OR TO DISFAVOR ANY PERSON OR ISSUE. WHILE OCCUPYING THE STATUS OF A LAW ENFORCEMENT OFFICER OR AT ANY OTHER TIME SUBSEQUENT THERETO, I SHALL NOT SEEK TO BENEFIT PERSONALLY BECAUSE OF MY KNOWLEDGE OF ANY CONFIDENTIAL MATTER WHICH HAS COME TO MY ATTENTION. I AM AWARE OF THE SERIOUS RESPONSIBILITIES OF MY OFFICE AND IN THE PERFORMANCE OF MY DUTIES I SHALL, AS A MINISTER, SEEK TO SUPPLY COMFORT, ADVICE AND AID TO THOSE WHO MAY BE IN NEED OF SUCH BENEFITS; AS A SOLDIER, I SHALL WAGE VIGOROUS WARFARE AGAINST THE ENEMIES OF MY COUNTRY, OF ITS LAWS, AND OF ITS PRINCIPLES; AND AS A PHYSICIAN, I SHALL SEEK TO ELIMINATE THE CRIMINAL PARASITE WHICH PREYS UPON OUR SOCIAL ORDER AND TO STRENGTHEN THE LAWFUL PROCESSES OF OUR BODY POLITIC. I SHALL STRIVE TO BE BOTH A TEACHER AND A PUPIL IN THE ART AND SCIENCE OF LAW ENFORCEMENT. AS A LAWYER, I SHALL ACQUIRE DUE KNOWLEDGE OF THE LAWS OF MY DOMAIN AND SEEK TO PRESERVE AND MAINTAIN THE MAJESTY AND DIGNITY OF THE LAW; AS A SCIENTIST IT WILL BE MY ENDEAVOR TO LEARN ALL PERTINENT TRUTH ABOUT ACCUSATIONS AND COMPLAINTS WHICH COME TO MY LAWFUL KNOWLEDGE; AS AN ARTIST, I SHALL SEEK TO USE MY SKILL FOR THE PURPOSE OF MAKING EACH ASSIGNMENT A MASTERPIECE; AS A NEIGHBOR, I SHALL BEAR AN ATTITUDE OF TRUE FRIENDSHIP AND COURTEOUS RESPECT TO ALL CITIZENS; AND AS AN OFFICER, I SHALL ALWAYS BE LOYAL TO MY DUTY, MY ORGANIZATION, AND MY COUNTRY. I WILL SUPPORT AND DEFEND THE CONSTITUTION OF THE UNITED STATES AGAINST ALL ENEMIES, FOREIGN AND DOMESTIC; I WILL BEAR TRUE FAITH AND ALLEGIANCE TO THE SAME, AND WILL CONSTANTLY STRIVE TO COOPERATE WITH AND PROMOTE COOPERATION BETWEEN ALL REGULARLY CONSTITUTED LAW ENFORCEMENT AGENCIES AND OFFICERS IN THE PERFORMANCE OF DUTIES OF MUTUAL INTEREST AND OBLIGATION.

A GUIDE TO THE IDENTIFICATION OF HUMAN SKELETAL MATERIAL

by

Wilton Marion Krogman*

(The scientific aids which today are available to the criminal investigator are well illustrated by Dr. Wilton Marion Krogman's article which the FBI Law Enforcement Bulletin is happy to publish as a contribution to the rapidly increasing literature available in the field of criminology. This article should be considered as a valuable reference to the investigator wherever the identification of bones becomes necessary. A careful perusal will point out many investigative suggestions; however, the investigator should seek scientific assistance should the identification of bones become necessary. The FBI will be glad to offer any suggestions in such cases as to the various steps which should be taken in the scientific examination of bones. In every case where bones, human or animal, become important to the case, the investigator should carefully consider that if the evidence deduced from their recovery and examination is to be used advantageously in Court, it will be necessary to utilize the services of an expert.

This study points to many facts that can be obtained from the proper type of examination of bones, which will often reveal facts of great value and assistance to the investigation. - Editor's Note)

FOREWORD

The study of the human skeleton is an exact science, permitting of identification in terms of individual age, sex and race (stock or nationality). It is the purpose of this outline to present the salient features of such identification. It assumes a working knowledge of the bones of the skull, axial skeleton (vertebral column, ribs, pelvis) and appendicular skeleton (arm and leg), or access to any standard anatomical atlas or text.

The material for this paper was gathered while I was a member of the Staff of the Anatomical Laboratory, Western Reserve University, Cleveland, Ohio, under the direction of the late Professor T. Wingate Todd. All photographs were taken in the Laboratory by Mrs. Dorothy L. Dustman.

THE SKULL

It is first necessary to outline a few simple measurements. For the braincase we note maximum length, maximum breadth, and two heights, basilar and bregmatic. Length is measured in the mid-line from forehead to occiput; breadth is measured across the parietal bones; basilar height from basion (anterior margin of the foramen magnum) to bregma (junction of coronal and sagittal sutures); auricular height from porion (roof of the

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ear-hole) to the top of the vault contour when the skull is in the Frankfort Horizontal (F. H.). (See Figures 1 and 2.) The F. H. is defined when left and right poria and left orbitale (lowest point on the lower margin of the left orbit) are in the same horizontal plane. All measurements are made by standard spreading and sliding calipers, available in Cleveland. The readings are in millimeters.

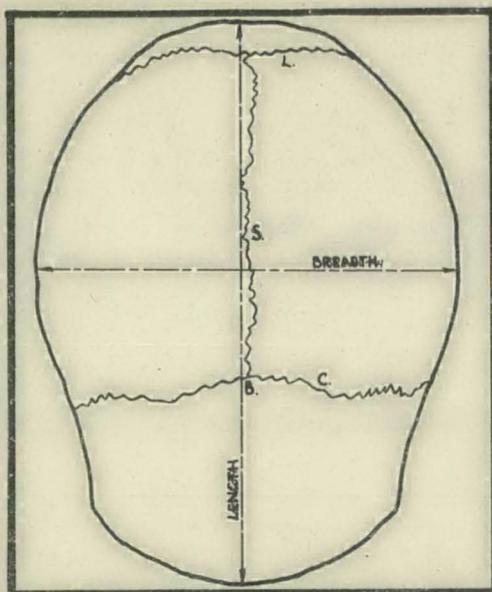


Figure 1

View of skull from above to show cranial length and breadth and vault sutures: C (coronal), S (sagittal), L (lambdoid); the point B is for bregma.

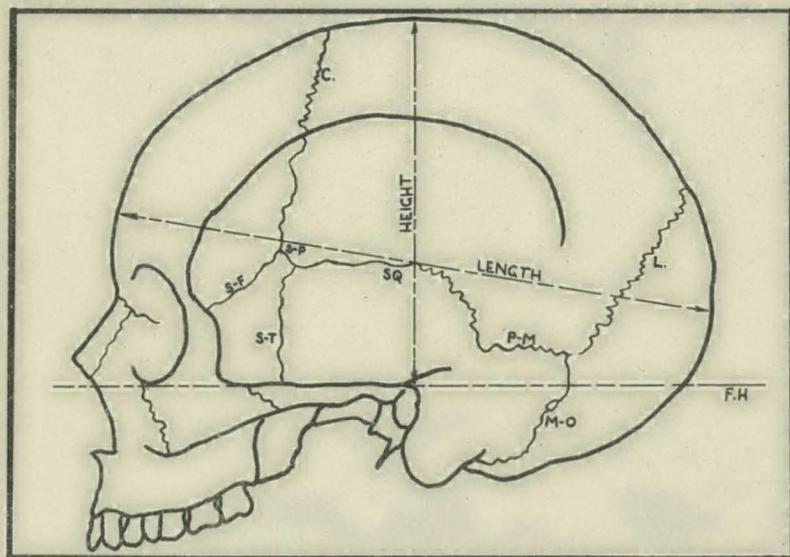


Figure 2

View of skull from the left side to show length, auricular height, and the Frankfort Horizontal (FH); the sutures S-F (spheno-frontal), S-T (spheno-temporal), S-P (spheno-parietal), SQ (squamous), P-M (parieto-mastoid), and M-O (masto-occipital) are shown; also depicted are the coronal (C) and lambdoid (L) sutures.

These measurements are useful not only absolutely for size but also relatively for proportion. If, for example, breadth be expressed in percentage of length, we get an idea of skull-shape. The resulting cranial index, breadth x 100/length, gives a convenient classification, as follows:

- 74.9 and below, the skull is long;
- 75.0-79.9, the skull is of mid-length;
- 80.0 and above, the skull is short (or round).

An example will show how the cranial index is used. Suppose the length to be 190 mm., the breadth to be 140 mm. The index will be calculated as $\frac{140 \times 100}{190}$, resulting in a value of 73.68, a long-headed skull.

Similarly we note relative cranial height, using the index auricular height x 100/length. The classification here is:

- 57.9 and below, the vault is low;
- 58.0-62.9, the vault is of mid-height;
- 63.0 and above, the vault is high.

Now for several measurements on the face. Total face height is measured in the mid-line from gnathion (lowest point on the anterior surface of the body of the mandible) to nasion (root of nose); upper face height from prosthion (between the two upper central incisors) to nasion; breadth is across the zygomatic arches (cheek-bones); orbital height and breadth are measured as greatest height and breadth at right angles to one another; nasal height is from nasion to lowermost margin of nasal aperture on left side; nasal breadth is the greatest transverse width of the nasal aperture. The measurements (except total face, which necessitates presence of the mandible) are shown in Figure 3.

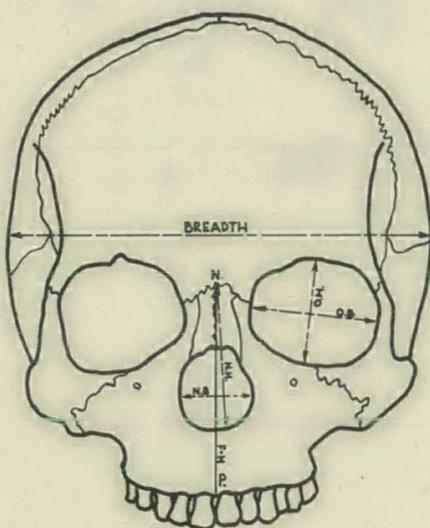


Figure 3

View of skull from in front to show cranial breadth; the points nasion (N) and prosthion (P) are shown; nasal breadth (NB) and height (NH), and orbital breadth (OB) and height (OH) are demonstrated.

In the same manner as for the cranial vault we may assess facial characters in terms of their proportions. There are four very useful indices:

- (1) Total face height x 100/ face breadth.
84.9 and below, the face is broad;
85.0-89.9, the face is of mid-breadth;
90.0 and above, the face is narrow.
- (2) Upper face height x 100/ face breadth.
49.9 and below, the face is broad and low;
50.0-54.9, the face is of mid-breadth and height;
55.0 and above, the face is narrow and high.
- (3) Orbital height x 100/ orbital breadth.
75.9 and below, the orbit is low and broad;
76.0-84.9, the orbit is of mid-height and breadth;
85.0 and above, the orbit is high and narrow.
- (4) Nasal breadth x 100/ nasal height.
46.9 and below, the nasal aperture is narrow;
47.0-50.9, the nasal aperture is of mid-breadth;
51.0 and above, the nasal aperture is broad.

We may now utilize these indices, these measures of proportion, to analyze the race of a given skull. In the following outline are considered the three major stocks of Mankind -- White, Yellow, Black -- and the three major subdivisions of the Whites -- Nordic, Alpine, Mediterranean.

CHARACTER	CAUCASOID (white)			MONGOLOID (yellow)	NEGROID (black)
	Nordic (North European)	Alpine (Central European)	Mediterranean (South Euro- pean)		
Skull length	Long	Short	Long	Short	Long
Skull breadth	Narrow	Broad	Narrow	Broad	Narrow
Skull height	High	High	Moderately high	Middle	Low
Sagittal Contour	Rounded	Arched	Rounded	Arched	Flat
Face breadth	Narrow	Wide	Narrow	Very wide	Narrow
Face height	High	High	Moderately high	High	Low
Orbital open- ing	Angular	Rounded	Angular	Rounded	Rectangu- lar

CHARACTER	CAUCASOID (white)			MONGOLOID (yellow)	NEGROID (black)
	Nordic (North European)	Alpine (Central European)	Mediterranean (South Euro- pean)		
Nasal opening	Narrow	Moderately wide	Narrow	Narrow	Wide
Lower nasal margin	Sharp	Sharp	Sharp	Sharp	"Troughed" or "guttered"
Facial pro- file	Straight	Straight	Straight	Straight	Downward slant
Palate shape	Narrow	Moderately wide	Narrow	Moderate- ly wide	Wide
General im- pression	Massive, rugged, elongate, ovoid.	Large, mod- erately rugged, rounded.	Small, smooth, elongate, pentagonoid to ovoid.	Large, smooth, rounded.	Massive, smooth, elongate, constrict- ed oval.

Obviously the characters above-outlined are ideal, for typical or "pure" skulls. It should be possible, however, to distinguish White from Yellow, White from Black, Yellow from Black, with a reasonable degree of accuracy. Not one, not two or three, but all characters must be considered in "balancing," as it were, type identification. In Figures 4 and 5, typical long-headed and round-headed skulls are shown, and in Figures 6 and 7, typical narrow-faced and broad-faced.

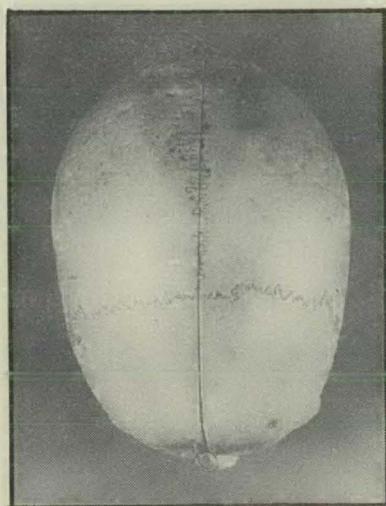


Figure 4

Vertical view of WRU2102, adult male White; the length is 197 mm., the breadth 142 mm., with a cranial index of 72.2. The type is longheaded.

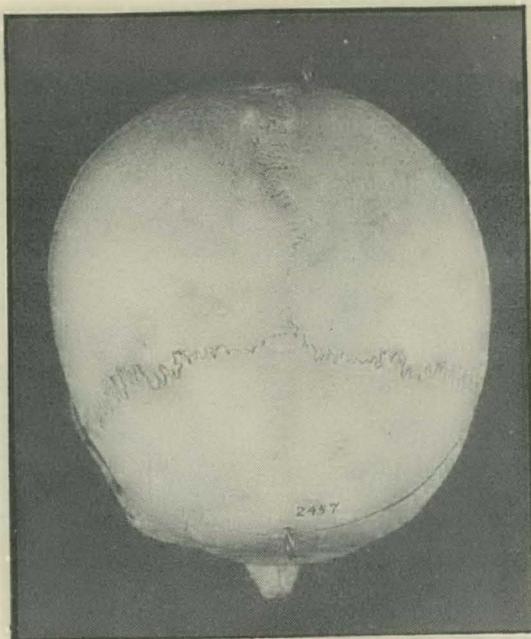


Figure 5

Vertical view of WRU2457, adult male White; the length is 172 mm., breadth 148 mm., with a cranial index of 86.0. The type is roundheaded.

