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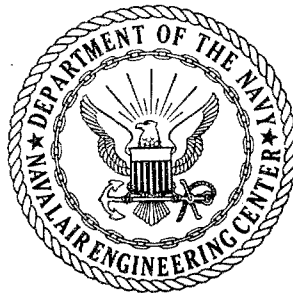
ANTHROPOMETRY OF NAVAL AVIATORS - 1964 ← TITLE

By

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NAEC-ACEL-533

8 OCTOBER 1965



*Sample
Title*

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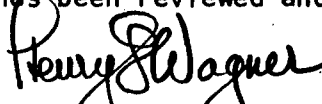
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ADMINISTRATIVE INFORMATION

The anthropometric survey reported herein was performed to meet the requirements of Bureau of Naval Weapons WEPTASK RAE 13C 005/2001/R005 01 01, Problem Assignment No. 005AE13-23 entitled "Field Anthropometric Survey and Center of Gravity Measurements of Naval Aviators" and Bureau of Medicine and Surgery Work Unit MR005.13-9040.1 entitled "Components of Variance in Anthropometry."

Sincere appreciation is expressed to Mr. H. T. E. Hertzberg and Mr. M. Alexander of the Behavioral Sciences Laboratory, Aerospace Medical Research Laboratories, Aerospace Medical Division, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio, for their support and technical assistance throughout this study, and to Mr. Edmund Churchill, Director, Anthropology Research Project, Antioch College, Yellow Springs, Ohio, for his valuable help in the data breakdown and analysis.

This technical documentary report has been reviewed and is approved.



HENRY G. WAGNER
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Director

ABSTRACT

Body size data for 96 measurements of 1,549 U.S. naval aviators are presented. The techniques of measurement are illustrated by schematic drawings and reference to the literature. Both diametral and surface measurements are included. Dimensions are given in both centimeters and inches. Statistics included are percentiles, means, standard deviations, and coefficients of variation. These data are presented for use by designers of aircraft workspaces and designers of personnel protective clothing and equipment.

N = 1549

INTRODUCTORY REMARKS

Naval aviation research and development programs aimed at the evaluation of personnel protective equipment and the design of adequate aircrew station configurations have, in the past, been seriously handicapped by a lack of suitable anthropometric data on naval flying personnel. This situation has become increasingly more apparent in weapon system development programs during recent years. Especially evident was the lack of correspondence between aircrew station dimensions and the requirements for space to adequately accommodate the functioning crew member. During surveys conducted in the fleet in other project areas, many complaints were informally gathered from fleet pilots and other flying personnel concerning the above items.

The desire to correct inadequacies of a limited anthropometric survey conducted during 1957-1958 (1) gave rise to the full-scale survey which forms the subject of this report. A trained anthropometric measuring team visited ten naval and marine corps air stations during 1964 to obtain the data presented here. The population from which the sample was drawn is defined as follows:

- "1. Designated Naval and Marine Corps Aviators in all three categories.
2. All permanently designated Naval (and Marine Corps) Aviation Officers (aeronautically designated personnel in the sense of OPNAV Instruction P-3710.7B), including Naval Aviation Observers, Naval Aviation Pilots, and those Flight Surgeons who are designated Naval Aviators.
3. Included under Naval or Marine Corps aviation officers are Bombardier-Navigators, Radar-Observers, and other permanently designated aeronautical personnel who can expect duties involving flying during their entire careers.
4. Enlisted personnel who are permanently designated aeronautical personnel and who can expect to be assigned duties involving flying for the duration of their careers, but excluding those enlisted personnel who are presently assigned duties involving flying, but who may not be so assigned at future duty stations (actual number was 14 subjects)."

The sample size in this survey was 1,549, slightly more than 10 per cent of the naval and marine corps aviator population. The Guide to Anthropometric Data lists the measurements taken during this survey. Inasmuch as written descriptions of the measurements already exist in the literature (2, 3), these descriptions are not repeated in this report. In order to provide the reader with a ready reference for the locations of the morphological feature measurements, schematic drawings (Figure 1A to G) have been prepared (2) with the numbers on these drawings corresponding to the numbers in the "Percentile Listing" column in the Guide. N-1500

Written descriptions for all the measurements are contained in reference 2, except for numbers 42, 45, 48, 51, 54, 56, 79, and 96. For this latter group, the written description is contained in reference 3.

It is intended that the data reported herein will be used by designers of aircrew workspaces, as well as by designers of aircrewman personnel protective clothing and equipment. Subsequent reports on this survey will include a detailed breakdown of the measuring equipment and procedures used, correlation coefficients, an analysis of the skinfold data to permit an estimate of the per cent of body fat, and sizing programs for use with clothing and equipment.

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2. Hertzberg, H. T. E., et al. Anthropometric Survey of Turkey, Greece, and Italy. Published for and on behalf of Advisory Group for Aeronautical Research and Development, North Atlantic Treaty Organization. The MacMillan Company, New York, 1956. AGARDograph 73.
3. Hertzberg, H. T. E., et al. Anthropometry of Flying Personnel - 1950. WADC Technical Report 52-321. Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio. September 1954.

GUIDE TO ANTHROPOMETRIC DATA

<u>Morphological Feature</u>	<u>Percentile Listing</u>	<u>Figure</u>
Weight	(1)	--
Stature	(2)	1A
Tragion Height	(3)	1A
Cervicale Height	(4)	1A
Suprasternale Height	(5)	1A
Nipple (Chest) Height	(6)	1A
Waist Height	(7)	1A
Penale Height	(8)	1A
Gluteal Furrow Height	(9)	1A
Crotch Height	(10)	1A
Patella Height	(11)	1A
Sitting Height	(12)	1B
Eye Height Sitting	(13)	1B
Shoulder Height Sitting	(14)	1B
Elbow Rest Height	(15)	1B
Knee Height Sitting	(16)	1B
Popliteal Height Sitting	(17)	1B
Buttock-Popliteal Length	(18)	1B
Buttock-Knee Length	(19)	1B
Shoulder-Elbow Length	(20)	1B
Forearm-Hand Length	(21)	1B
Functional Reach	(22)	1B
Bideltoid Diameter	(23)	1C
Chest Breadth	(24)	1C
Waist Breadth	(25)	1C
Hip Breadth	(26)	1C
Chest Depth	(27)	1C
Waist Depth	(28)	1C
Buttock Depth	(29)	1C
Hip Breadth-Sitting	(30)	1C
Neck Circumference	(31)	1C
Shoulder Circumference	(32)	1C
Chest Circumference	(33)	1C
Waist Circumference	(34)	1C
Buttock Circumference	(35)	1C
Buttock Circumference Sitting	(36)	1D
Thigh Circumference	(37)	1C
Lower Thigh Circumference	(38)	1C
Calf Circumference	(39)	1C
Ankle Circumference	(40)	1C
Scye Circumference	(41)	1D
Axillary Arm Circumference	(42)	1D
Biceps Circumference	(43)	1D
Lower Arm Circumference	(44)	1D
Wrist Circumference	(45)	1C
Sleeve Inseam	(46)	1D
Sleeve Length (Spine-Wrist)	(47)	1D