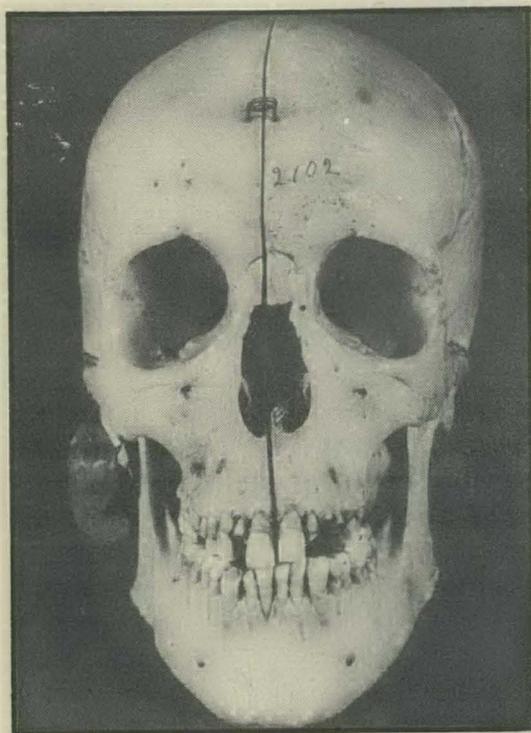


Figure 6

Face view of WRU2102. The measurements and indices are as follows: Total face height 139.00 mm.; upper face height 76.5 mm.; face breadth 126.0 mm.; total face index 110.0 mm.; upper face index 60.7 mm.

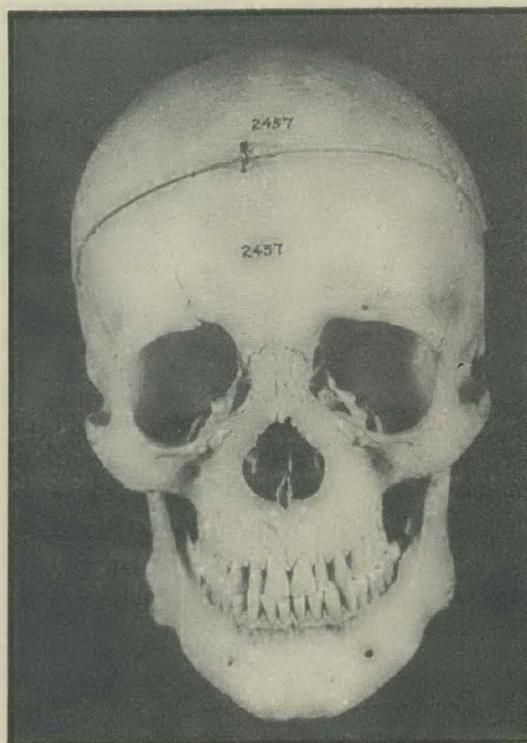


Figure 7

Face view of WRU2457. The measurements and indices are as follows: Total face height 123.0 mm.; upper face height 62.0 mm.; face breadth 141.0 mm.; total face index 87.3 mm.; upper face index 43.9 mm.

Sex differences in the skull are fairly well defined. The following absolute dimensions give an idea of range within and between the sexes:

Cranial length	Males	Females
Short	x-174	x-166
Mid	175-182	167-174
Long	183-192	175-184
Very long	193-x	185-x
Cranial breadth		
Very narrow	x-131	x-125
Narrow	132-142	126-136
Mid	143-151	137-145
Broad	152-x	146-x
Cranial height (basio-bregmatic)		
Low	x-127	x-120
Mid	128-138	121-131
High	139-x	132-x
Face height (upper)		
Low	x-68	x-63
Mid	69-74	64-69
High	75-80	70-75
Very high	81-x	76-x
Face breadth		
Narrow	x-127	x-117
Mid	128-135	118-125
Wide	136-144	126-134
Very wide	145-x	135-x

In sexing a skull the initial impression often is the deciding factor: a large skull is generally male, a small skull female. The cranial capacity in the female averages 200 cc. less than the male, though in the female the index of cerebral value is relatively higher. The female skull is usually rounder than the male, i.e., the cranial index is 2 or more points greater. The cranio-facial proportions are about the same, though in the female the facial skeleton may be relatively more gracile. The general impression may be verified by observation of mandible, nasal aperture orbits, cheekbones, supraorbital ridges, glabella, forehead contour, mastoid processes, occipital region, palate and teeth and base of skull. Insofar as several of these criteria are age-phenomena, appearing or becoming pronounced at puberty, and many are affected by the changes of senility, the description of sex differences must be limited to the ages of approximately 20-55.

The mandible in the male is larger and thicker, with greater body height, especially at the symphysis, and with a broader ascending ramus; the angle formed by body and ramus is less obtuse (under 125°); the condyles are larger and the chin is "square".

The nasal aperture in the male is higher and narrower and its margins are sharp rather than rounded. The male nasal bones are larger and tend to meet in the mid-line at a sharper angle.

The orbits are higher, more rounded and relatively larger, compared to upper facial skeleton, in the female. The orbital margins are sharper, less rounded, than in the male.

The cheek-bones in the male are heavier, in the female lighter. In the male they are usually described as medium to massive, in the female slender to medium.

The supraorbital ridges are almost invariably much more strongly developed in males than in females. The males range from moderate to excessive development, the females from a mere trace to moderate. "Heavy" supraorbital ridges are typically male, while a "trace" or "slight" are typically female.

Glabella (the forehead eminence above the root of the nose) appears to keep pace with the supraorbital ridges. A large glabella is male, a small glabella is female. It must be pointed out, however, that the range of variation is greater for glabella than for the ridges, i.e., there is greater convergence toward an intermediate type.

The forehead contour in the female is higher, smoother, more vertical, and may be rounded to the point of forward protrusion; in general the pattern is more on the infantile ground-plan.

The mastoid processes (just back of the ear-hole) are definitely larger in the male, smaller in the female. The males range in size from medium to large, in females from small to medium.

The occipital region presents several transverse lines and the external occipital protuberance which are the sites of attachments of the neck muscles. The transverse lines are much more evident and the protuberance much larger in the male. A relatively smooth occipital bone is invariably female.

The palate is usually larger and broader in the male. The shape of the male arch tends more toward a U, due to the relative length of the cheek tooth-row; in the female the relative shortness of the cheek tooth-row conduces to a parabolic shape.

The teeth are a bit larger in the male, but the greater variability of tooth dimensions in the female tends to prevent sex discrimination on the basis of size.

The base of the skull shows larger condyles, a relatively longer foramen magnum and larger foramina generally in the male. The basilar portion of the occiput and the body of the sphenoid are longer in the male.

These characters in their entirety should give a pretty good idea of sex in adult skulls. It may be observed that with respect to the majority of the characters used as the basis of assessment the female skull is negative, the male skull positive. If ranked in order we note: general size and architecture, supraorbital ridges, mastoid processes, occipital region, cheek-bones, orbits, mandible and palate. In Figures 8 and 9, face views of typical male and female White skulls are shown.

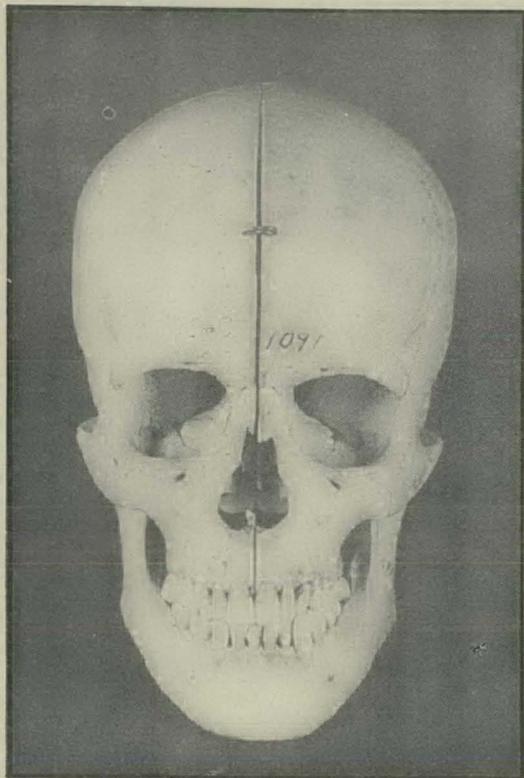


Figure 8

Facial view of WRU1091, adult male White. The dimensions and indices are as follows: Cranial length 175.0 mm.; cranial breadth 137.0 mm.; cranial index 78.4 mm.; total face height 112.0 mm.; upper face height 60.0 mm.; face breadth 124.5 mm.; total face index 90.0 mm.; upper face index 48.2 mm.

Figure 9

Facial view of WRU1369, adult female White. The dimensions and indices are as follows: Cranial length 169.0 mm.; cranial breadth 132.0 mm.; cranial index 78.2 mm.; total face height 108.0 mm.; upper face height 64.5 mm.; face breadth 114.0 mm.; total face index 94.8 mm.; upper face index 56.5 mm.

The problem of ageing of the skull centers about tooth-eruption and suture-closure.

The deciduous or milk-teeth erupt according to the following schedule:

Tooth	Date (in months)
1. Lower central incisor (i 1)	6-8
2. Upper central incisor	9-12
3. Upper lateral incisor (i 2)	12-14
4. Lower lateral incisor	14-15
5. Upper, lower first molar (m 1)	15-16
6. Upper, lower first canine (c)	20-24
7. Upper, lower second molar (m 2)	30-32

The permanent teeth erupt as follows:

Tooth	Range	Average Age (years)
1. First molar (M 1)	6-7	6
2. Central incisor (I 1)	7-8	7
3. Lateral incisor (I 2)	8-9	8
4. First premolar (Pm 1)	9-12	9-10
5. Second premolar (Pm 2)	10-12	10
6. Canine (C)	11-12	11
7. Second molar (M 2)	12-13	12
8. Third molar (M 3)	18 plus	18 plus

The dates given for eruption of both sets of teeth are variable. The teeth reflect quite closely the nutritive and health status of the individual. Especially is this true of the calcification schedule; less so of eruption pattern. The M 3 may erupt very late or not at all; upper I 2 may be congenitally absent.

In Figures 1 and 2 the sutures of the braincase are shown. In the following table the suture-groups, the beginning of closure, the period of most rapid closure, and final dates of union (in years) are given. The data are for endocranial closure (seen on the inner side of the skull). Closure of inner and outer (ectocranial) sides are concurrent, but the inner is less variable and gives a more consistent picture of time and sequence. There are no race or sex differences.

Group	Begin	Rapid	Final
(1) Vault			
Sagittal	22	26-31	35
Coronal	24	26-29	38-42
Lambdoidal	26	26-29	42-47

Group	Begin	Rapid	Final
(2) Circum-meatal			
Masto-occipital	30-35	50-60	80 plus
Spheno-temporal	30-35	50-60	?
Squamous	35-40	?	?
Parieto-mastoid	35-40	?	80 plus
(3) Accessory			
Spheno-parietal	29	50-60	65-70
Spheno-frontal	22	26-30	65

AXIAL SKELETON

The vertebral column and the ribs do not enter into identification to any great extent. If all the vertebrae -- seven cervical, twelve thoracic, five lumbar, five sacral (fused to form the sacrum) -- are present and assembled, stature may be calculated if measurements from the tip of C 2 to the bottom of L 5 are taken.

MALE		FEMALE	
Length	Coefficient	Length	Coefficient
x-569 mm.	2.93	x-539 mm.	2.94
570-599 mm.	2.84	540-569 mm.	2.82
600-629 mm.	2.78	570-599 mm.	2.79
630-659 mm.	2.79	600- mm.	2.76
660-x mm.	2.65		

These figures are used as follows: for males, if the vertebral length is 590 mm., then it is multiplied by 2.84 to give stature; for a female with the same vertebral length, the 590 mm. must be multiplied by 2.79 to give stature.

The pelvis, with an accuracy of 98 per cent, is the single best bet in the sexing of skeletal parts other than the skull. In the following table the essential sex-differences in the pelvis are enumerated. In Figures 10 and 11 typical White male and female pelvises are shown.

Character	Male	Female
Pelvis as a whole	Massive, large with marked muscle ridges	More slender, smaller, smooth
Subpubic angle	V-shaped, sharp angle	U-shaped, rounded, broader, divergent, obtuse angle
Greater sciatic notch	Smaller, narrowed	Larger, divergent

Character	Male	Female
Acetabulum (hip socket)	Large, looks laterally	Small, inclined more antero-laterally
Inlet	Relatively small with antero-posterior axis relatively long	Relatively large with transverse axis absolutely and relatively long
Sacrum	Longer, narrower, curvature greater but more evenly distributed; superior articular surface large	Shorter, broader; marked curve between S1-2 and S3-5; sacrovertebral angle marked; superior articular surface relatively small.
Cavity	Relatively narrow and deep	Relatively wide and shallow
Ilium	Iliac length greater than height so ilia appear to be more vertical	Ilia appear to be lower and to flare outward above
Symphysis	Higher	Lower

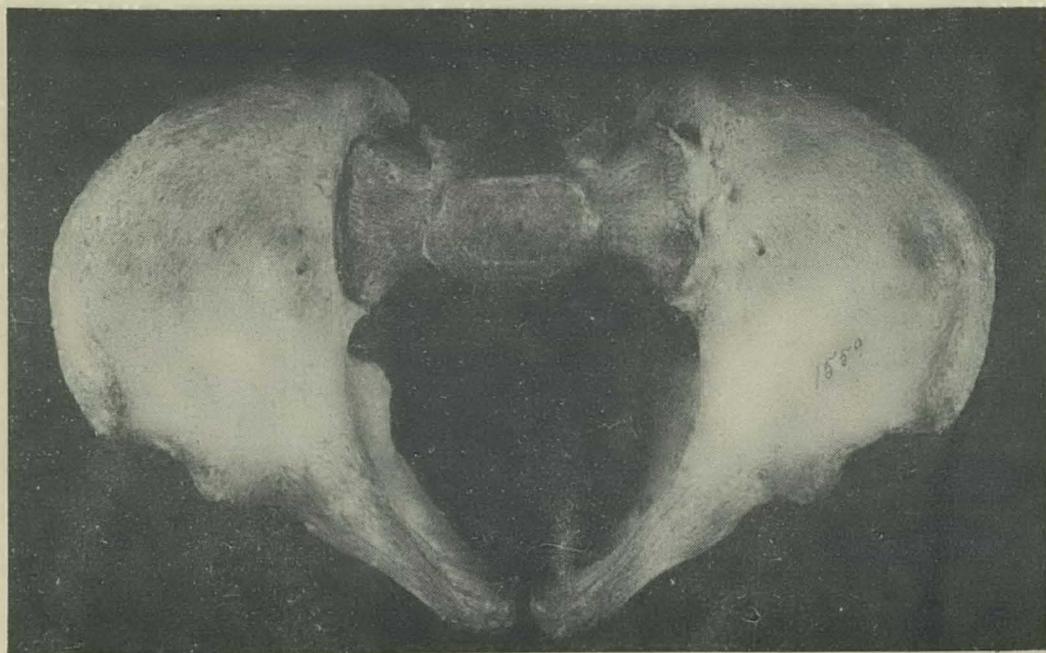


Figure 10

View from above of pelvis of WRU1559, adult male White to show narrowed inlet. The maximum breadth across the iliac crests is 287.0 mm.; the transverse breadth of the pelvic inlet is 117.0 mm.; the resultant index is 40.8.