<u>Morphological Feature</u>	<u>Percentile Listing</u>	<u>Figure</u>
Gluteal Arc	(48)	1D
Vertical Trunk Circumference	(49)	1D
Interscye	(50)	1D
Interscye Maximum	(51)	1D
Foot Length	(52)	1G
Foot Breadth	(53)	1G
Hand Length	(54)	1G
Hand Breadth	(55)	1G
Hand Breadth at Thumb	(56)	1G
Thickness at Metacarpal III	(57)	1G
Hand Circumference	(58)	1G
Hand Circumference at Thumb	(59)	1G
Head Circumference	(60)	1E
Sagittal Arc	(61)	1E
Bitracion-Coronal Arc	(62)	1E
Bitracion-Minimum Frontal Arc	(63)	1E
Bitracion-Subnasale Arc	(64)	1E
Bitracion-Menton Arc	(65)	1E
Bitracion-Submandibular Arc	(66)	1E
Bitracion-Inion Arc	(67)	1E
Head Length	(68)	1F
Tracion to Wall	(69)	1E
Nasal Root to Wall	(70)	1E
Pronasale to Wall	(71)	1E
External Canthus to Wall	(72)	1E
Head Breadth	(73)	1F
Bitracion Diameter	(74)	1F
Maximum Frontal Diameter	(75)	1F
Bizygomatic Diameter	(76)	1F
Bigonial Diameter	(77)	1F
Biocular Diameter	(78)	1F
Interpupillary Distance	(79)	1F
Interocular Diameter	(80)	1F
Nasal Root Breadth	(81)	1F
Nose Breadth	(82)	1F
Lip Length	(83)	1F
Menton-Subnasale Length	(84)	1F
Menton-Vertex Height	(85)	1F
Head Height (Tracion to Vertex)	(86)	1F
Lip-to-Lip Distance	(87)	1F
Nose Length	(88)	1F
Nose Protrusion	(89)	1F
Ear Length	(90)	1F
Ear Breadth	(91)	1F
Ear Protrusion	(92)	1E
Subscapular Skinfold	(93)	1G
Juxta-Nipple Skinfold	(94)	1G
Back of Arm Skinfold	(95)	1G
Mid/Axillary Line at Umbilicus Skin Fold	(96)	1G

Figure 1 (A)

Visual Index of Measurements

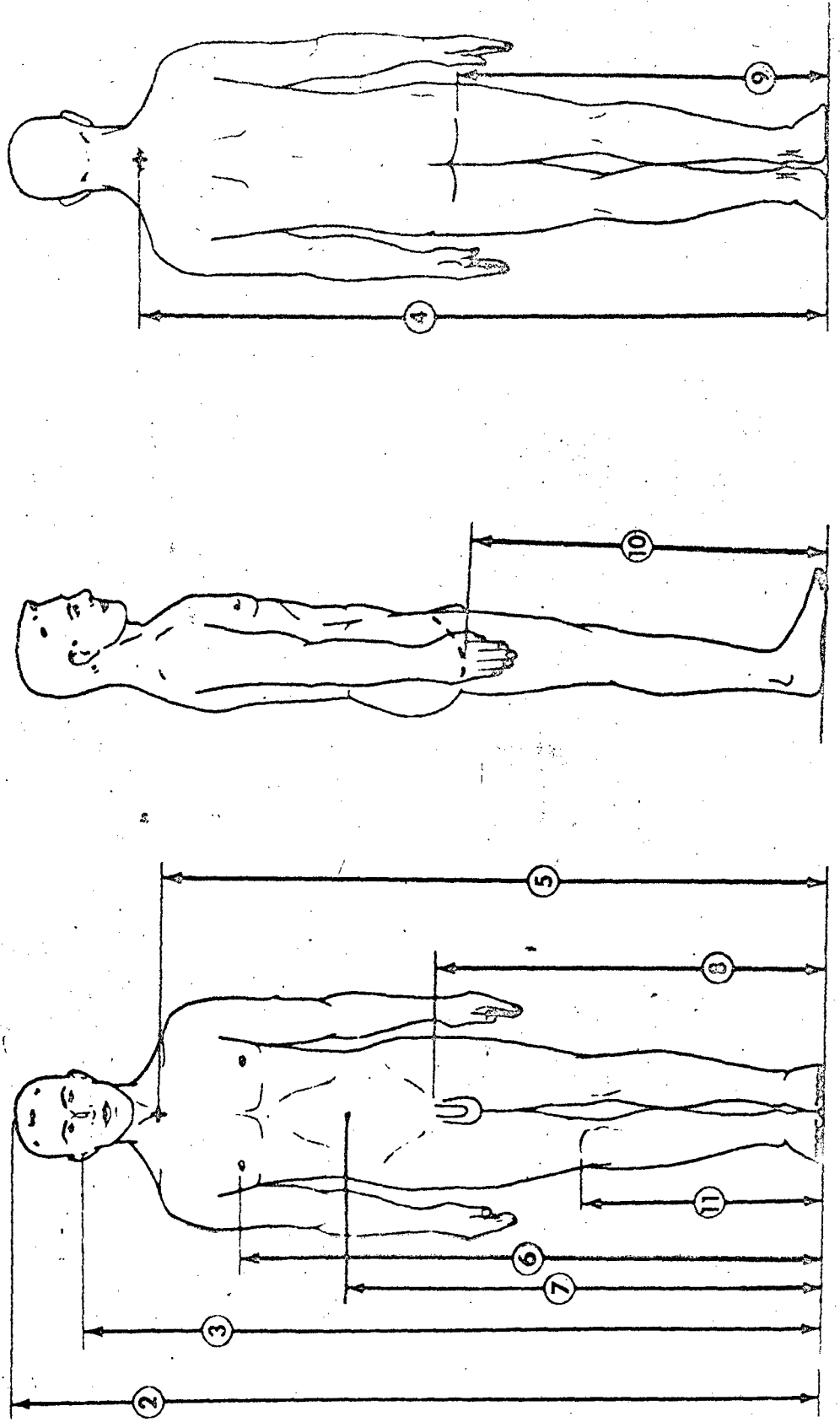


Figure 1 (B)

Visual Index of Measurements

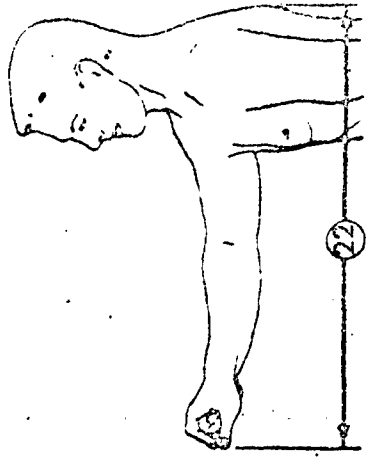
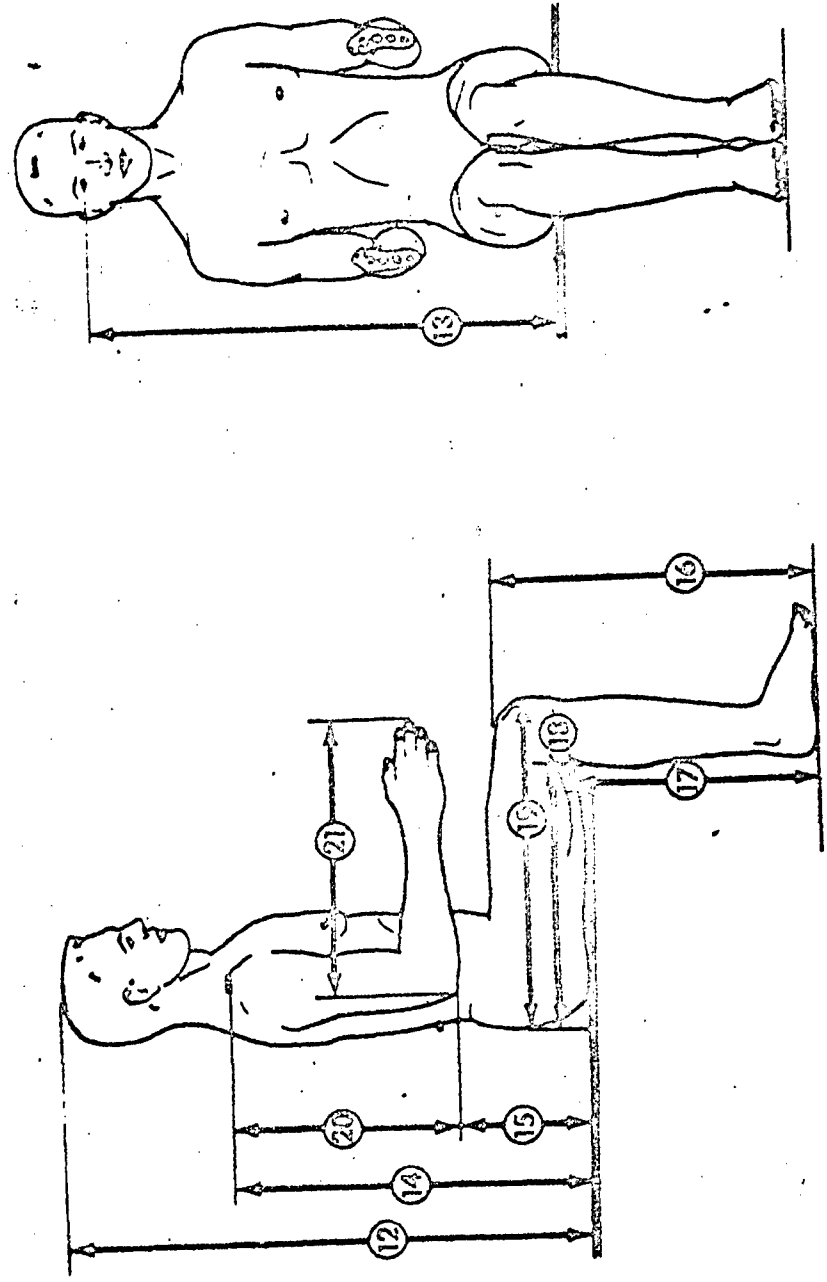


Figure 1 (C)

Visual Index of Measurements

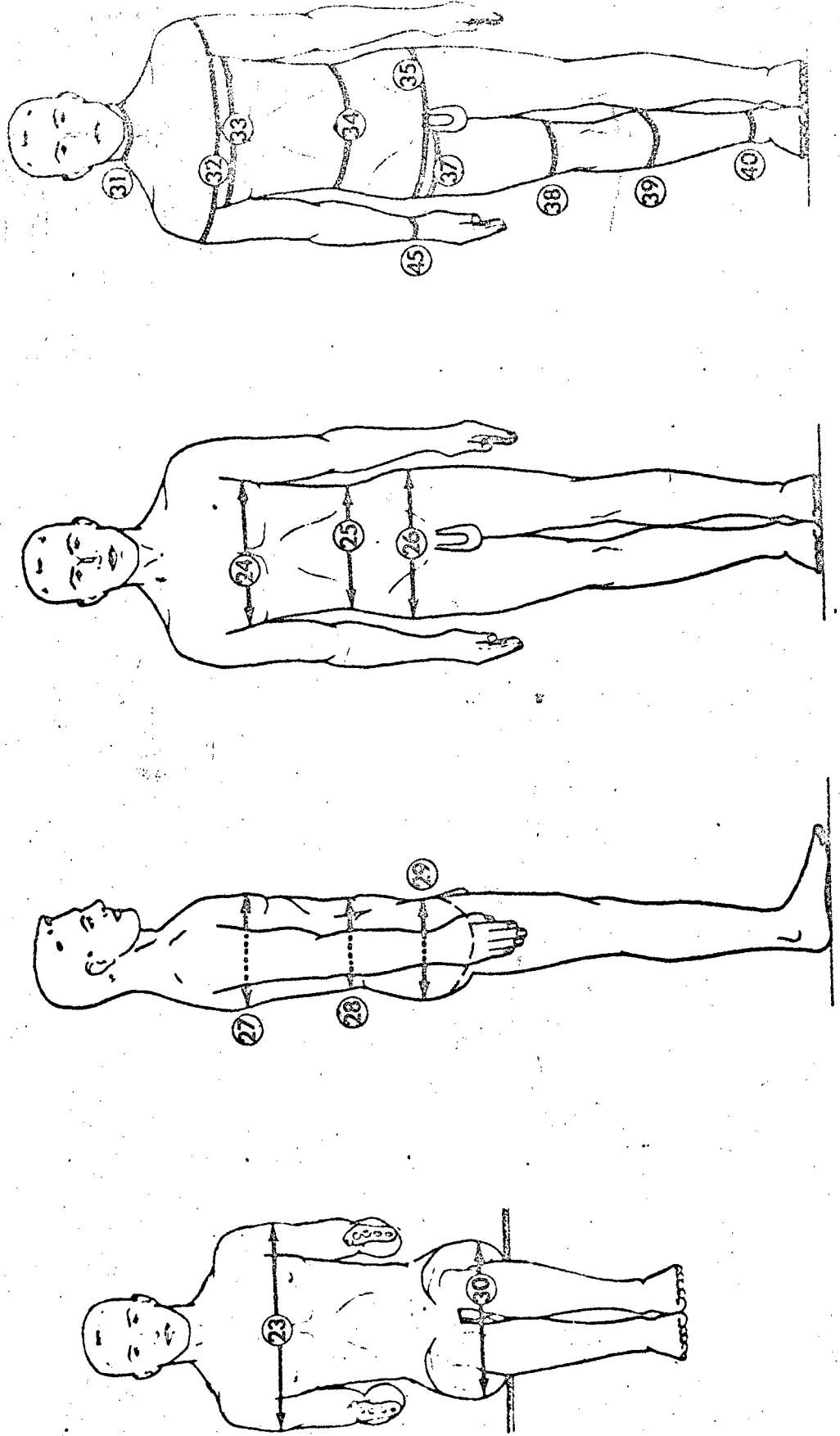


Figure 1 D

Visual Index of Measurements

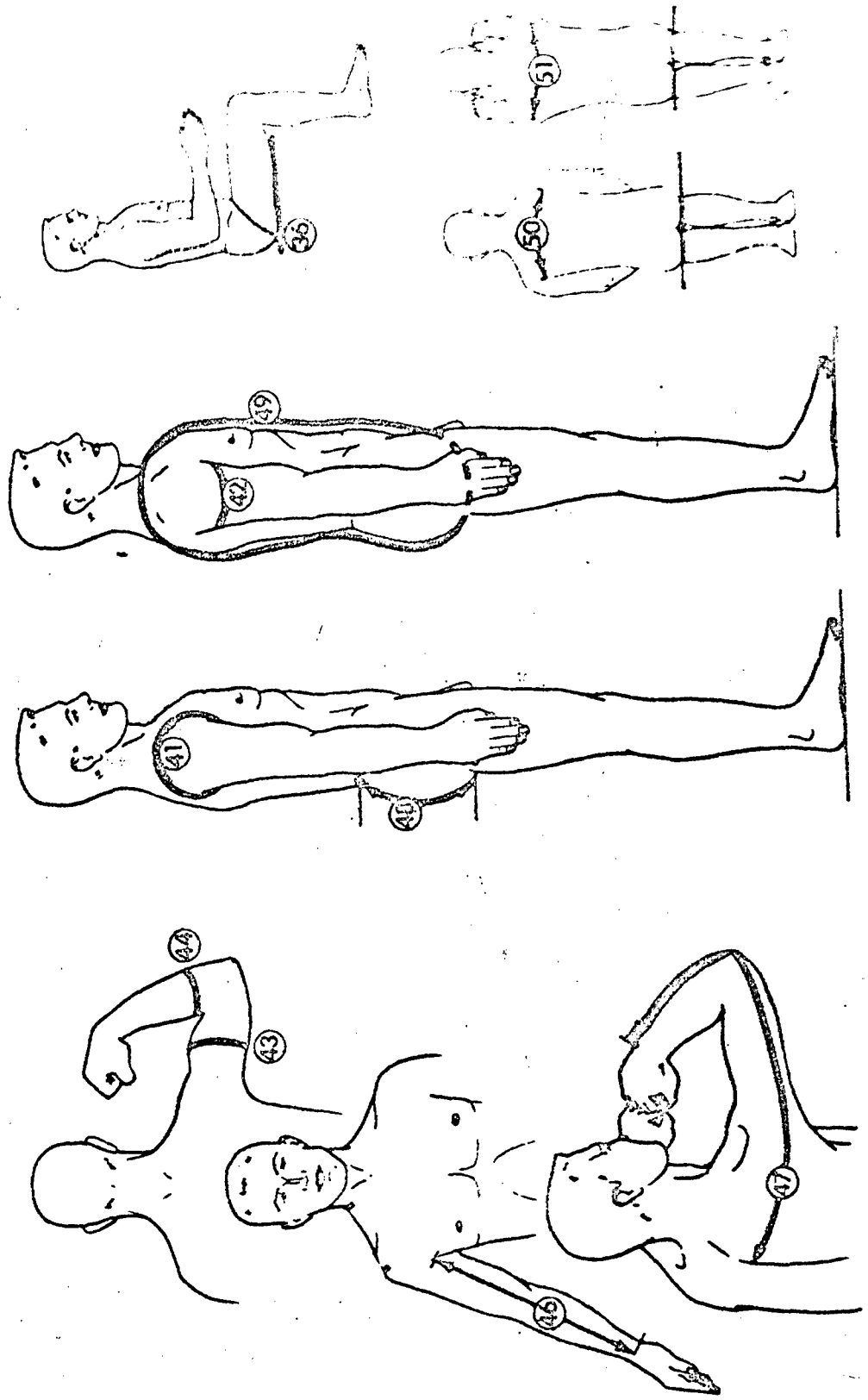


Figure 1 (E)