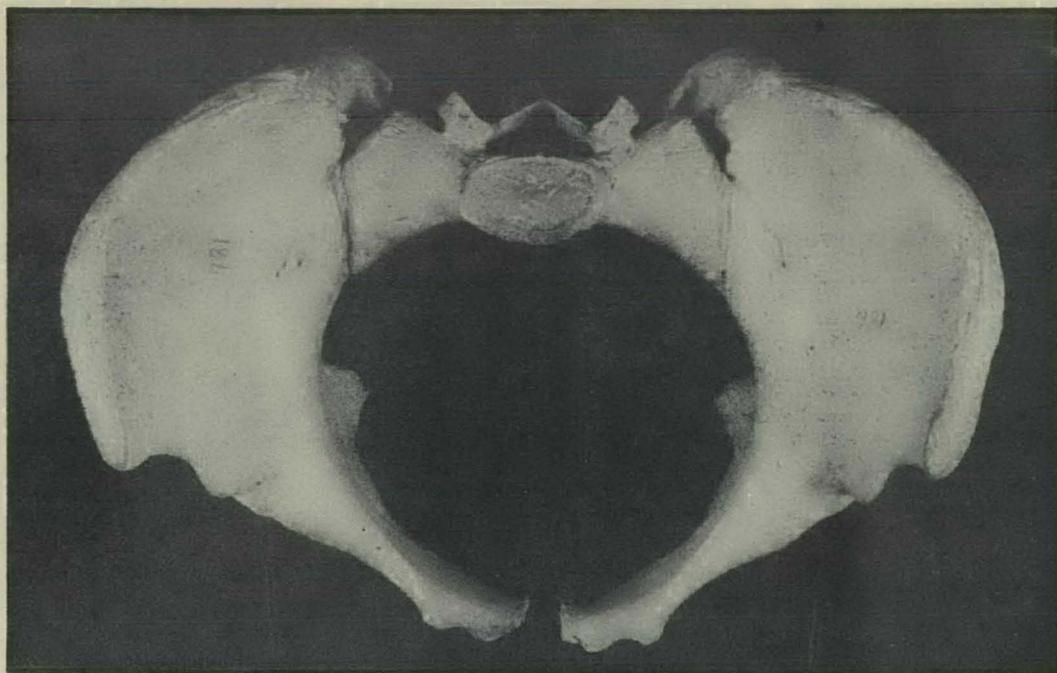


Figure 11

View from above of pelvis of WRU781, adult female White to show widened inlet. The maximum breadth across the iliac crests is 280.0 mm.; the transverse breadth of the pelvic inlet is 141.0 mm.; the resultant index is 50.4.

The pelvis in its entirety is made up of the right and left innominate bones and the sacrum. The innominates in turn are formed from three bones: ilium, ischium, pubes. These bones come together in the acetabulum (socket) and unite to form a single innominate bone at twelve years, nine months in females; fifteen years, three months in males.

On each pubic bone, as the right and left bones meet in the mid-line, there is a symphyseal surface. The age-changes in this surface are of a nature to permit accurate ageing over a period of years. Not alone the surface of the symphysis, but the contour and the anterior (ventral) and posterior (dorsal) margins change with time. A ten-phase classification has been drawn up permitting age assessments in units of 2 to 3 years up to 30 years, in 5-year units thereafter. The details must be referred to the specialist.

In general, a symphyseal surface which shows marked billowing is about twenty years of age; one with billowing still discernible, plus ossific nodules, plus beginning definition of contour, is about twenty-five years of age; one with a smooth symphyseal surface, plus clearly-defined ventral and dorsal borders is about thirty years of age; one with complete contour is about thirty-five years of age; one with complete outline, plus bony outgrowths is about forty years of age; one with some lipping, or with marked lipping, is about forty-five and about fifty years of age, respectively; one with surface erosion, plus loss of delineation, is fifty years or older, depending on the extent of erosion and break-down of margins.

In Figures 12-15 are shown pubic symphyses of male Whites aged 18, 29, 35, 60 years.



Figure 12

Pubic symphysis of WRU98, male White aged 18. Note ridging and grooving or "billowing" and irregular contour.

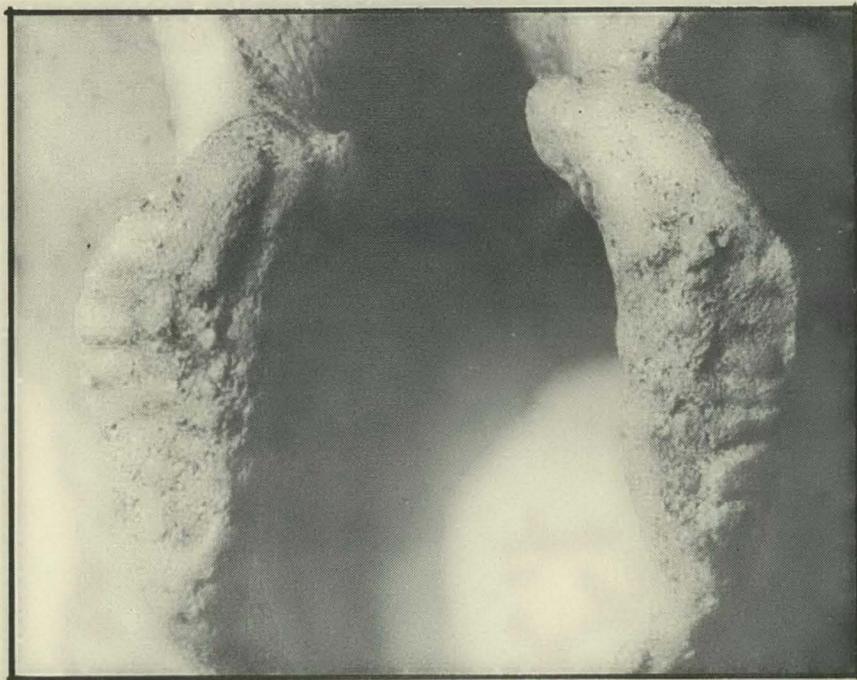


Figure 13

Pubic symphysis of WRU288, male White aged 29. Note reduction of "billowing", presence of irregular nodules of bone, and beginning of contour.



Figure 14

Pubic symphysis of WRU383, male White aged 35. The "billowing" is still visible, but contours are regularly formed.



Figure 15

Pubic symphysis of WRU359, male White aged 60. The surface is pitted and scored, due to secondary erosion; the contours, though formed, are breaking down.

In the x-ray four stages in the pubic symphysis can be determined.

Below 25 years: Fine-textured body with wavy surface outline; no definition of extremities.

Age 26-39: Texture increasingly coarse but never frankly granular or open; surface outline straight or faintly wavy; borders weakly defined.

Age 40-55: Texture little changed, except that streak of compacta shows near surface margin; outline of borders clear.

Over 56 years: Texture coarsely granular or open and irregular streak of compacta very dense; margins broken down and increasingly ill-defined.

In Figures 16 and 17 are shown x-rays of pubic symphyses in young and old male Whites.

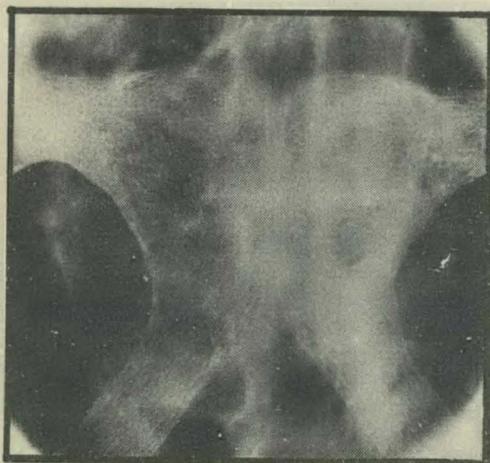


Figure 16

X-ray of pubic symphysis of WRU1091, male White aged 25. The margins of the symphysis are serrated; the texture is regularly organized and granular.

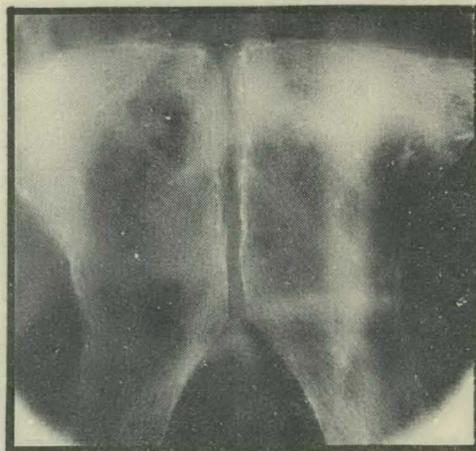


Figure 17

X-ray of pubic symphysis of WRU1143, male White aged 70. The margins have densely piled-up bone; the texture is irregular and cobwebby.

APPENDICULAR SKELETON

The long bones are as follows: humerus in the upper arm; radius and ulna in the forearm; femur in the thigh; tibia and fibula in the lower leg. Each of these bones grows (ossifies) from a center for the shaft -- the diaphysis -- and from one or more centers at each end -- the epiphyses. The ends of the bones unite with the shaft in a very definite age-order. The following data are for males (females are eighteen months, or less, earlier), and are given in order in terms of an age-span of one year. All epiphyses of the skeleton are here given. (See Figure 18.)

PROVISIONAL DATES OF EPIPHYSIAL UNION—MALE WHITES

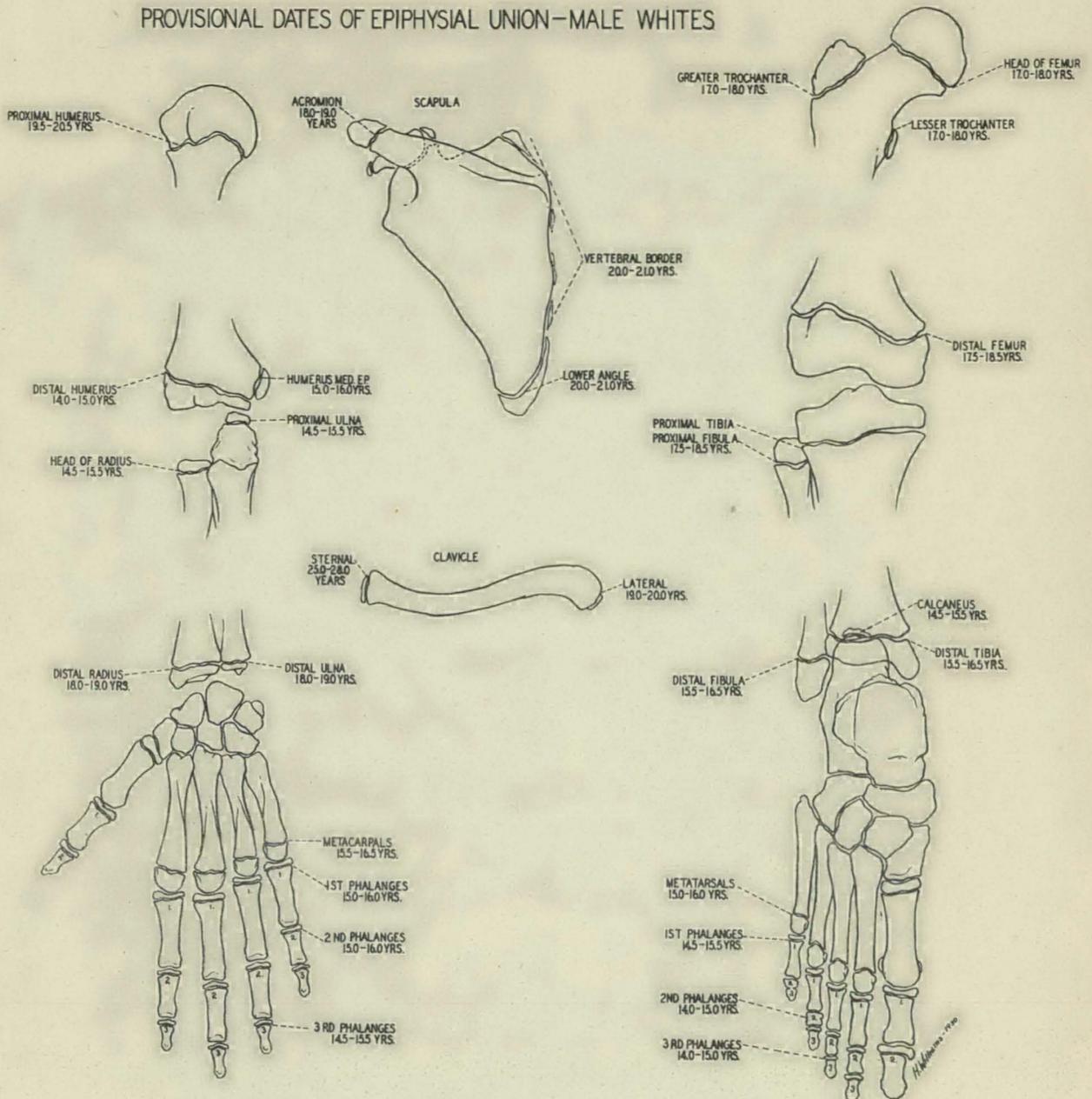


Figure 18

Chart showing provisional dates of epiphysial union in male Whites.

14-15 years

Lower end of humerus.

15-16 years

Upper end of ulna.

Terminal phalanges of the hand.

Calcaneus.

Terminal phalanges of the foot.

Bone	Male White	Female White
Radius		
upper end	3:10	3:0
lower end	7 mos.	6 mos.
Ulna		
upper end	5:0 plus	5:0 plus
lower end	5:0	4:6
Carpals		
navicular manus	4:4	3:2
lunatum	5:0 plus	24 mos.
triquetrum	10 mos.	10 mos.
pisiform	5:0 plus	5:0 plus
multangulum major	4:2	2:8
multangulum minor	4:8	3:0
capitatum	2 mos.	2 mos.
hamatum	2 mos.	2 mos.
Femur		
head	3 mos.	3 mos.
great trochanter	3:1	24 mos.
lower end	birth	birth
Patella	3:1	23 mos.
Tibia		
upper end	birth	birth
lower end	3 mos.	3 mos.
Fibula		
upper end	2:11	24 mos.
lower end	6 mos.	6 mos.
Tarsals		
talus	birth	birth
calcaneus	birth	birth
navicular pedis	21 mos.	14 mos.
cuboid	birth	birth
cuneiform I	20 mos.	14 mos.
cuneiform II	13 mos.	9 mos.
cuneiform III	2 mos.	2 mos.

All of these can be picked up readily in the x-ray. In exhumed material great care must be taken that the centers and epiphyses -- which in children are mere nubbins of bone -- are all gathered. Then in the laboratory, the sorting process can establish approximate age based on presence or absence of centers, or upon obvious union or non-union. The ends of long bones possessing un-united epiphyses are ridged and grooved ("billed") just as in the twenty-year old pubic symphysis.