Visual Index of Measurements

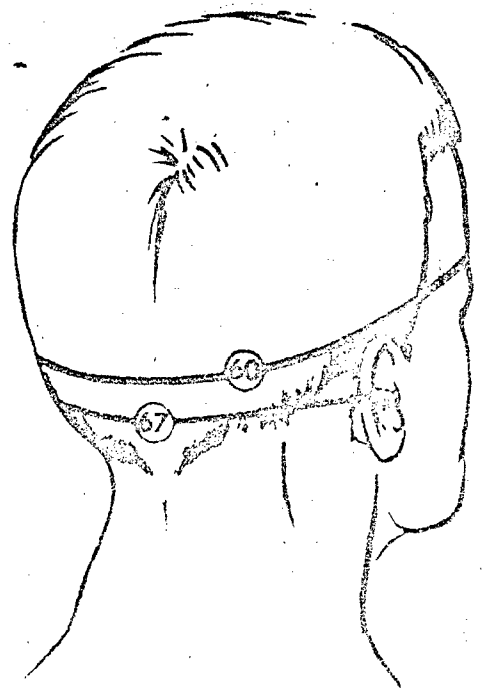
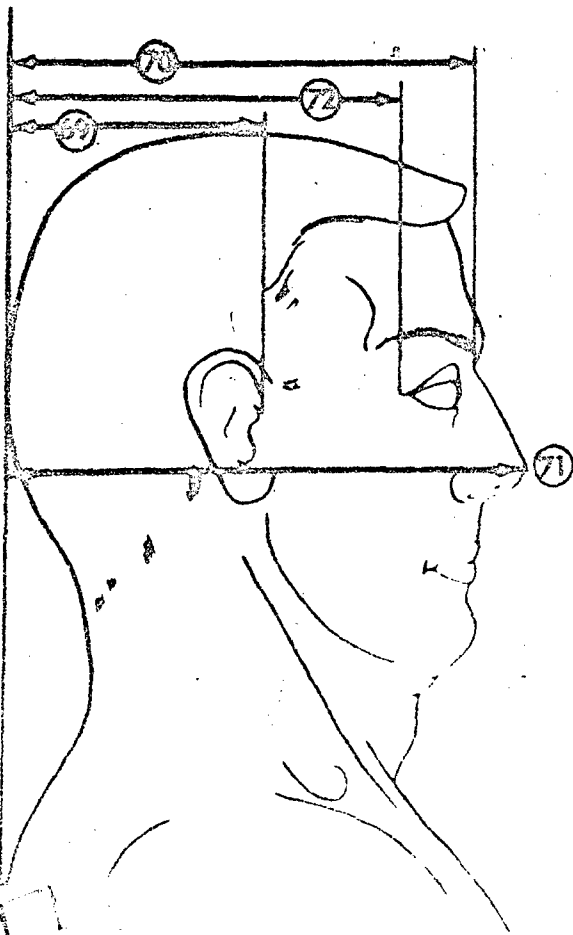
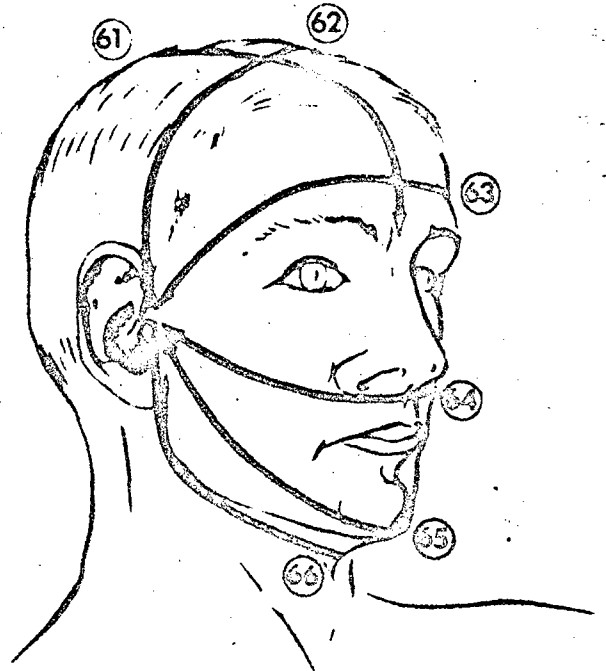
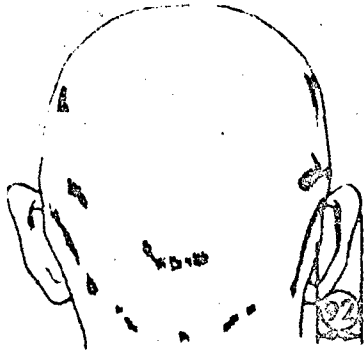


Figure 1 (F)

Visual Index of Measurements

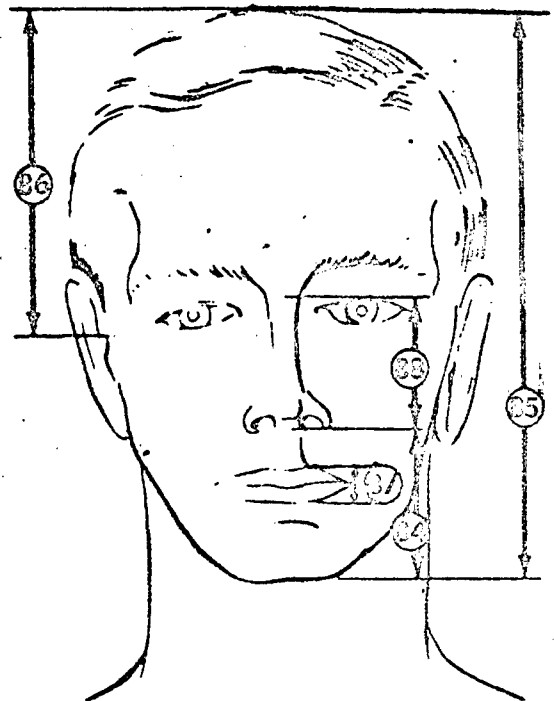
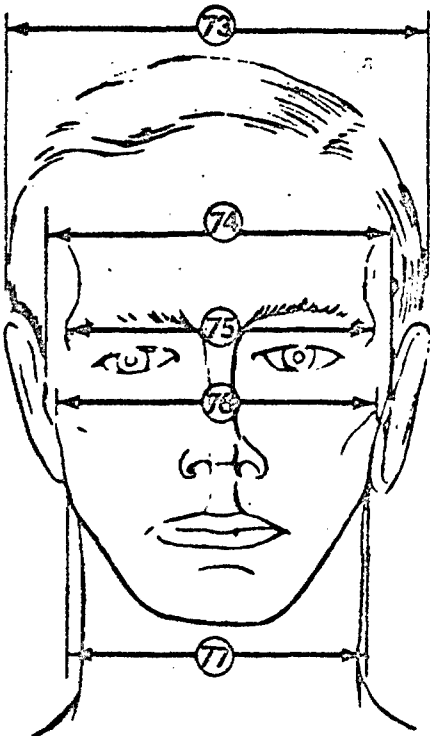
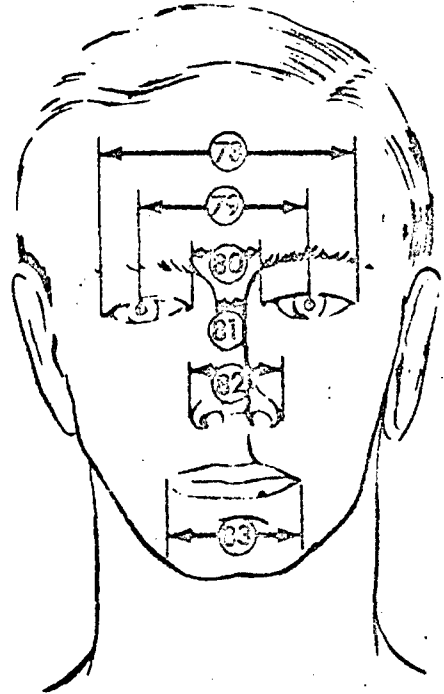
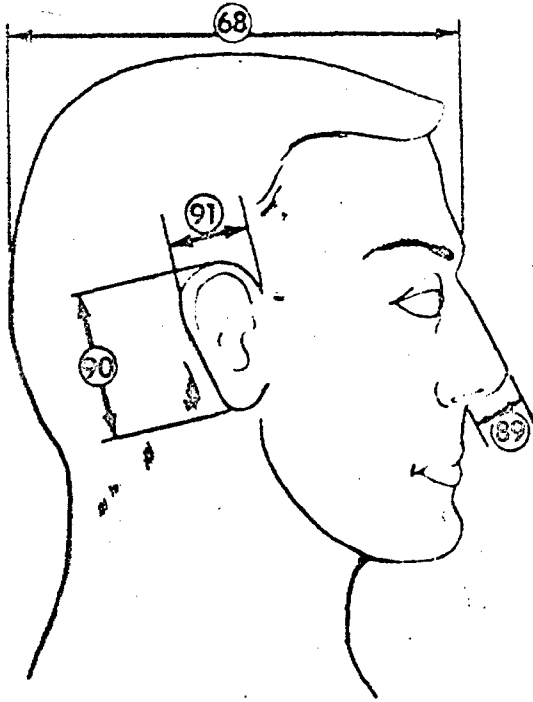
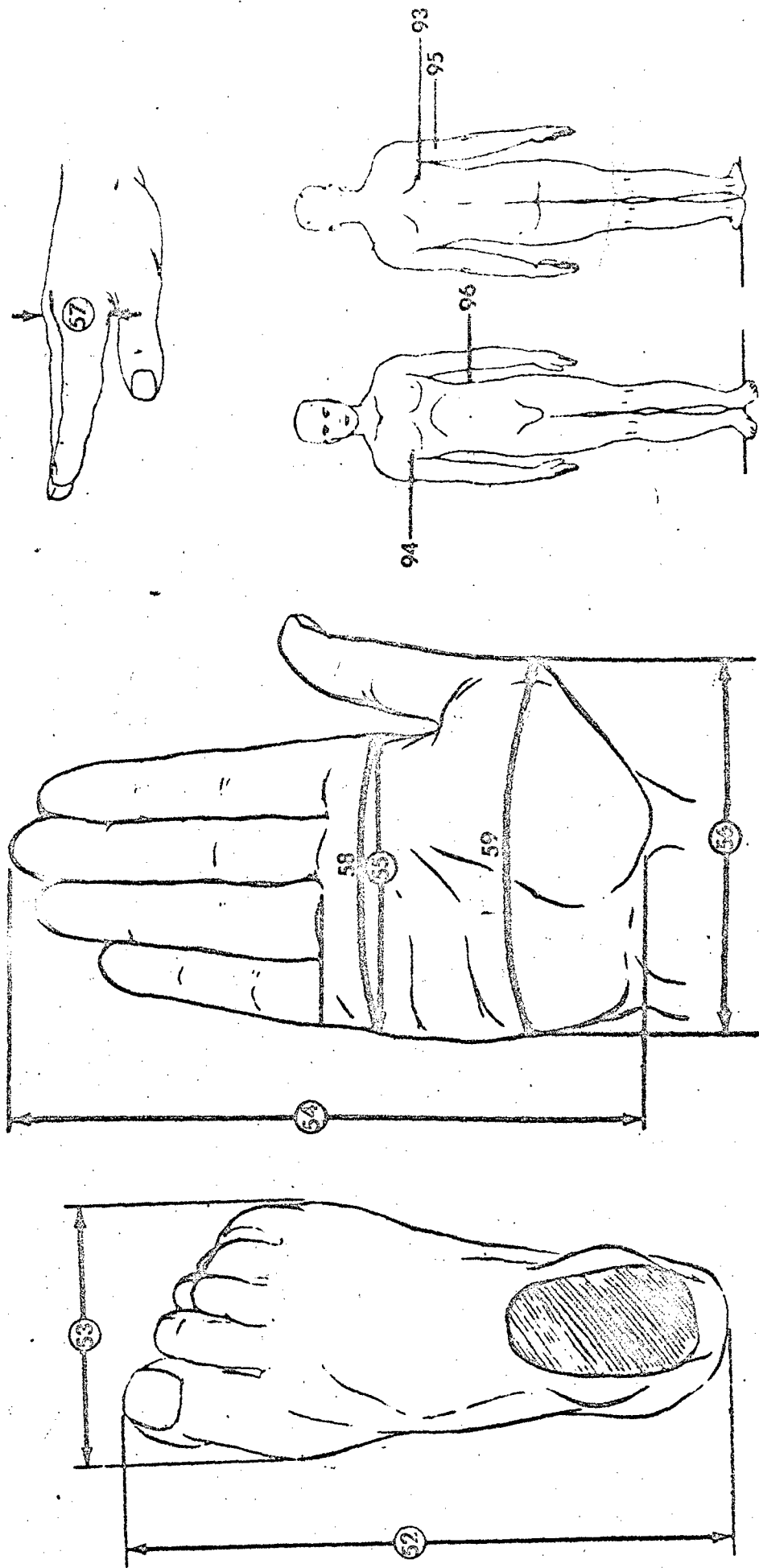


Figure 1 (C)

Visual Index of Measurements



WEIGHT (1)

N = 1549

MEAN	STANDARD DEVIATION	RANGE	
171.40 (0.48)	19.09 (0.34)	109.50 - 245.40	LB
77.74 (0.22)	8.66 (0.16)	49.67 - 111.35	KG
COEFFICIENT OF VARIATION = 11.14 PERCENT			

POUNDS	PERCENTILES	KILOGRAMS
129.29	1 ST	58.65
133.40	2 ND	60.51
136.24	3 RD	61.80
140.32	5 TH	63.65
146.94	10 TH	66.65
151.54	15 TH	68.74
155.21	20 TH	70.40
158.39	25 TH	71.85
161.24	30 TH	73.14
163.86	35 TH	74.33
166.35	40 TH	75.45
168.74	45 TH	76.54
171.10	50 TH	77.61
173.46	55 TH	78.68
175.85	60 TH	79.76
178.32	65 TH	80.88
180.93	70 TH	82.07
183.77	75 TH	83.36
186.99	80 TH	84.82
190.78	85 TH	86.54
195.74	90 TH	88.79
203.58	95 TH	92.34
209.11	97 TH	94.85
213.47	98 TH	96.83
220.94	99 TH	100.21

HEIGHT (STATURE) (2)