With this we may conclude our evidence on age-changes in the skeleton. Tooth eruption, appearance and union of centers of ossification, pubic symphysis, suture closure, all unite to proclaim age. There are other criteria, such as tooth calcification, pseudo-arthritic lipping of the articular surface of bones, changes in texture leading to rarefaction, atrophy and buckling, but these are too specialized to learn other than by first-hand contact with material of known age.

**DATES OF APPEARANCE OF CENTERS OF OSSIFICATION
TO 5 YEARS OF AGE-MALE WHITES**

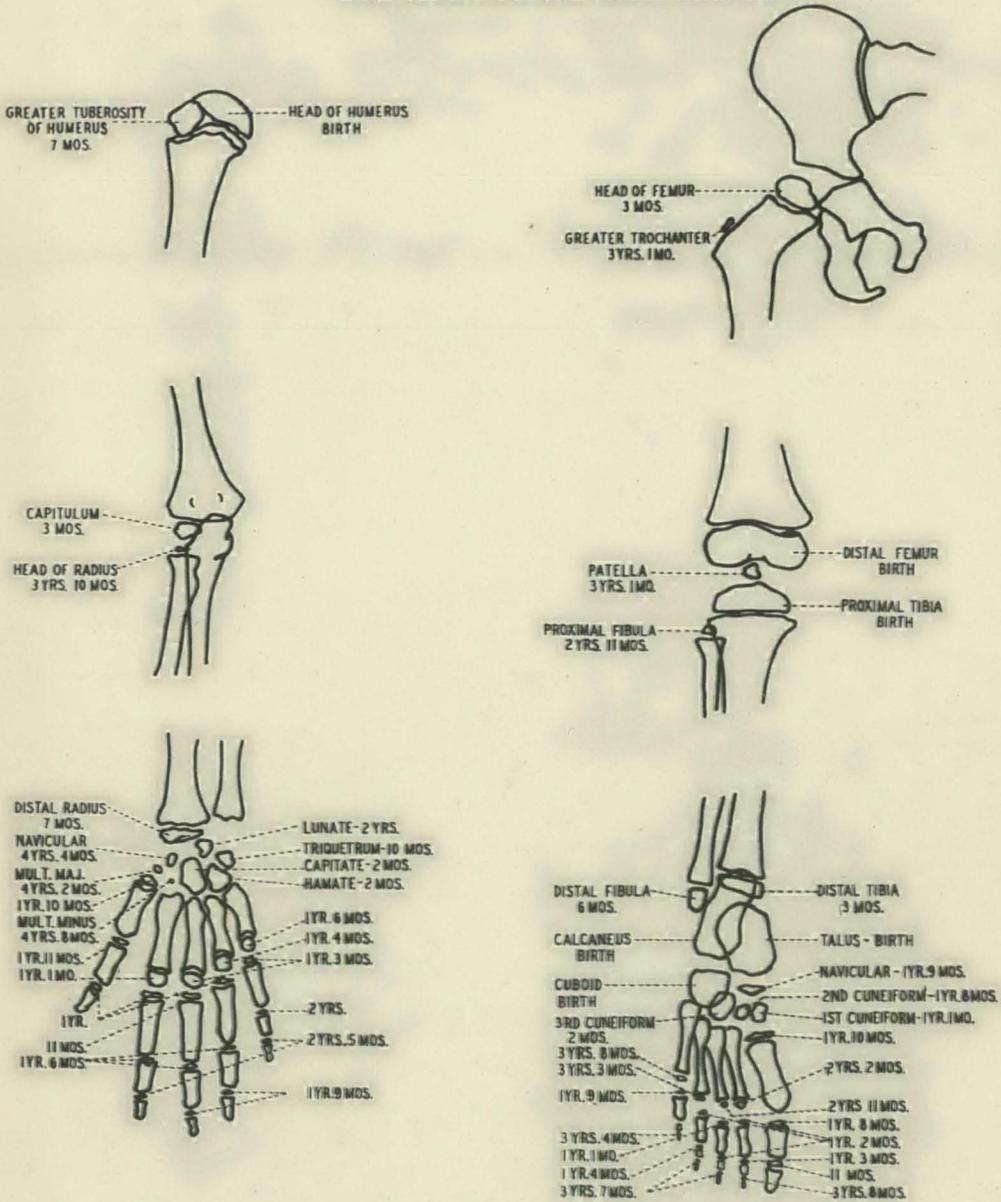


Figure 19
Chart showing dates of appearance of centers of ossification in male Whites, birth to five years.

RECONSTRUCTION OF STATURE

The long bones serve to estimate the approximate height of the individual. In general the total length of the bone is measured (millimeters) when it is held about as it is in the articulated skeleton. Previously calculated constants are then used and the stature may be derived.

The following tables have been widely used.

Male	Female
1.880 (Femur)+ 813.06 mm.	1.945 (Femur)+ 728.44 mm.
2.894 (Humerus)+ 706.41 mm.	2.754 (Humerus)+ 714.75 mm.
2.376 (Tibia)+ 786.64 mm.	2.352 (Tibia)+ 747.74 mm.
3.271 (Radius)+ 859.25 mm.	3.343 (Radius)+ 812.24 mm.

An example will show how these formulae are applied. Suppose a male femur measuring 500 mm. long is found. The calculation will be $1.880 (500) + 813.06 = 940 + 813.06 = 1753.06$ mm. If we allow 25 mm. to the inch then we have a stature of 70" or 5'10".

Within the past few years certain writers have objected to the foregoing formulae on the basis that they apply chiefly to shorter-statured South Europeans. Accordingly the following refer specifically to taller-statured North European males.

943.1 mm.+ 1.645 (Femur) \pm 48 mm.
832.1 mm.+ 2.715 (Humerus) \pm 49 mm.
955.9 mm.+ 1.988 (Tibia) \pm 47 mm.
970.9 mm.+ 2.968 (Radius) \pm 54 mm.

Here there is a greater allowance for error than in the previous formulae. It must be pointed out that in excessively short, excessively tall, or pathologic individuals none of the formulae are much good.

From time to time we may be confronted with the problem of estimating stature from fragmentary material. In Figures 20-22 are shown various parts of the bone and their percentage relation to the entire length of the bone.

Figure 20, Humerus.

- 1-6 is total length;
- 1-2 goes to deepest point of head;
- 2-3 goes to confluences of convergent lines from major tuberosity;
- 3-4 goes to upper margin of the olecranon fossa;
- 4-5 goes to lower margin of the olecranon fossa;
- 5-6 goes to the lower end of the bone.

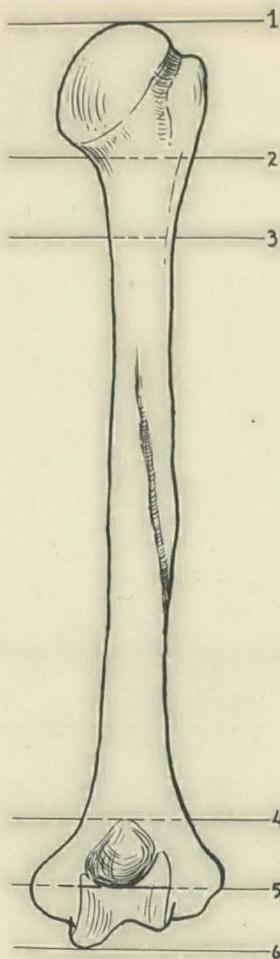


Figure 20

Upper arm bone, or humerus, showing levels for calculation of total length from fragmentary material.

In percentage these measurements are as follows:

1-6	=	100.0%
1-2	=	11.44 ± 1.71%
2-3	=	7.60 ± 1.67%
3-4	=	69.62 ± 1.74%
4-5	=	6.26 ± 0.90%
5-6	=	5.47 ± 0.86%

Here is an example: suppose fragment 3-4, the greater part of the shaft, is found; it measures, say, 250 mm. long, which is, roughly, 70% of the total length. If this be calculated it will prove to be 357.1 mm. Now, the formula for the male humerus (using our first table) is 2.894 (Humerus) + 706.41 mm. This = 1033.45 + 706.41 = 1739.86 mm. In feet and inches this becomes 5'9½".

We may do the same for radius and tibia, putting the percentage value after the described portion.

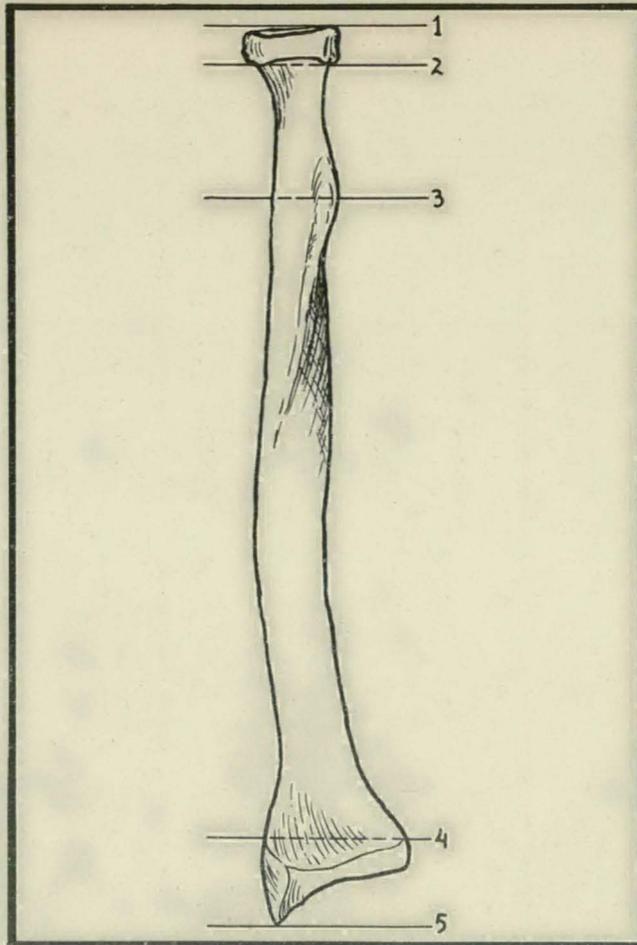


Figure 21

Lower arm bone, or radius, showing levels for calculation of total length from fragmentary material.

Figure 21, radius.

- 1-5 is total length (100%);
- 1-2 goes to the lower margin of the head ($5.35 \pm 1.31\%$);
- 2-3 goes to the mid-point of the radial tuberosity ($8.96 \pm 1.95\%$);
- 3-4 goes to the level of the lower epiphyseo-diaphyseal plane ($78.72 \pm 0.25\%$);
- 4-5 goes to the styloid end of the bone ($7.46 \pm 1.10\%$).

Figure 22, tibia.

- 1-8 is total length (100%);
- 1-2 goes to the level of the upper epiphyseo-diaphyseal plane ($7.88 \pm 1.31\%$);
- 2-3 goes to the mid-point of the tibial tuberosity ($4.84 \pm 1.31\%$);
- 3-4 goes to the confluence of lines running from the lower end of the tuberosity ($8.86 \pm 0.93\%$);
- 4-5 goes to the point of minimum circumference of the bone ($48.54 \pm 4.27\%$);
- 5-6 goes to the level of the lower epiphyseo-diaphyseal plane ($22.09 \pm 3.35\%$);

6-7 goes to the level of the inferior articular surface
($3.29 \pm 0.74\%$);

7-8 goes to the malleolar end of the bone ($5.03 \pm 0.92\%$).

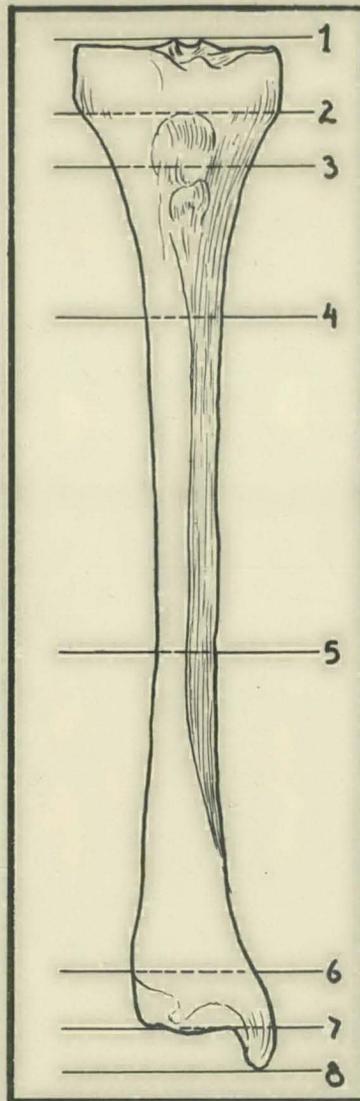


Figure 22
Lower leg bone, or tibia, showing levels for calculation of total length from fragmentary material.

THE LONG BONES AND SEX AND RACE

The long bones of the male are larger and heavier, with stronger muscular ridges and tuberosities and impressions. The articular ends of the male bones are absolutely and relatively large. A femur or humerus with large head and condyles is invariably male; the tuberosities (humerus) and trochanters (femur) will be correspondingly large. In Figures 23-24, the arm and leg bones of typical male and female Whites are shown. An idea of sex difference in size of femoral head is gained in the following:

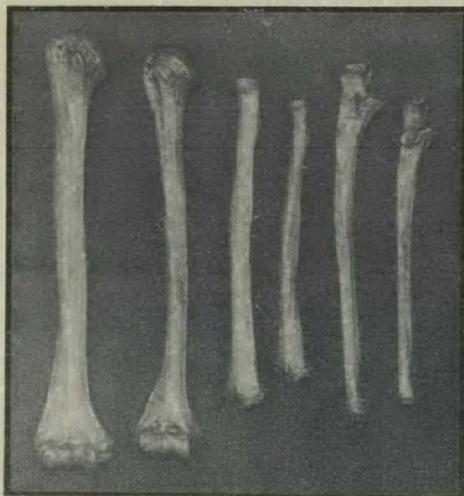


Figure 23

Right arm bones of adult male (WRU989) and female (WRU604) White. From left to right are humerus, radius, ulna, with male to left in each case.

Dimensions and proportions are as follows:

Bone	Male	Female	Female % of male
Humerus	336.0 mm.	317.0 mm.	94.5
Radius	255.0 mm.	220.0 mm.	86.4
Ulna	276.0 mm.	236.0 mm.	85.5

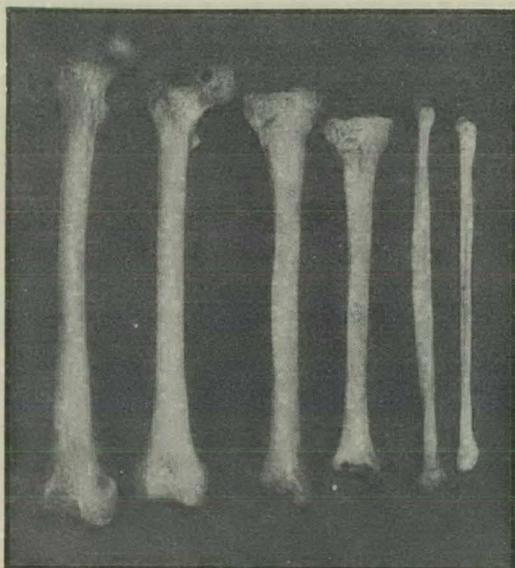


Figure 24

Right leg bones of adult male (WRU989) and female (WRU604) White. From left to right are femur, tibia, fibula, with male to left in each case.