MEAN	STANDARD DEVIATION	RANGE	
69.94 (0.06)	2.33 (0.04)	63.48 - 77.25	IN
177.64 (0.15)	5.91 (0.11)	161.25 - 196.15	CM
COEFFICIENT OF VARIATION =		3.33 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
65.09	1 ST	165.32
65.50	2 ND	166.38
65.79	3 RD	167.12
66.22	5 TH	168.19
66.92	10 TH	169.99
67.44	15 TH	171.30
67.87	20 TH	172.39
68.25	25 TH	173.35
68.60	30 TH	174.24
68.93	35 TH	175.08
69.25	40 TH	175.89
69.56	45 TH	176.68
69.87	50 TH	177.47
70.28	55 TH	178.26
70.50	60 TH	179.07
70.83	65 TH	179.91
71.18	70 TH	180.80
71.56	75 TH	181.76
71.98	80 TH	182.83
72.46	85 TH	184.05
73.06	90 TH	185.57
73.91	95 TH	187.72
74.42	97 TH	189.03
74.78	98 TH	189.94
75.30	99 TH	191.26

TRACION HEIGHT (3)

MEAN STANDARD DEVIATION RANGE
 64.90 (0.06) 2.27 (0.04) 58.17 - 72.33 IN
 164.85 (0.15) 5.76 (0.10) 147.75 - 183.65 CM
 COEFFICIENT OF VARIATION = 3.49 PERCENT

INCHES	PERCENTILES	CENTIMETERS
60.10	1 ST	152.65
60.53	2 ND	153.74
60.82	3 RD	154.48
61.25	5 TH	155.57
61.96	10 TH	157.37
62.47	15 TH	158.68
62.89	20 TH	159.75
63.27	25 TH	160.70
63.61	30 TH	161.57
63.93	35 TH	162.38
64.24	40 TH	163.17
64.54	45 TH	163.94
64.84	50 TH	164.70
65.15	55 TH	165.47
65.45	60 TH	166.25
65.77	65 TH	167.07
66.11	70 TH	167.92
66.48	75 TH	168.85
66.88	80 TH	169.88
67.35	85 TH	171.06
67.93	90 TH	172.53
68.75	95 TH	174.63
69.26	97 TH	175.93
69.62	98 TH	176.84
70.15	99 TH	178.19

CERVICALE HEIGHT (4)

MEAN	STANDARD DEVIATION	RANGE	
59.51 (0.06)	2.18 (0.04)	52.66 - 67.21	IN
151.16 (0.14)	5.54 (0.10)	133.75 - 170.65	CM
	COEFFICIENT OF VARIATION =	3.67 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
54.90	1 ST	139.44
55.35	2 ND	140.58
55.64	3 RD	141.33
56.05	5 TH	142.38
56.72	10 TH	144.08
57.20	15 TH	145.28
57.59	20 TH	146.27
57.94	25 TH	147.16
58.26	30 TH	147.97
58.56	35 TH	148.73
58.85	40 TH	149.47
59.13	45 TH	150.20
59.42	50 TH	150.93
59.71	55 TH	151.66
60.01	60 TH	152.42
60.32	65 TH	153.20
60.65	70 TH	154.04
61.00	75 TH	154.95
61.40	80 TH	155.96
61.86	85 TH	157.13
62.44	90 TH	158.60
63.26	95 TH	160.69
63.76	97 TH	161.96
64.11	98 TH	162.85
64.62	99 TH	164.12

SUPRASTERNALE HEIGHT (5)

MEAN STANDARD DEVIATION RANGE
 57.20 (0.05) 2.10 (0.04) 51.28 - 63.87 IN
 145.28 (0.14) 5.33 (0.10) 130.25 - 162.15 CM
 COEFFICIENT OF VARIATION = 3.67 PERCENT

INCHES	PERCENTILES	CENTIMETERS
52.84	1 ST	134.20
53.19	2 ND	135.10
53.44	3 RD	135.75
53.82	5 TH	136.70
54.46	10 TH	138.32
54.93	15 TH	139.52
55.32	20 TH	140.51
55.67	25 TH	141.40
55.99	30 TH	142.21
56.29	35 TH	142.97
56.58	40 TH	143.71
56.86	45 TH	144.43
57.14	50 TH	145.14
57.43	55 TH	145.87
57.72	60 TH	146.60
58.02	65 TH	147.36
58.33	70 TH	148.16
58.67	75 TH	149.02
59.05	80 TH	149.98
59.47	85 TH	151.07
60.01	90 TH	152.41
60.75	95 TH	154.31
61.20	97 TH	155.46
61.52	98 TH	156.26
61.97	99 TH	157.41

NIPPLE (CHEST) HEIGHT (6)

MEAN	STANDARD DEVIATION	RANGE	
51.08 (0.05)	2.02 (0.04)	44.59 - 57.18	IN
129.75 (0.13)	5.14 (0.09)	113.25 - 145.15	CM
COEFFICIENT OF VARIATION = 3.96 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
46.92	1 ST	119.18
47.25	2 ND	120.01
47.48	3 RD	120.61
47.84	5 TH	121.51
48.45	10 TH	123.06
48.90	15 TH	124.21
49.28	20 TH	125.16
49.61	25 TH	126.02
49.92	30 TH	126.80
50.21	35 TH	127.54
50.49	40 TH	128.24
50.76	45 TH	128.94
51.03	50 TH	129.63
51.31	55 TH	130.32
51.59	60 TH	131.03
51.87	65 TH	131.76
52.18	70 TH	132.53
52.50	75 TH	133.35
52.86	80 TH	134.28
53.28	85 TH	135.33
53.79	90 TH	136.63
54.52	95 TH	138.48
54.96	97 TH	139.61
55.28	98 TH	140.40
55.74	99 TH	141.57

WAIST HEIGHT (7)

MEAN	STANDARD DEVIATION	RANGE	
42.28 (0.75)	1.80 (0.03)	37.11 - 48.12	IN
107.39 (0.12)	4.56 (0.08)	94.25 - 122.15	CM
COEFFICIENT OF VARIATION =		4.25 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
38.35	1 ST	97.42
38.75	2 ND	98.42
39.01	3 RD	99.08
39.37	5 TH	100.00
39.95	10 TH	101.48
40.36	15 TH	102.52
40.70	20 TH	103.37
40.99	25 TH	104.12
41.26	30 TH	104.80
41.51	35 TH	105.45
41.76	40 TH	106.06
41.99	45 TH	106.67
42.23	50 TH	107.27
42.47	55 TH	107.88
42.71	60 TH	108.49
42.97	65 TH	109.13
43.23	70 TH	109.81
43.52	75 TH	110.54
43.84	80 TH	111.36
44.21	85 TH	112.30
44.67	90 TH	113.46
45.32	95 TH	115.11
45.72	97 TH	116.12
45.99	98 TH	116.81
46.38	99 TH	117.82

PENALE HEIGHT(8)

MEAN	STANDARD DEVIATION	RANGE	
35.02 (0.04)	1.67 (0.03)	29.04 - 41.23	IN
88.96 (0.11)	4.24 (0.08)	73.75 - 104.65	CM
COEFFICIENT OF VARIATION =		4.76 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
31.38	1 ST	79.70
31.74	2 ND	80.63
31.99	3 RD	81.24
32.33	5 TH	82.12
32.89	10 TH	83.53
33.27	15 TH	84.51
33.59	20 TH	85.31
33.86	25 TH	86.01
34.11	30 TH	86.64
34.34	35 TH	87.22
34.56	40 TH	87.78
34.77	45 TH	88.33
34.99	50 TH	88.87
35.20	55 TH	89.41
35.42	60 TH	89.96
35.64	65 TH	90.53
35.88	70 TH	91.14
36.14	75 TH	91.79
36.43	80 TH	92.53
36.76	85 TH	93.38
37.19	90 TH	94.46
37.82	95 TH	96.08
38.24	97 TH	97.13
38.55	98 TH	97.91
39.04	99 TH	99.16

GLUTEAL FURROW HEIGHT (9)

MEAN	STANDARD DEVIATION	RANGE	
32.01 (0.04)	1.57 (0.03)	27.07 - 36.90	IN
81.30 (0.10)	4.00 (0.07)	68.75 - 93.65	CM
COEFFICIENT OF VARIATION =		4.92 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
28.58	1 ST	72.60
28.93	2 ND	73.49
29.16	3 RD	74.07
29.48	5 TH	74.87
29.98	10 TH	76.15
30.34	15 TH	77.05
30.62	20 TH	77.79
30.88	25 TH	78.43
31.11	30 TH	79.03
31.33	35 TH	79.58
31.54	40 TH	80.12
31.75	45 TH	80.64
31.96	50 TH	81.17
32.17	55 TH	81.70
32.38	60 TH	82.24
32.60	65 TH	82.81
32.84	70 TH	83.40
33.09	75 TH	84.05
33.37	80 TH	84.77
33.70	85 TH	85.60
34.11	90 TH	86.64
34.69	95 TH	88.12
35.05	97 TH	89.02
35.30	98 TH	89.65
35.65	99 TH	90.56

CROTCH HEIGHT (10)

MEAN	STANDARD DEVIATION	RANGE	
33.21 (0.04)	1.62 (0.03)	28.05 - 39.06	IN.
84.36 (0.10)	4.12 (0.07)	71.25 - 99.15	CM
COEFFICIENT OF VARIATION = 4.88 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
29.68	1 ST	75.39
30.07	2 ND	76.38
30.32	3 RD	77.00
30.65	5 TH	77.84
31.16	10 TH	79.15
31.52	15 TH	80.06
31.81	20 TH	80.79
32.06	25 TH	81.44
32.30	30 TH	82.04
32.52	35 TH	82.60
32.73	40 TH	83.14
32.94	45 TH	83.67
33.15	50 TH	84.20
33.36	55 TH	84.74
33.58	60 TH	85.29
33.81	65 TH	85.87
34.05	70 TH	86.49
34.31	75 TH	87.16
34.61	80 TH	87.91
34.95	85 TH	88.78
35.38	90 TH	89.87
35.99	95 TH	91.42
36.36	97 TH	92.36
36.62	98 TH	93.02
36.98	99 TH	93.94

PATELLA HEIGHT (11)

MEAN STANDARD DEVIATION RANGE
 20.98 (0.03) 1.05 (0.02) 18.01 - 24.69 IN
 53.28 (0.07) 2.66 (0.05) 45.75 - 62.65 CM
 COEFFICIENT OF VARIATION = 5.00 PERCENT

INCHES	PERCENTILES	CENTIMETERS
18.69	1 ST	47.49
18.91	2 ND	48.04
19.06	3 RD	48.41
19.27	5 TH	48.96
19.62	10 TH	49.84
19.87	15 TH	50.47
20.07	20 TH	50.97
20.24	25 TH	51.42
20.40	30 TH	51.82
20.55	35 TH	52.19
20.69	40 TH	52.55
20.82	45 TH	52.89
20.96	50 TH	53.24
21.10	55 TH	53.58
21.23	60 TH	53.93
21.37	65 TH	54.29
21.52	70 TH	54.67
21.69	75 TH	55.09
21.87	80 TH	55.55
22.08	85 TH	56.08
22.35	90 TH	56.76
22.75	95 TH	57.78
23.01	97 TH	58.44
23.20	98 TH	58.93
23.51	99 TH	59.72

SITTING HEIGHT (12)

MEAN	STANDARD DEVIATION	RANGE	
36.28 (0.03)	1.25 (0.02)	32.19 - 41.62	IN
92.14 (0.08)	3.16 (0.06)	81.75 - 105.65	CM
COEFFICIENT OF VARIATION =		3.43 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
33.46	1 ST	85.00
33.76	2 ND	85.75
33.96	3 RD	86.26
34.24	5 TH	86.96
34.68	10 TH	88.09
34.98	15 TH	88.86
35.23	20 TH	89.47
35.43	25 TH	90.00
35.62	30 TH	90.48
35.79	35 TH	90.92
35.96	40 TH	91.33
36.11	45 TH	91.73
36.27	50 TH	92.13
36.43	55 TH	92.52
36.58	60 TH	92.92
36.75	65 TH	93.33
36.92	70 TH	93.77
37.10	75 TH	94.24
37.31	80 TH	94.77
37.56	85 TH	95.39
37.87	90 TH	96.19
38.36	95 TH	97.43
38.69	97 TH	98.27
38.95	98 TH	98.92
39.37	99 TH	100.00

EYE HEIGHT SITTING (13)

MEAN	STANDARD DEVIATION	RANGE	
31.57 (0.03)	1.18 (0.02)	28.05 - 35.72	IN
80.18 (0.08)	3.01 (0.05)	71.25 - 90.65	CM
COEFFICIENT OF VARIATION =		3.75 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
28.81	1 ST	73.18
29.19	2 ND	74.14
29.41	3 RD	74.70
29.70	5 TH	75.43
30.11	10 TH	76.48
30.38	15 TH	77.17
30.59	20 TH	77.70
30.77	25 TH	78.16
30.94	30 TH	78.58
31.09	35 TH	78.96
31.23	40 TH	79.34
31.38	45 TH	79.70
31.52	50 TH	80.07
31.67	55 TH	80.44
31.82	60 TH	80.82
31.98	65 TH	81.22
32.15	70 TH	81.65
32.33	75 TH	82.13
32.55	80 TH	82.67
32.80	85 TH	83.31
33.12	90 TH	84.14
33.61	95 TH	85.38
33.93	97 TH	86.19
34.16	98 TH	86.78
34.52	99 TH	87.68

SHOULDER HEIGHT SITTING (14)

MEAN	STANDARD DEVIATION	RANGE	
23.79 (0.03)	1.06 (0.02)	20.02 - 27.49	IN
60.44 (0.07)	2.70 (0.05)	50.85 - 69.75	CM
COEFFICIENT OF VARIATION =		4.47 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
21.48	1 ST	54.55
21.67	2 ND	55.03
21.81	3 RD	55.40
22.03	5 TH	55.95
22.40	10 TH	56.89
22.66	15 TH	57.56
22.88	20 TH	58.11
23.06	25 TH	58.58
23.23	30 TH	59.00
23.38	35 TH	59.39
23.53	40 TH	59.76
23.67	45 TH	60.11
23.80	50 TH	60.46
23.94	55 TH	60.80
24.07	60 TH	61.15
24.21	65 TH	61.50
24.36	70 TH	61.87
24.51	75 TH	62.26
24.69	80 TH	62.70
24.89	85 TH	63.21
25.14	90 TH	63.86
25.54	95 TH	64.87
25.81	97 TH	65.56
26.02	98 TH	66.10
26.39	99 TH	67.03

ELBOW REST HEIGHT (15)

MEAN	STANDARD DEVIATION	RANGE	
9.25 (0.03)	0.99 (0.02)	5.96 - 13.04	IN
23.50 (0.06)	2.52 (0.05)	15.15 - 33.05	CM
COEFFICIENT OF VARIATION = 10.71 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
7.03	1 ST	17.85
7.26	2 ND	18.44
7.42	3 RD	18.84
7.64	5 TH	19.40
7.99	10 TH	20.29
8.23	15 TH	20.91
8.42	20 TH	21.40
8.59	25 TH	21.82
8.74	30 TH	22.19
8.87	35 TH	22.54
9.00	40 TH	22.87
9.13	45 TH	23.18
9.25	50 TH	23.49
9.37	55 TH	23.80
9.49	60 TH	24.12
9.62	65 TH	24.44
9.76	70 TH	24.78
9.90	75 TH	25.15
10.07	80 TH	25.57
10.26	85 TH	26.06
10.51	90 TH	26.69
10.90	95 TH	27.68
11.17	97 TH	28.36
11.37	98 TH	28.89
11.73	99 TH	29.79

KNEE HEIGHT SITTING (16)