Dimensions and proportions are as follows:

Bone	Male	Female	Female % of male
Femur	491.0 mm.	434.0 mm.	88.5
Tibia	409.0 mm.	359.0 mm.	88.0
Fibula	388.0 mm.	351.0 mm.	90.5

	Female	Female ?	?	Male ?	Male
Vert. Diam. of head	< 41.5	41.5-43.5	43.5-44.5	41.5-45.5	> 45.5
Popliteal length	< 106	106-114.5	114.5-132	132-145	> 145
Bicondylar width	< 72	72-74	74-76	76-78	> 78
Trochanteric oblique length	< 390	390-405	405-430	430-450	> 450
Mark assigned to each	+2	+1	0	-2	-2

A femur which adds, for example, up to +8 is decidedly feminine, -8 decidedly masculine.

If we express the length of long bones in the female in per cent of the male the following may be observed, (M = male; F = female; W = White; N = Negro):

Bone	<u>W F in % W M</u>	<u>N F in % N M</u>
Humerus	91.0	92.1
Femur	91.9	92.6

The absolute length (millimeters) of these two bones may be noted as follows (American Whites and Negroes):

Bone	<u>W M</u>	<u>W F</u>	<u>N M</u>	<u>N F</u>
Humerus	321	292	329	303
Femur	434	399	449	416

The Negro has on the average a longer humerus and femur, more markedly so in the femur. It is oft-times stated that Negro limb-proportions differ from those of the White. We may note three indices of proportion: intermembral, length of humerus + radius x 100/length of femur + tibia; brachial, radius x 100/humerus; crural, tibia x 100/femur.

Index	<u>W M</u>	<u>W F</u>	<u>N M</u>	<u>N F</u>
Intermembral	70.5	69.0	70.3	69.2
Brachial	74.5	73.2	78.5	77.0
Crural	83.3	83.5	86.2	86.1

The intermembral index is constant for the two stocks; the Negro has a relatively longer radius (forearm) and tibia (shin). Range of variation in limb proportions is quite marked, however; in individual instances this trait may be corroborative, but scarcely diagnostic.

RESTORATION OF SKELETAL MATERIAL

Skeletal material, lacking soft tissues, and having undergone more or less shrinkage, through drying, may be restored to approximately living dimensions by certain corrections. For example, length, breadth, and auricular height of the skull may be estimated as for the living head by correcting for scalp thickness, shrinkage and dehydration of tissue. Hundreds of cadavera have been studied and very accurate correction data for the skull calculated, as is shown below:

	Length	Breadth	Height
(1) Correction for drying bone	1.8 mm.	2.1 mm.	1.7 mm.
(2) Scalp thickness	5.1 mm.	7.0 mm.	5.8 mm.
(3) Correction for tissue dehydration	4.5 mm.	4.5 mm.	2.0 mm.
Totals	<u>11.4 mm.</u>	<u>13.6 mm.</u>	<u>9.5 mm.</u>

Supposing a skull is found of length = 180.0 mm., breadth = 135.0 mm., auricular height = 110.0 mm. The corrected head dimensions would be 191.4, 148.6, and 119.5 mm., respectively. On the skull the cranial index (breadth x 100/length) would be 75.0; on the head the cephalic index would be 77.6. In other words the (restored) cephalic index is, on the average, two points higher than the (unrestored) cranial index.

If it is desired to restore the entire head, recourse may be had to certain local tissue-thicknesses. At given points -- forehead, cheekbones, jaw angles, chin -- tissue thickness may be indicated by placing little markers whose height corresponds to the tissue build-up at that point. Then, just as a road is graded to stake-level, areas can be filled in with plastic materials to give contour relief. Obviously, certain details such as eyes, eyebrows, nose, lips, ears, must be more or less conjectural, but size and proportion can be determined with a reasonable degree of accuracy. (See Figure 25) Below is a brief table of average tissue-depths at various parts of the face: (the measurements are for well-nourished subjects)

Forehead at hair line	6.06 mm.
Forehead at mid-level	5.10 mm.
Roof of nose	5.55 mm.
Nasal bridge, mid-level	3.37 mm.
Upper lip, near nasal septum	11.49 mm.
Upper lip, mid-level	9.51 mm.
Chin, mid-level	10.26 mm.
Supraorbital area	5.89 mm.

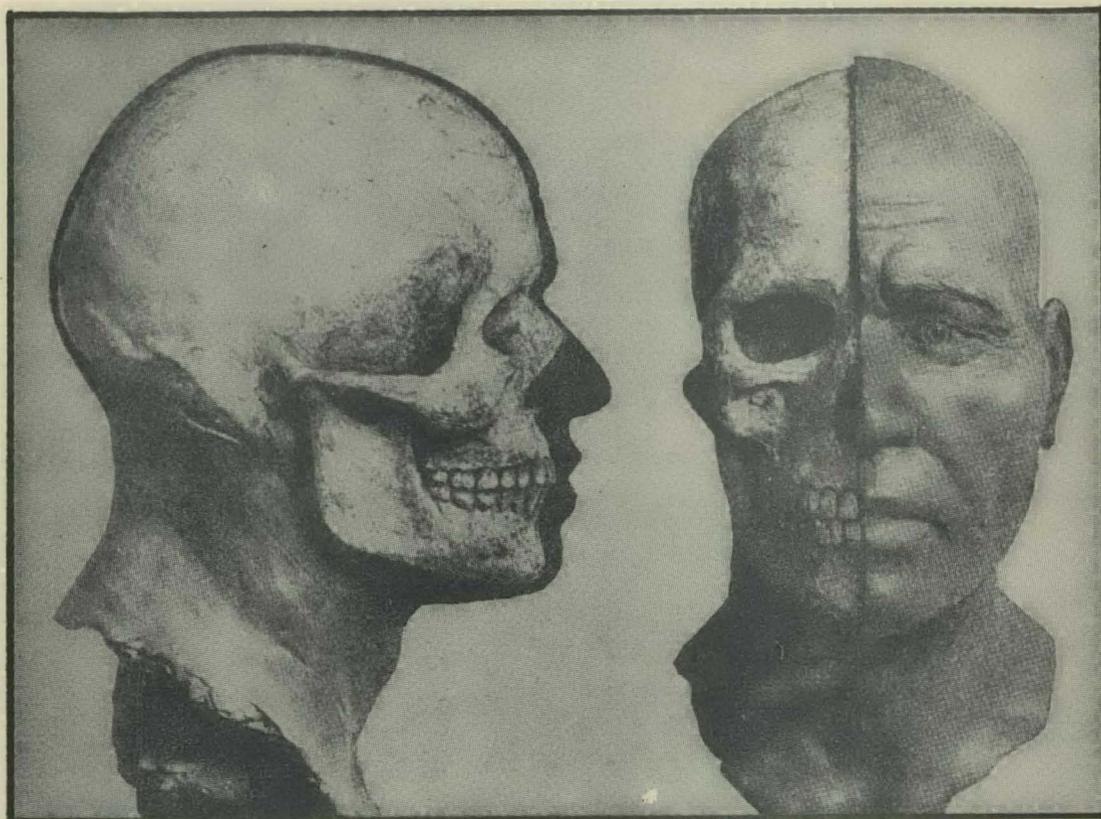


Figure 25

Method of restoration (after McGregor) of physiognomic features based on skull. This view is of the famous prehistoric "Old Man of Cro-Magnon" found in France.

Infraorbital area	5.08 mm.
Area over cheek-bones	6.07 mm.
Area of lateral side of mandible	8.65 mm.
Jaw angle	12.21 mm.
Area over ascending part of mandible	18.05 mm.

Lengths of the long bones must be corrected for loss of cartilage, at articular ends, and for shrinkage due to drying. In the male White femur, for example, which averages 461.68 mm. in "fresh" length, it was found that 3.78 mm. was lost in removal of cartilage, 0.31 mm. in the process of

maceration, and 2.78 mm. by drying (the latter achieved by the end of eight weeks). This is a total loss of 6.87 mm., or 1.49 %. In general we may accept the results of a study which goes from dried-bone dimensions to living as follows: to femur length in dried bone add 7.1 mm.; to tibia add 6.2 mm.; to humerus add 4.1 mm.; to radius add 3.2 mm.

This outline will have served its purpose if it has indicated that physical anthropology, with its precise methods, can bring its techniques to bear upon problems of identification. The science of Physical Anthropology offers its services.

**SHERIFF C. F. CHESHIER IDENTIFIES GARAGE OWNER
AS FUGITIVE WANTED BY THE FBI**

The recent apprehension of Melvin Wilbur Smith, wanted by the Federal Bureau of Investigation for violation of the Impersonation Statute, again illustrates the value of Identification Orders.

On January 28, 1939, the FBI issued an Identification Order on Melvin Wilbur Smith who upon several occasions had represented himself as a United States Marshal, and had cashed several bogus checks under this impersonation. Among the persons receiving the Identification Order was Sheriff C. F. Cheshier of Fayette County, Vandalia, Illinois. Sheriff Cheshier and Deputy Sheriff Cecil Grantfield immediately recognized the photograph appearing thereon as being identical with an individual operating a garage in the city of Vandalia under the name of P. C. Morgan. Smith had come to the Sheriff's Office on three separate occasions, requesting that the Sheriff surrender to him a car belonging to a prisoner in order that he might use it to obtain bail for the prisoner in St. Louis. Because of Smith's persistence in the face of Sheriff Cheshier's repeated refusals, the latter could not help but readily recognize the photograph appearing on the Identification Order which he received on February 11, 1939. Deputy Sheriff Grantfield concurred with the Sheriff in the identification of P. C. Morgan who in reality was Melvin Wilbur Smith.

An immediate search was instituted for him, but it was found he had just left by taxi for Alton, Illinois. With the aid of the Illinois State Police, Sheriff Cheshier was successful in overtaking the taxi and arresting the long sought for fugitive.

**SUBMISSION OF SAMPLES TO FBI LABORATORY
FOR TOXICOLOGICAL EXAMINATION**

From time to time law enforcement agencies have occasion to submit samples of human organs to the Bureau's Technical Laboratory for toxicological examination. It has been noted that in many instances these samples have been forwarded in metal containers or in glass containers fitted with metal covers. It has also been noted that the information submitted with the samples has been too brief to assist in the examination. The following suggestions are made in order to facilitate and expedite analyses for toxic substances.

Body fluids and tissues may react with metal containers and thus interfere with the tests for metallic poisons. It is therefore suggested that human organs be forwarded in an all-glass container provided with a glass cover. The so-called "lightning" type of preserve jar will suffice for this purpose. The container should be sealed, numbered and labeled and the sealer should affix his initials. If possible the container should be packed in dry ice to eliminate the loss of any volatile poison which may be present. In lieu of dry ice a packing medium of rock wool or similar material is frequently used. This serves the dual purpose of insulating the evidence against excessive heat and protecting the glass containers against breakage.

The organs to be preserved for analysis should include as a rule the stomach and its contents, the liver, the kidneys, the brain, and in gas poisonings, the blood. Each of these organs should be placed in a separate container such as described above. After careful packing of these containers in order to avoid breakage they should be addressed to the Bureau in Washington, D. C., and marked for the attention of its Technical Laboratory. In routine cases shipment by Railway Express is usually sufficient. In case of urgency the use of Air Express is suggested. It is well to place a carbon copy of the letter of transmittal which describes the case inside of the package containing the evidence. This assures proper identification of the evidence upon receipt. The original letter of transmittal should be forwarded by mail or by air mail and special delivery in urgent cases. In this manner the Bureau is apprised in advance of the fact the shipment of evidence is enroute and can make arrangements for its receipt and handling.

Any pertinent facts concerning the history of the case should be included in the letter of transmittal. Such things as the symptoms exhibited by the victim, duration of illness, if any, occupation of the victim, or poisons available to the victim will be of great assistance in the examination.

The Bureau is pleased to make these toxicological examinations in its Washington Laboratory upon the request of any duly authorized law enforcement agency investigating or prosecuting a criminal case. Such examinations are made without cost to the local officials and every effort will be made by the Bureau to provide the testimony of its experts in the state and county courts if such testimony is desired.

GRADUATION EXERCISES HELD FOR ELEVENTH SESSION OF NATIONAL POLICE ACADEMY

On Saturday morning, July 8, 1939, thirty-six outstanding law enforcement officers received their National Police Academy diplomas from the hand of the Attorney General of the United States, the Honorable Frank Murphy, assisted by Mr. J. Edgar Hoover, Director of the Federal Bureau of Investigation, thus terminating the Eleventh Session of this now famous training school and increasing the ranks of the graduates to 370.

The principal address on this auspicious occasion was delivered by the Reverend Edmund A. Walsh, S. J., Vice President of Georgetown University. Attorney General Murphy, Chief of Police James F. Ingoldsby, President of the Class, and Director Hoover also addressed members of the class and their assembled friends. Dr. Albert Joseph McCartney of the Church of the Covenant of Washington, D. C., delivered the invocation and benediction.

The exercises were attended by representatives of judicial, legislative and executive branches of the Government, including the following members of Congress: Honorable James McAndrews of Illinois; Honorable Carl Stefan of Nebraska; Honorable John H. Kerr of North Carolina; and Honorable Albert E. Carter of California. Among the other guests attending the exercises were Mr. James F. Scanlon and Mr. Jack McFall, Clerks of the Appropriation Committee, House of Representatives; Mr. Andrew J. Kavanaugh, Superintendent of Public Safety, Wilmington, Delaware; Mr. Edward J. Kelly, former Superintendent of the Rhode Island State Police, Providence, Rhode Island; Mr. John L. Sullivan, Chief of Police, Pittsfield, Massachusetts; Mr. Hal Leyshon, Editor Miami Daily News, Miami, Florida; and Mr. Courtney Ryley Cooper.

Each of these graduates has been given instruction in teaching methods and has been given supervised experience as an instructor so that he can now return to his own department and teach the other members of his organization. He can also request and receive the aid of the FBI in organizing his own school, and in establishing a training program to meet the needs of his own personnel. With the graduation of the Eleventh Session, training is now being made available to 78,796 officers through their representatives who have attended the FBI National Police Academy.

Every law enforcement organization in the United States and its territories is eligible to send a representative to the Academy regardless of the size of the town or its department. The executive, training, technical, and investigative staffs of the FBI, aided by a number of nationally-known police officers and officials, scientists and educators, make the courses of training available without cost for the training or equipment. The only costs incurred are for transportation to Washington and return, and living expenses while in the city.

The members of the Eleventh Session elected the following class officers:

Honorary President:	George R. Park, Shanghai, China
President:	James F. Ingoldsby, Bristol, Virginia
Vice President:	Howard F. Hornbuckle, San Jose, California
Secretary:	Joseph W. Sullivan, Binghamton, New York

Those receiving diplomas were:

John D. Allen	Patrolman	Highland Park, Mich., Police
Burton T. Andrews	Supt., Bureau of Ident.	St. Joseph, Mo., Police Dept.
M. T. Atkins	Deputy Sheriff	Dillon County, S. C., Sheriff's Office
Frank Bland	Officer	Needles, Calif., Police Dept.
John G. Faulkner	Patrolman	Arkansas State Police, Little Rock, Ark.
Elmer R. Fletcher	Captain	El Dorado, Kans., Police Dept.
R. E. Floyd	Inspector	Houston, Tex., Police Dept.
Gaston A. Fortin	Deputy Sheriff	Belknap County, Laconia, N. H., Sheriff's Office
Joseph H. Frazier	Deputy Sheriff	Ashtabula County, Jefferson, Ohio, Sheriff's Office
Merl A. Gladieux	Sergeant	Toledo, Ohio, Police Dept.
John M. Gold	Chief of Police	Reidsville, N. C., Police Dept.
Rex B. Gullick	Chief of Detectives	Sioux Falls, S. D., Police
Virgil W. Hanlin	Chief of Police	Petersburg, W. Va., Police
William Gayle Haynie	Officer	Orlando, Fla., Police Dept.
Nicholas H. Holland	Chief of Police	Salisbury, Md., Police Dept.
Howard F. Hornbuckle	Sergeant	San Jose, Calif., Police Dept.
Golden L. Hunsaker	Chief of Police	Globe, Ariz., Police Dept.
James F. Ingoldsby	Chief of Police	Bristol, Virginia, Police Dept.
Ernest Klingbeil	Deputy Sheriff	Houghton County, Houghton, Mich., Sheriff's Office
George J. Koch, Jr.	Sergeant	Mo. State Highway Patrol, Jefferson City, Mo.
Kenneth Logan	Special Agent	FBI
Edward James Luce	Patrolman	Montpelier, Vt., Police Dept.
Alvin D. McGuire	Deputy Sheriff	Sarasota Co., Sarasota, Fla., Sheriff's Office
J. J. McGuire	Special Agent	FBI
George A. McLaughlin	Sergeant	Lower Merion Township Police Dept., Ardmore, Pa.
Joseph F. McMeel	Asst. Supt., Bureau of Ident.	Shreveport, La., Police Dept.
William J. Marley	Lieutenant	Metropolitan District Police, Boston, Mass.
Ernest Minniear	Officer	Gary, Ind., Police Dept.
C. E. Musgrave	Trooper	W. Va. State Police, Charleston, W. Va.
G. R. Park	Sergeant	Shanghai Municipal Police, Shanghai, China
Harold Patterson	Sergeant	East Orange, N. J., Police Dept.

J. M. Peach	Capt. of Detectives	Newport News, Va., Police Dept.
Archie J. Richardson	Asst. Ident. Officer	King Co. Wash., Sheriff's Office, Seattle, Wash.
Aubrey A. Rowles	Chief of Ident. Dept.	Spokane Co., Sheriff's Office, Spokane, Wash.
Charlie W. Smith	Chief of Police	Chesterfield Co. Police Dept., Chesterfield, Va.
James F. Stahl	Sergeant	Yuma, Ariz., Police Dept.
Joseph Sullivan	Officer	Binghamton, N. Y., Police Dept.
Leon Wier	Asst. Chief of Police	Greenwood, Miss., Police Dept.

**FBI NATIONAL POLICE ACADEMY RETRAINING SCHOOL
AND REUNION SEPTEMBER 25 to 30, 1939**

The May, 1939 issue of the Bulletin carried a special announcement concerning the NPA Graduates convening in Washington, D. C. on September 25, 1939, for a retraining program and reunion. Since publication of this announcement, thirty-six additional law enforcement officers have received their diplomas from the National Police Academy. This brings the total to 370 and upon the completion of the Twelfth Session inaugurated on July 10, 1939, the total number of graduates will be over 400. In the retraining school the graduates will be offered a large number of elective courses in various branches of law enforcement work, best suited to their particular needs, with experts from the FBI Training Staff and specialists from the Identification Division and Technical Laboratory assigned as instructors for the various groups.

Captain George D. Callan of the Newark, New Jersey Police Department and President of the FBI National Police Academy Associates, is in charge of plans for the alumni reunion. Plans are rapidly nearing completion for both the retraining program and the reunion and it is the desire of the Bureau that as many graduates as possible endeavor to attend as it is felt that the retraining offered will be of inestimable value to every police department represented by a graduate during the retraining period.

When it is realized that the total population residing within the jurisdiction of law enforcement agencies in the United States already having National Police Academy Graduates is 99,981,180, it is easy to see the potential value of each graduate making an added effort to be in Washington on September 25, extending a friendly hand of cooperation from his department to each department represented by every other graduate in attendance.



TWELFTH SESSION FBI NATIONAL POLICE ACADEMY

First Row, left to right: W. C. Denton, Jr., Loyd Webb, James O. Barker, W. R. Kennedy, James English, J. Clarence Crook, Arthur A. Busick, J. Edgar Hoover, H. H. Clegg, Larry Condon, Elmer O. Stovern, Benjamin F. Dies, Shirley D. Coy, Cleo Eugene Baca, J. J. Mitchell.

Second Row: Harley Bue, Ervan Stout, R. G. Cassady, James Walter Musterman, A. F. Ferentz, Homer B. Moales, Maurice J. Hebert, William Frey, Vincent S. Marino, Yale B. Huffman, Jr., Raymond L. Patten, Ernest Wm. Roach, Neil B. Keen.

Third Row: Amos Leach, Manuel Montoya, Jr., Carvel Kober, Lloyd R. Wendland, Ray Holmes, Joseph R. Nelson, James Romano, John S. Bush, A. A. Muzzey, William Ferrazzi, Louis Giancola, Henry Isaac Taff.

**TWELFTH SESSION OF FBI NATIONAL POLICE
ACADEMY INAUGURATED**

The Twelfth Session of the FBI National Police Academy was inaugurated July 10, 1939, with representatives from thirty-seven law enforcement agencies in attendance. The incoming class was welcomed by Mr. J. Edgar Hoover, Director of the Federal Bureau of Investigation, who founded the National Police Academy in July, 1935.

These officers, who have been carefully chosen from every section of the country, will receive twelve weeks of intensive training in subjects which fall under the following general classifications: Police Organization and Administration; Investigative, Regulatory and Enforcement Procedures; Firearms Training and First Aid; Scientific and Technical Crime Detection Methods; Crime Prevention; and Tests and Practical Police Problems.

The members of the Twelfth Session of the FBI National Police Academy are as follows:

NAME	RANK	ORGANIZATION
Cleo Eugene Baca	Sergeant	Albuquerque, New Mexico, Police
James O. Barker	Lieutenant	Miami, Florida, Police Dept.
Harley Bue	Patrolman	Sioux City, Iowa, Police Dept.
J. S. Bush	Special Agent	FBI, Washington, D. C.
Arthur A. Busick	Chief of Police	Flat Rock, Mich., Police Dept.
R. G. Cassady	Chief Dep. Sheriff	Lake County, Fla., Sheriff's Office
Larry Condon	Deputy Sheriff	Linn County, Iowa, Sheriff's Office
Shirley D. Coy	Deputy Sheriff	Prowers County, Colo., Sher- iff's Office
J. Clarence Crock	Patrolman	Altoona, Pa., Police Dept.
W. C. Denton, Jr.	Deputy Sheriff	Cameron County, Texas, Sher- iff's Office
Benjamin F. Dies	Patrolman	Denver, Colo. Police Dept.
James English	Sgt.-Instructor	Tenn. State Highway Patrol, Nashville, Tenn.
A. F. Ferentz	Sergeant	Springfield Township, Penn., Police Dept.
William Ferrazzi	Lieutenant	Quincy, Mass., Police Dept.
William Frey	Deputy Sheriff	Shawnee County, Kas., Sheriff's Office
Louis Giancola	Detective	Mamaroneck, N. Y., Police Dept.
Maurice J. Hebert	Sergeant	Joliet, Ill., Police Dept.
Ray Holmes	Deputy Sheriff	Poinsett County, Ark., Sher- iff's Office
Yale B. Huffman, Jr.	Officer	Greenbelt, Maryland, Police Dept.
Neil B. Keen	Patrolman	Bradenton, Fla., Police Dept.
Wm. Robert Kennedy	Patrolman	Borough of Aspinwall, Pa., Police Dept.

Carvel Kober	Patrolman	Hastings, Neb., Police Dept.
Amos Leach	Patrolman	New Mexico State Police, Santa Fe, New Mexico
Vincent S. Marino	Officer	Middletown, Conn., Police Dept.
John J. Mitchell	Ident. Officer	St. Petersburg, Fla., Police Dept.
Homer B. Moales	Patrolman	Charleston, West Va., Police Dept.
Manuel Montoya, Jr.	Patrolman	Santa Fe, New Mexico Police Dept.
Walter Musterman	Sergeant	Anne Arundel County Police Dept. Ferndale, Md.
A. A. Muzzey	Special Agent	FBI, Washington, D. C.
Joseph Nelson	Officer	Port Huron, Mich., Police Dept.
Raymond L. Patten	Sergeant	Cambridge, Mass., Police Dept.
Theodore O. Perrault	Dep. Sheriff	St. Louis County, Minn., Sheriff's Office
Ernest Wm. Roach	Chief Dep. Sheriff	Maricopa County, Ariz., Sheriff's Office
James Romano	Lieutenant	North Pelham, N. Y., Police Dept.
Ervan Stout	Patrolman	Chehalis, Wash., Police Dept.
Elmer Otto Stovern	Sergeant	Duluth, Minn., Police Dept.
Henry Isaac Taff	Dep. Sheriff	Johnson County, Tex., Sheriff's Office
Lloyd Webb	Dep. Sheriff	Raleigh County, West Va., Sheriff's Office
Lloyd R. Wendland	Inspector	Alameda, Cal., Police Dept.

Mr. L. B. Reed, former Special Agent of the Federal Bureau of Investigation, has been appointed Chief of Police of Kansas City, Missouri.

Mr. Arthur C. Hohmann has assumed the position of Chief of the Los Angeles, California, Police Department.

Mr. A. M. Welliver is the new Chief of Police at Reno, Nevada.

Mr. Don J. Hayes is now Chief of Police at Tucson, Arizona.

A QUESTIONABLE PATTERN

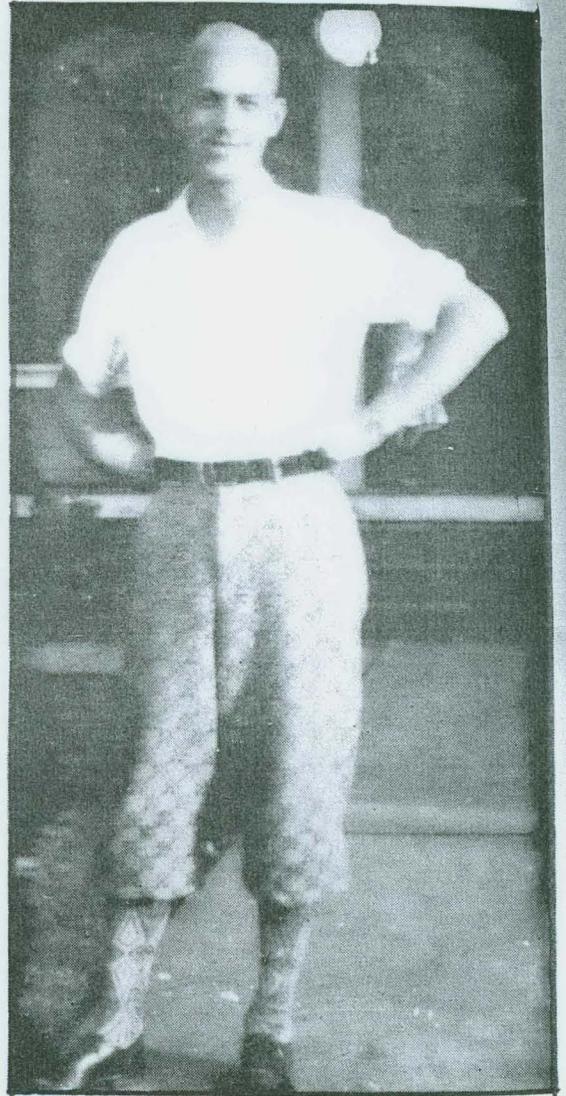
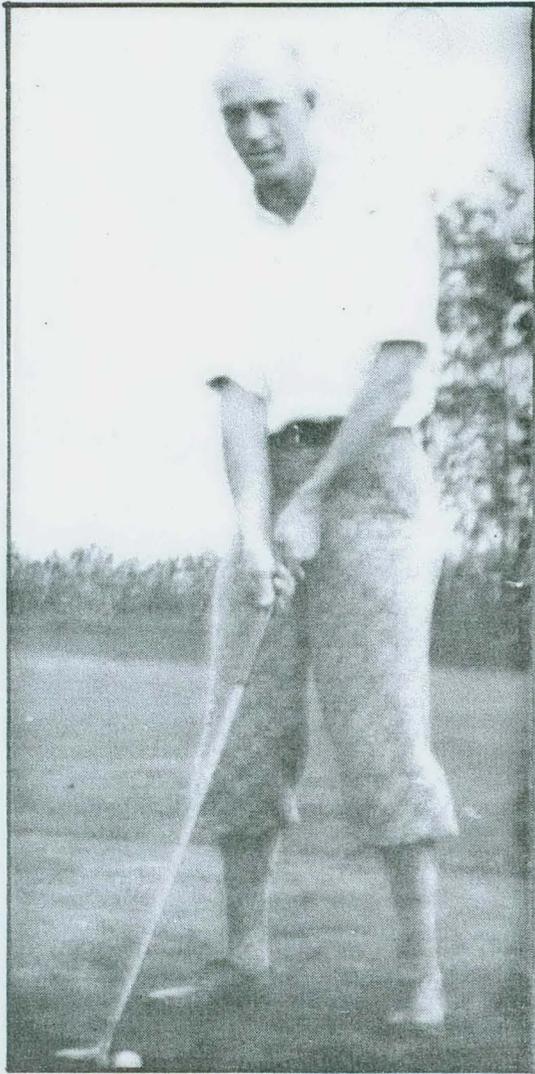
The pattern presented for discussion this month consists of three ending ridges.



In the Technical Section of the FBI's Identification Division, this pattern would be classified as a tented arch.

There are three types of tented arches, one consisting of an angular formation, one presenting an upthrust, and the third, which is of the borderline type between the tented arch and the loop, and which possesses two of the three basic characteristics of the loop, (ridge count, delta, recurve), lacking the third.

This pattern is of the third type. The delta is upon the end of the lowest ending ridge. By a convention, a fingerprint fiction designed to aid the scientific classification of tented arches and arches, the other two ending ridges are considered as joined for the purpose of obtaining a ridge count, and for that purpose only. Thus the impression is said to possess delta and ridge count, but to lack a recurve. This fictional ridge count must not be confused with the true ridge count of a loop which in reality must possess a recurve.

WANTED BY THE FBI -- WILLIAM ANDREW MURRAY

Detailed descriptive data concerning this individual
may be found on pages 41 and 42.

WANTED BY THE FBI -- WILLIAM ANDREW MURRAY

The Federal Bureau of Investigation is actively engaged in an investigation in an effort to locate and apprehend William Andrew Murray, who was indicted by a Federal Grand Jury at Erie, Pennsylvania, on March 17, 1936, being charged with violation of the National Bank Act. Photographs of Murray appear on the opposite page.

In this indictment Murray was charged with embezzling various sums of money from the Butler County National Bank and Trust Company, Butler, Pennsylvania, where he had been employed as a note teller. In the same indictment, Murray was also charged with making various false entries for the purpose of covering up his defalcations.

The description of William Andrew Murray is as follows:

Age	39 (Born October 7, 1900, Parkers Landing, Pennsylvania.)
Height	5'11"
Weight	160 pounds
Build	Tall, slender
Hair	Blond - partially bald
Eyes	Blue
Complexion	Light
Scars	Boil scars on back of neck
Occupation	Bank clerk
Marital Status	Single
Race	White
Nationality	American
Criminal Record	None known

William Andrew Murray was born on October 7, 1900 at Parkers Landing, Pennsylvania, and attended the public schools of that city until 1918, at which time he was graduated from high school. Immediately after leaving high school Murray entered the Butler Business College of Butler, Pennsylvania, where he pursued a bookkeeping course. In 1919, upon graduating from business college Murray was employed by the Farmers National Bank of Butler, Pennsylvania, as a clearing house clerk and bookkeeper. This bank was consolidated with the Butler County National Bank and Trust Company in 1927, and Murray continued his employment with the latter institution. In June, 1935, Murray was acting as a note teller and when a shortage was discovered in his accounts, Murray admitted he had received the proceeds of a note amounting to \$1,182.00 and had submitted a note forged by him in order to cover this amount. Murray agreed to discuss the matter with the officials of the bank on June 17, 1935, but he failed to appear on this date and he has not been seen since.

Immediately after his departure, Murray proceeded to Columbus, Ohio, where he directed a telegram to a friend of his in Butler, Pennsylvania, requesting the sum of \$10.00. This amount was wired to Murray by his friend, but no information has been received concerning him since that time.

William Andrew Murray was single and prior to his departure from Butler, Pennsylvania, had kept company with a young lady for many years. It has been learned that Murray was always a reserved and gentlemanly individual who did not give the appearance of being a spendthrift. It is known however, that for a year prior to the time his shortages were discovered Murray had been doing considerable drinking, and is believed to have been gambling in and near Butler, Pennsylvania, although it is not believed he suffered heavy losses.

Considerable investigation has been performed looking to the apprehension of this fugitive, but as yet no definite information has been received concerning his present whereabouts. In view of the fact that Murray has always lived at home with his family and is not known to have been involved in any difficulty or trouble, prior to his shortage at the bank, it is entirely possible that he is now engaged in a legitimate business and posing as a respectable citizen in the community.

It is requested that local departments throughout the United States be on the alert for any information concerning Murray.

In the event any information is obtained concerning Murray, it is requested that the nearest office of the Federal Bureau of Investigation be contacted immediately or that the information be furnished directly to Mr. John Edgar Hoover, Director, Federal Bureau of Investigation, U. S. Department of Justice, Washington, D. C.

DECEASED PERSON IDENTIFIED THROUGH CIVIL IDENTIFICATION FILES

On December 25, 1938, an unknown man died at the County Hospital, Chicago, Illinois of gunshot wounds. He was thought to be Joseph Ashkinas of Grafton, Illinois. His finger impressions were transmitted to the FBI by the Chicago Police Department to be searched through the fingerprint files for any available data. A search of the criminal files in the Identification Division failed to disclose any information concerning this individual. However, since the identity of this person was unknown a search was made through the Civil Identification files and a fingerprint card, forwarded by the Civilian Conservation Corps Camp at Grafton, Illinois in January of 1938, was disclosed, which bore the name of Joseph P. Ashkinas, 2013 Canalport Avenue, Chicago, Illinois. The name and address of the individual to be notified in the event of an emergency were also given.

The above information was at once transmitted to the Chicago Police Department to assist that law enforcement agency in making proper disposition of the remains of this person.

STANDARDS IN POLICE TRAINING*

Relative Merits of "Cold Storage" Training and Training
Which Can Be Immediately Applied

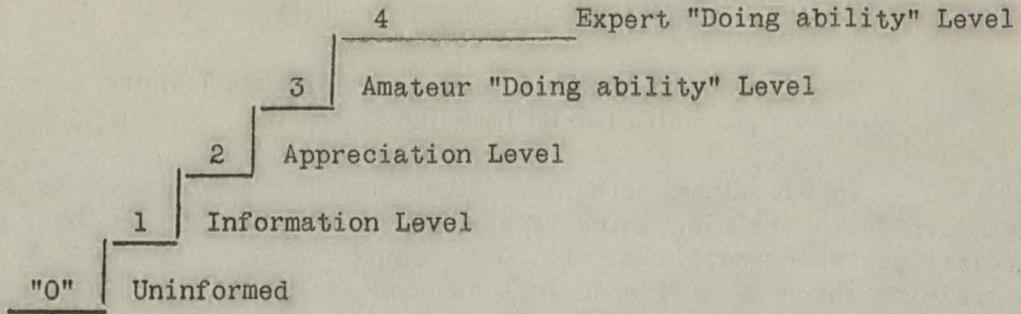
In vocational training, the term "cold storage" training is used to indicate training which is given to a person when he is not in any immediate position to utilize it. For example, when a new recruit is given the training which he will need just as soon as he goes on regular duty as a full-fledged patrolman, the situation is entirely different from what it would be if he were given a course in police administration. The latter would be "cold storage" training, the former would be training which could be immediately applied on the job.

Not only in the field of training for law enforcement officers but in all fields of vocational training, there is always the danger of diluting training courses with too much subject matter for which the person being trained has no immediate use. The inclusion of such subject matter is often justified on the grounds that it will make the recipient more intelligent on his job. Moreover, where a man is given training he will not need to use for four or five years, the effort necessary to give it to him is largely misdirected, because by the time he does arrive at the point where he will need to apply it, he will probably have forgotten most of it, and consequently will have to be trained all over again.

It is recognized that the work of law enforcement officers is somewhat different from that of most civil occupations, such as are found in industry. Because of this difference, and also because of the fact that policemen generally work "on their own" without being able to secure advice in the frequent emergencies which arise from an official superior, it is probably justifiable to include in their training some things regarding the duties of their superior officers and other members of the department. For example, a policeman should know what the duties and responsibilities of higher ranking officers are. However, the training for higher positions should be limited to persons who have a reasonable prospect of being promoted. This training should be given at the time the men concerned need it, not too far in advance of that need. The training objectives relative to the work of higher ranking officers should, in general, be limited to things about the job higher up and an appreciation of them.

The following diagram may be useful in clarifying just what is meant by information and appreciation objectives:

*This article is the second in a series presenting in detail the recommendations of a conference of eleven experienced instructors of law enforcement officers held in Washington, D. C., on February 6 to 11, 1939, under the joint auspices of the Federal Bureau of Investigation, U. S. Department of Justice, and the Office of Education, U. S. Department of the Interior. The first part of the report appeared in the July, 1939 issue of the Bulletin; subsequent issues will carry further recommendations.



In learning anything new, an individual who, at the start, is uninformed, passes through four subsequent stages of development, as follows:

The first stage consists of getting information about the job or how it is done. In other words, the person learns that there is a thing which can be done, and in some way he secures certain information concerning it.

The second stage consists of developing an appreciation or understanding of how the work is performed. A person has reached the appreciation level when he not only has the necessary information concerning the job, but also understands it in a general way, at least sufficiently to talk about it intelligently. A person, however, can be brought up to this level without having had any experience on the job and without ever having demonstrated his ability to perform any of the work involved.

The third stage of learning anything that requires specific activity, is to acquire what is termed amateur "doing ability." When a person has reached this stage of learning something new, he is able to do the job correctly. However, he can be expected to be lacking in skill and what is ordinarily termed "finish." In other words, he performs the work in an amateurish sort of way.

Before an individual reaches the fourth stage, the level of expert "doing ability," he has to acquire enough experience in performing the particular job or class of work in question, to have gotten rid of most of the awkwardness which a beginner constantly exhibits. In other words, he develops skill, and a person observing him performing his work realizes at once that he has been adequately trained and gives evidence of knowing what he is doing. As stated previously, training concerning the duties of high ranking officers should, as a matter of efficiency and common sense, be limited for patrolmen and new recruits to the informational and appreciation levels.

To further emphasize the difference, it may be pointed out that in the care and use of his revolver and other equipment, the patrolman should be brought up to the level of expert "doing ability" before he ever starts out to perform the duties of a patrolman.

The Problem of Securing Equipment

A number of constructive suggestions were made as to how a

police training school can secure the necessary equipment. The following items reflect suggestions of the conference group previously referred to:

Suggested ways of securing training equipment:

1. Cultivate cooperative relationships with the public library.
2. Secure all possible assistance from local organizations interested in civic matters.
3. Cultivate good public relations by rendering real service, such as investigating and aiding needy families, promoting boys' clubs, boy scout troops, etc. The publicity which may be expected to result from such efforts will cause the general public to have a higher opinion of their police service.
4. Specific needs for equipment and facilities should be known. Items such as space, ordinary furniture, etc., may be provided by the local school authorities.
5. Secure help of FBI in securing equipment necessary to start a police school.
6. Try to get courts to turn over to police school such confiscated articles as may be useful in connection with the operation of the training program.
7. Cooperate with the fire department and with nearby vocational schools which may be able to build equipment.
8. Secure the use of the National Guard, Railroad Police or other ranges for firearms practice.

Bases for Checking The Efficiency of a Training Program

Obviously, there are many ways in which the efficiency of a training program may be checked. Some of these ways are more significant than others. Some of them also can be based upon statistical data, while others are, to some extent, matters of opinion. For example, the number of criticisms received from citizens following contacts with police officers is one way in which objective data can be compiled. If, after a considerable period, data so compiled are compared with the number of complaints received for a corresponding period later on, or the number of letters of commendation from citizens, there would be at hand some objective evidence which might be used in judging the efficiency of certain phases of the training program. Opinions of commanding officers concerning the performance of patrolmen, after having been enrolled in the training school, might, on the other hand, constitute subjective evidence. In other words, it might or might not be worth very much, depending upon the conditions.

It is apparent that some practical method of checking on the efficiency of training is very desirable and helpful. Consequently, a suggested

list of twelve bases for checking on the efficiency of a training program for law enforcement officers is given, as follows:

Bases for Checking the Efficiency of a Training Program:

1. Number of criticisms following contacts with police officers and conversely the number of letters of commendation received.
2. Better work in obtaining, preserving and presenting evidence as shown by convictions secured.
3. Manner and effectiveness of officers in presenting their cases in court.
4. Degree of success in passing promotional examinations.
5. Better physical condition as indicated by sick leave records.
6. Better handling of prisoners because of consciousness of good physical condition and knowledge of methods of handling.
7. Better handling of injured persons because of first aid training.
8. Efficiency of traffic control as indicated by traffic accident record.
9. Efficiency of criminal identification as evidenced by number of fingerprints filed with FBI.
10. Evidence that the public believes that the members of the police department are well trained and proficient with regard to their duties.
11. Maintenance costs.
12. Number of complaints regarding reports.

Working Conditions

The question of whether training is given on work time or on leisure time is a matter of considerable importance. From the data at hand, it appears that the majority of cities which maintain police training schools, train new recruits on their work time. Three months of preparatory training subsequent to employment, represents a fair average in this respect. In two of the cities represented at the conference, all of the training for recruits as well as for experienced officers, is given on leisure time. In classes for experienced officers, the cities represented are about equally divided with respect to classes on work time and classes on leisure time. In one city, for example, if officers attend school on their own time, they are entitled to extra leave to offset the time spent

in the training school. In another city, all officers in the department are required to attend school one hour a week on their own time, while in a third city, all of the officers enrolled in a training school attend during their working hours.

Some of the more important questions which should be considered in deciding whether or not to provide training on work time for which the officers are paid, or on the men's leisure time, are:

1. Is the training provided for the purpose of making the officers more proficient on the jobs which they have?
2. Is the training designed to qualify the men for advancement in the organization?
3. Is the training designed to prevent officers from getting out of date; in other words, is it specifically designed to keep them fully informed regarding their duties and responsibilities?
4. Is the level of performance on the job below par to the extent where it is obvious that a large number of officers need training to bring them up to a higher standard?
5. Is the personnel of the department inadequate to the extent that if officers were relieved of duty to attend the training school during work time, the interests of the city would suffer?

These and many other questions arise in connection with any discussion of whether classes should be held on work time or on the men's leisure time. The decision in any case would be affected by local conditions and public opinion. In view of the situation as it exists, it appears that most of the larger cities provide full-time training during working hours for new recruits, while extension classes for experienced officers in order to keep them up-to-date and adequately informed, appears to follow no definite plan. Local customs and traditions have a definite bearing upon this question. For example, in City "A", the custom has been followed for many years of requiring every officer in the department to report at the training school for one hour of instruction each week on his own time, during the entire period of service in the department. Because of the fact that this requirement is of long standing, no one questions the legitimacy of it, and as a result, sixteen classes are held each week, providing one hour of instruction for each of the more than one thousand police officers.

Under this plan, the extension classes for officers in service are exceedingly large, sometimes averaging as many as seventy per class. However, in view of the fact that the officers are all experienced and competent, large classes are defensible or justifiable, because the instruction presented at each session represents only a very small addition to what the members of the group already know. This is one particular condition that justified the handling of large classes.

In contrast with this situation, the classes for recruits average only eight or ten men per class. This makes it possible to use efficient training methods, not only to supply the new recruits with the information which they need, but also to check up and see that it is understood. It is also possible, with such small groups, to develop training in practical fields up to the point of an acceptable degree of "doing ability."

Tests and Their Utilization in Police Training Schools

A summary of the consideration which was given to the utilization of tests, is indicated in the following paragraphs:

1. Principally of value in selecting candidates because certain tests can be used to eliminate those who would be unlikely to make good.
2. Of value when used in connection with examinations following a training course. Knowledge that the test will be given stimulates continuity of attention.
3. When selecting candidates for promotion, appropriate examinations concerning the duties and requirements of the position are superior to any known form of psychological test.
4. Suitable tests give a practical means of checking on the effectiveness of the instruction. (True-False; Multiple Choice; Sentence Completion; Problems. The first three types illustrate tests that can be graded with a minimum of trouble and, if necessary, by a clerk who doesn't know the subject.)
5. Performance on the job is the best basis to utilize for rating or scoring of employees. In large organizations the practical difficulties involved in rating on this basis are very great. Consequently, some other objective evidence must be used.

Factors Which Discount the Effectiveness of a Training Program and Make It Difficult for It To Function

It is believed to be worth while to identify some of the items which should be carefully considered with reference to the operating efficiency of any police training program. Eight of these considerations were developed by the conference group previously referred to, and are here listed for their suggestive value:

1. Lack of clearly-defined objectives.
2. Lack of a plan to accomplish worthwhile objectives.

3. Lack of understanding of the conditions necessary to efficiency in the operation of a training program, such as: continuity of attendance, lack of recognition of results of training and poor discipline.
4. Many executives fail to recognize the need for a planned program and the results which may be secured from a planned program.
5. Failure (1) to recognize ability in performance of duties; and (2) to reward unusual accomplishment subsequent to training.
6. Attempting to cover too much ground in proportion to the time available.
7. Tendency to over-emphasize the acquisition of information and improve the mechanical performance of duties, and give too little attention to training in solving problems and clear thinking on the job.
8. Poorly selected personnel because of unsuitable standards of selection and the utilization of inappropriate tests and examinations.

What Are Suitable Fields of Endeavor For Colleges and Universities in Connection with Police Training?

From time to time there is considerable evidence that many colleges and universities are interested in making a contribution in the field of police training. Because of this fact it was deemed to be worthwhile to attempt to define the field in which higher institutions of learning could function in such a way as to contribute to the all-around efficiency of training for law enforcement officers. The opinion of the group is reflected in the three statements which are here reproduced from the conference report:

1. Colleges and universities, if interested in police training, should limit their efforts to providing background training as represented by such courses as Chemistry, Physics, Biology, Psychology, and Business Administration. Graduates of such courses will thereby be able in a short time to derive maximum benefit from technical police training subsequent to employment. It is believed to be unwise if not dangerous to train persons in police techniques in advance of entrance into the police service.

2. Educational institutions can render a fine service to police training by making their facilities available to police schools at times when the facilities are not needed for the regular work of the institutions.

3. Another form of effective cooperation consists of making members of their instructional staff available for: (1) Supplemental instruction

in science and other appropriate subjects; and (2) Training courses for competent and experienced officers in methods of teaching and the organization of training.

Crime Prevention

An incomplete survey of the situation indicates that comparatively little specialized work is being done by police training schools in the field of crime prevention. The importance of crime prevention is generally admitted, and it is probable that the principal reason why more has not been accomplished in this field is that very few people have worked out definite ways and means of dealing with it. Most of what has been done or is being done at the present time relates to the problem of juvenile delinquency. Three examples are given to show what is being done by (1) A State police organization; (2) A large city; and (3) Smaller cities. It is believed that these examples are of value, not only for the specific items listed, but also because they will probably suggest many other lines of possible endeavor which may be developed in the future. The above-mentioned examples are discussed as follows:

Specific examples of what is being done by a State Police Organization:

1. State troopers provided with arm pads with numbers of autos known to be owned and operated by public enemies.
2. Efforts made by motor vehicle departments to deprive such persons of operating privileges.
3. Frequent establishment of cordons -- stopping and checking occupants of automobiles.
4. Make light checks on autos three times a week, weather permitting.
5. Use probation department and records for juveniles.
6. Cooperate with parole board and secure information on criminals.
7. Require patrols to give major attention to localities where crime is more frequent.
8. Utilize rural residents as source of information.

Examples of what is being done in a large city:

1. A number of police officers and policewomen devote full time to crime prevention work with juveniles.
2. Establishment of boy scout troops by police department.
3. Coordinating council composed of police department, juvenile probationary officers, juvenile court, playground and recreational

departments, Board of Education and other available organizations including service clubs in the city.

4. Recreation under supervision, for the under-privileged.
5. Special investigative procedure with juveniles as to social and other background.

Examples of what is being done in some smaller cities:

1. The Chief of Police and the police court judge organize a committee made up as follows:

Three ministers -- one priest, one rabbi, and one protestant.

The city psychiatrist.

The school psychologist.

Juvenile delinquents who get into trouble are brought before this committee before arraignment in court and the findings of the committee, with specific recommendations, are submitted to the court. The police department makes the investigation.

2. Police department establishes a crime prevention bureau with appropriate subdivisions such as: Juvenile relations, probation, boys club activities, women and girls' division, truancy detail, safety schoolboy patrol, etc. All complaints concerning or involving girls and boys under 17 are referred to this bureau in advance of placing names on the police docket.

SPECIAL ANNOUNCEMENT

WANTED NOTICES

It has been the policy of the Bureau in the past to place in the records of the Identification Division wanted notices which have been copied from police bulletins and police publications.

Because of the large volume of work presently being handled in the Identification Division and because of the fact that during the past notifications of the apprehension of fugitives carried in police bulletins have not been accepted by law enforcement agencies, it has become necessary for this Bureau to limit the posting of wanted notices to those cases in which a law enforcement agency specifically requests such a wanted notice to be placed.

PERSONALS

ALABAMA

Mr. J. L. Peek has assumed the position of Chief of Police at Anniston, Alabama, succeeding Mr. C. E. Turner.

CALIFORNIA

Mr. Samuel Trimmer has been appointed Chief of Police at Santa Paula, California, succeeding Mr. Thornton Edwards, who had held that position for ten years.

Mr. Jack L. Blakeney has assumed the position of Chief of the Laguna Beach, California Police Department. He succeeds Mr. Gene B. Woods.

GEORGIA

Mr. R. T. Tucker is the new Chief of Police at Cordele, Georgia, having succeeded Mr. John R. Meeks.

KANSAS

Mr. James B. Myres has succeeded Mr. William Hatcher as Chief of Police at Galena, Kansas.

Mr. E. P. Moomau took over his duties as Superintendent of the Kansas State Highway Patrol on July 1, 1939, succeeding Col. J. B. Jenkins.

ILLINOIS

Mr. Harry Tauber, former Police Magistrate, has been appointed Chief of Police of Cairo, Illinois. He succeeds Mr. F. E. Chambliss who has been appointed City Jailer of Cairo.

Captain Clyde Davis was appointed Chief of Police at Champaign, Illinois, effective July 1, 1939, to succeed former Chief of Police Roy Argo, resigned.

Mr. Thomas J. Brewer has recently been appointed Chief of Police at Paris, Illinois. He succeeds former Chief of Police Henry Crable, resigned.

IOWA

Mr. Fred Mocholz is Chief of Police at Burlington, Iowa, having succeeded Mr. Delbert Murray. Mr. Murray has been appointed an agent of the Bureau of Investigation, Iowa Department of Public Safety.

MAINE

Mr. C. Kenneth Norton has succeeded Mr. Wilbur G. Rumrey as Chief of Police at Old Orchard Beach, Maine.

MISSOURI

Mr. Hughie Oakes has been elected Chief of Police at Kennett, Missouri, succeeding Mr. E. G. Finney.

NEBRASKA

Mr. Leonard Gustafson has succeeded Mr. A. S. Samuelson as Chief of the Axtell, Nebraska Police Department.

Mr. N. D. Zachry was recently appointed Chief of Police at Grand Island, Nebraska.

MONTANA

Mr. Lomie Goss has succeeded Mr. Willie Fish as Chief of Police of the Blackfeet Indian Reservation, Browning, Montana.

Mr. L. L. Gray is the new Chief of Police at Harlem, Montana. He succeeded Mr. Foster Fitz.

Mr. Bennie Sather has assumed the position of Chief of Police at Glasgow, Montana, having succeeded Mr. H. V. Carman.

NEW JERSEY

Mr. Harry Erholm has been appointed Chief of Police of Scotch Plains, New Jersey, succeeding former Chief Theodore W. Day, Jr., recently deceased.

NEW YORK

Mr. Edward J. Curtin, a graduate of the FBI National Police Academy, who has been Acting Chief of Police at Watertown, New York, was recently appointed Chief of the Watertown Police Department, effective July 1, 1939.

NORTH CAROLINA

Mr. Archie L. Bailey has been appointed Chief of Police at Raleigh, North Carolina.

Mr. W. N. Stroupe has succeeded Mr. B. E. Brenton as Chief of Police at Canton, North Carolina. Mr. Charles S. Lanning is Identification Officer of the Canton Police Department.

Mr. Keely Grice has been appointed to the newly-created position of Commissioner of Police at Charlotte, North Carolina. Mr. E. J. Nolan is now Chief of the Charlotte Police Department.

NORTH DAKOTA

Mr. B. A. Woehle has been named Chief of Police at Bismarck, North Dakota. Mr. Woehle was formerly employed by the North Dakota State Prison.

OKLAHOMA

Mr. Walter Johnson has been appointed Commissioner of the Department of Public Safety of the State of Oklahoma, and will have under his supervision and administration the Oklahoma Highway Patrol.

RHODE ISLAND

The following promotions have recently been given in the Newport, Rhode Island Police Department: Mr. Sam Dugan has been promoted from Chief Inspector in the Detective Division to Captain, and is in charge of the night force. Mr. Henry C. Madden, a graduate of the FBI National Police Academy is now Chief Inspector in the Detective Division. Mr. Alexander Boss has been promoted from Sergeant to Lieutenant.

Captain James J. Palmer, for the past twenty-six years a member of the Newport, Rhode Island Police Department, died of heart trouble on May 26, 1939. Captain Palmer was in active service at the time of his death.

TENNESSEE

Mr. Tom Carriger has been appointed Chief of the Johnson City, Tennessee Police Department.

TEXAS

Mr. Floyd Goodrich has succeeded Mr. Henry Wisrodt as Chief of Police at Galveston, Texas.

Mr. Walter A. Harvey has been appointed Acting Chief of Police of the San Antonio, Texas Police Department succeeding former Chief Owen W. Kilday, who has retired from active service. Mr. Ed P. Bogasch, a graduate of the FBI National Police Academy, has been promoted to Lieutenant in Charge of Training Schools. Other recent promotions include that of Mr. Cliff Ramchissel, formerly a traffic Captain, who has been designated as Acting Chief of Detectives, and Mr. Lee Jones as Superintendent of Identification succeeding Mr. H. C. Rhodes who has been appointed as City Detective.

VIRGINIA

Mr. G. W. Havens has resigned as Chief of Police of Bluefield, Virginia.

WASHINGTON

Mr. Jack H. Lenfesty is Acting Chief of the Puyallup, Washington Police Department following the resignation of Mr. Glenn Barton.

Mr. J. C. Hickman has been appointed Chief of Police at Colfax, Washington to succeed Mr. Thomas H. Benton.

Mr. William Ross assumed the office of Chief of Police at Ellensburg, Washington recently. Mr. Ross was formerly associated with the Washington State Patrol.

Communications may be addressed to the Field Office covering the territory in which you are located by forwarding your letter or telegram to the Special Agent in Charge at the address listed below. Telephone and teletype numbers are also listed if you have occasion to telephone or teletype the Field Office.

CITY	AGENT IN CHARGE	TELEPHONE NUMBER	BUILDING ADDRESS (Letters or Telegrams)
Aberdeen, S. D.	Hanni, Werner	4652	310 Federal
Atlanta, Georgia	Listerman, W.L.	Walnut 3698	501 dealey
Birmingham, Ala.	Soucy, E.A.	4-1877	320 Federal
Boston, Mass.	Peterson, V.W.	Liberty 8470	10 Post Office Square, Room 1016
Buffalo, N. Y.	McLaughlin, W.V.	Cleveland 2030	400 U. S. Court House
Butte, Montana	Banister, W.G.	2-4734	302 Federal
Charlotte, N. C.	Scheidt, E.	3-4127	914 Johnston
Chicago, Illinois	Ladd, D. M.	Randolph 6226	1900 Bankers'
	Clegg, J.E. (Assistant)		
Cincinnati, Ohio	Harris, H.D.	Cherry 7127	1130 Enquirer
Cleveland, Ohio	Guinane, E.P.	Prospect 2456	1448 Standard
Dallas, Texas	Conroy, E.E.	2-9086	1206 Tower Petroleum
Denver, Colorado	Gebben, E.J.	Main 6241	518 Railway Exchange
Des Moines, Iowa	Coulter, R.C.	3-8998	739 Insurance Exchange
Detroit, Michigan	Bugas, J.S.	Cadillac 2835	911 Federal
El Paso, Texas	Untreiner, R.J.	Main 1711	202 U. S. Court House
Huntington, W. Va.	Warnes, J.W.	8928	700 West Virginia
Indianapolis, Ind.	Reinecke, H.H.	Riley 5416	323 Federal
Kansas City, Mo.	Brantley, D.	Victor 3113	1612 Federal Reserve Bank
Knoxville, Tenn.	Davis, E.R.	3-7928	407 Hamilton National Bank
Little Rock, Ark.	Richmond, E.L.	6734	500 Rector
Los Angeles, Calif.	Hood, R.B.	Mutual 3277	810 South Spring, Room 603
Louisville, Ky.	Reynolds, J.D.	Jackson 5139	633 Federal
Memphis, Tenn.	Vincent, J.W.	8-4236	2401 Sterick
Miami, Florida	Deveraux, W.S.	3-5558	1300 Biscayne
Milwaukee, Wisconsin	Rutzen, A.C.	Daly 3431	1021 Bankers'
Newark, N. J.	Kitchin, A.P.	Market 2-5511	936 Raymond-Commerce
New Orleans, La.	Sackett, B.E.	Raymond 9354	1308 Masonic Temple
New York, N. Y.	Foxworth, P.E.	Rector 2-3520	607 U.S.Court House, Foley Square
	Dalton, J.L. (Assistant)		
Oklahoma City, Okla.	Andersen, H.E.	2-8186	940 First National
Omaha, Nebraska	Stein, C.W.	Atlantic 8644	629 First National Bank
Philadelphia, Pa.	Fletcher, H.B.	Locust 0880	1300 Liberty Trust
Pittsburgh, Pa.	McKee, S.K.	Grant 0800	620 New Federal
Portland, Oregon	Swenson, J.D.	Atwater 6171	411 U. S. Court House
Richmond, Virginia	Wyly, P.	3-0169	601 Richmond Trust
Salt Lake City, Utah	Newman, J.C.	Wasatch 1797	301 Continental Bank
San Antonio, Texas	Jones, G.T.	Fannin 8052	478 Federal
San Francisco, Calif.	Pieper, N.J.L.	Exbrook 2679	One Eleven Sutter, Room 1729
Seattle, Washington	Suran, R.C.	Main 0460	800 Joseph Vance
Springfield, Illinois	Fitzsimons, B.F.	Main 2226	1107 Illinois
St. Louis, Missouri	Norris, G.B.	Garfield 0360(*)	423 U. S. Court House & Custom House
St. Paul, Minnesota	Hendon, R.C.	Garfield 7509	404 New York
Washington, D. C.	Hottel, G.	National 5303	2266 U. S. Department of Justice

(*) Telephone number to be used after 5:00 P.M., on Saturday afternoons and Holidays is Garfield 2120.

The teletypewriter number for each Field Office, including the Bureau at Washington, is 0711, except the New York City Office which is 1-0711.

Communications concerning fingerprint identification or crime statistics matters should be addressed to: Director

Federal Bureau of Investigation
United States Department of Justice
Pennsylvania Avenue at 9th Street, N. W.
Washington, D. C.

The office of the Director is open twenty-four hours each day.

TELEPHONE NUMBER: NATIONAL 5303
EMERGENCY (KIDNAPING): NATIONAL 7117