MEAN	STANDARD DEVIATION	RANGE	
21.84 (0.02)	0.98 (0.02)	19.00 - 25.13	IN
55.48 (0.06)	2.48 (0.04)	48.25 - 63.75	CM
COEFFICIENT OF VARIATION = 4.47 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
19.71	1 ST	50.06
19.93	2 ND	50.61
20.07	3 RD	50.97
20.27	5 TH	51.48
20.59	10 TH	52.29
20.81	15 TH	52.86
20.99	20 TH	53.33
21.15	25 TH	53.73
21.30	30 TH	54.10
21.44	35 TH	54.45
21.57	40 TH	54.78
21.69	45 TH	55.10
21.82	50 TH	55.42
21.95	55 TH	55.75
22.08	60 TH	56.07
22.21	65 TH	56.42
22.35	70 TH	56.78
22.51	75 TH	57.17
22.68	80 TH	57.61
22.88	85 TH	58.12
23.14	90 TH	58.76
23.50	95 TH	59.70
23.74	97 TH	60.29
23.91	98 TH	60.72
24.16	99 TH	61.37

POPLITEAL HEIGHT SITTING(17)

MEAN	STANDARD DEVIATION	RANGE	
17.31 (0.02)	0.86 (0.02)	14.59 - 20.09	IN
43.98 (0.06)	2.18 (0.04)	37.05 - 50.95	CM
COEFFICIENT OF VARIATION = 4.96 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
15.36	1 ST	39.03
15.60	2 ND	39.62
15.74	3 RD	39.98
15.93	5 TH	40.46
16.22	10 TH	41.19
16.41	15 TH	41.69
16.57	20 TH	42.09
16.71	25 TH	42.44
16.83	30 TH	42.76
16.95	35 TH	43.06
17.07	40 TH	43.35
17.18	45 TH	43.63
17.29	50 TH	43.92
17.40	55 TH	44.20
17.52	60 TH	44.50
17.64	65 TH	44.80
17.77	70 TH	45.13
17.91	75 TH	45.48
18.06	80 TH	45.88
18.24	85 TH	46.33
18.46	90 TH	46.90
18.78	95 TH	47.70
18.97	97 TH	48.17
19.09	98 TH	48.50
19.27	99 TH	48.94

BUTTOCK-POPLITEAL LENGTH (18)

MEAN	STANDARD DEVIATION	RANGE	
19.79 (0.03)	0.99 (0.02)	15.96 - 23.24	IN
50.26 (0.06)	2.52 (0.05)	40.55 - 58.95	CM
COEFFICIENT OF VARIATION = 5.01 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
17.54	1 ST	44.55
17.81	2 ND	45.23
17.97	3 RD	45.65
18.19	5 TH	46.21
18.53	10 TH	47.08
18.76	15 TH	47.66
18.95	20 TH	48.13
19.11	25 TH	48.53
19.25	30 TH	48.89
19.38	35 TH	49.23
19.51	40 TH	49.56
19.63	45 TH	49.87
19.76	50 TH	50.19
19.88	55 TH	50.50
20.01	60 TH	50.83
20.14	65 TH	51.16
20.28	70 TH	51.52
20.44	75 TH	51.91
20.61	80 TH	52.35
20.81	85 TH	52.86
21.07	90 TH	53.51
21.45	95 TH	54.48
21.69	97 TH	55.10
21.87	98 TH	55.56
22.15	99 TH	56.26

BUTTOCK-KNEE LENGTH (19)

MEAN STANDARD DEVIATION RANGE
 24.09 (0.03) 1.00 (0.02) 20.73 - 27.81 IN
 61.20 (0.76) 2.54 (0.05) 52.65 - 70.55 CM
 COEFFICIENT OF VARIATION = 4.15 PERCENT

INCHES	PERCENTILES	CENTIMETERS
21.78	1 ST	55.32
22.08	2 ND	56.09
22.26	3 RD	56.55
22.50	5 TH	57.15
22.85	10 TH	58.03
23.08	15 TH	58.61
23.26	20 TH	59.07
23.41	25 TH	59.47
23.55	30 TH	59.82
23.68	35 TH	60.16
23.81	40 TH	60.48
23.93	45 TH	60.79
24.06	50 TH	61.10
24.18	55 TH	61.42
24.31	60 TH	61.75
24.44	65 TH	62.09
24.59	70 TH	62.45
24.75	75 TH	62.85
24.92	80 TH	63.31
25.13	85 TH	63.84
25.40	90 TH	64.52
25.80	95 TH	65.53
26.06	97 TH	66.18
26.24	98 TH	66.65
26.52	99 TH	67.37

SHOULDER-ELBOW LENGTH (20)

MEAN	STANDARD DEVIATION	RANGE	
14.49 (0.02)	0.67 (0.01)	12.15 - 17.02	IN
36.81 (0.04)	1.70 (0.03)	30.85 - 43.15	CM
COEFFICIENT OF VARIATION =		4.61 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
12.97	1 ST	32.95
13.15	2 ND	33.39
13.26	3 RD	33.68
13.41	5 TH	34.07
13.65	10 TH	34.67
13.81	15 TH	35.07
13.94	20 TH	35.40
14.05	25 TH	35.67
14.14	30 TH	35.92
14.23	35 TH	36.15
14.32	40 TH	36.37
14.40	45 TH	36.58
14.49	50 TH	36.79
14.57	55 TH	37.01
14.65	60 TH	37.22
14.74	65 TH	37.44
14.83	70 TH	37.67
14.93	75 TH	37.93
15.05	80 TH	38.22
15.18	85 TH	38.55
15.35	90 TH	38.98
15.61	95 TH	39.64
15.78	97 TH	40.08
15.91	98 TH	40.41
16.12	99 TH	40.94

FOREARM-HAND LENGTH (21)

MEAN STANDARD DEVIATION RANGE
 19.08 (0.02) 0.75 (0.01) 16.52 - 22.02 IN
 48.46 (0.05) 1.90 (0.03) 41.95 - 55.85 CM
 COEFFICIENT OF VARIATION = 3.92 PERCENT

INCHES	PERCENTILES	CENTIMETERS
17.49	1 ST	44.43
17.65	2 ND	44.83
17.75	3 RD	45.09
17.90	5 TH	45.45
18.13	10 TH	46.05
18.29	15 TH	46.46
18.43	20 TH	46.81
18.55	25 TH	47.11
18.66	30 TH	47.39
18.76	35 TH	47.65
18.86	40 TH	47.90
18.96	45 TH	48.15
19.05	50 TH	48.39
19.15	55 TH	48.64
19.25	60 TH	48.90
19.36	65 TH	49.16
19.47	70 TH	49.44
19.59	75 TH	49.75
19.72	80 TH	50.09
19.88	85 TH	50.49
20.07	90 TH	50.98
20.35	95 TH	51.68
20.52	97 TH	52.12
20.64	98 TH	52.42
20.81	99 TH	52.87

FUNCTIONAL REACH (22)

MEAN	STANDARD DEVIATION	RANGE	
31.51 (0.74)	1.42 (0.03)	27.26 - 36.31	IN
80.03 (0.09)	3.61 (0.06)	69.25 - 92.15	CM
COEFFICIENT OF VARIATION =		4.51 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
28.56	1 ST	72.54
28.87	2 ND	73.34
29.07	3 RD	73.84
29.33	5 TH	74.51
29.75	10 TH	75.55
30.03	15 TH	76.29
30.27	20 TH	76.89
30.48	25 TH	77.43
30.68	30 TH	77.92
30.86	35 TH	78.39
31.04	40 TH	78.85
31.22	45 TH	79.30
31.40	50 TH	79.76
31.59	55 TH	80.23
31.78	60 TH	80.72
31.98	65 TH	81.23
32.20	70 TH	81.78
32.44	75 TH	82.39
32.71	80 TH	83.08
33.03	85 TH	83.89
33.44	90 TH	84.93
34.04	95 TH	86.46
34.42	97 TH	87.44
34.70	98 TH	88.13
35.11	99 TH	89.17

BIDELTOID DIAMETER (23)

MEAN	STANDARD DEVIATION	RANGE	
18.78 (0.02)	0.91 (0.02)	14.82 - 21.70	IN
47.70 (0.06)	2.30 (0.04)	37.65 - 55.05	CM
COEFFICIENT OF VARIATION =		4.83 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
16.59	1 ST	42.13
16.87	2 ND	42.86
17.05	3 RD	43.30
17.28	5 TH	43.89
17.63	10 TH	44.77
17.86	15 TH	45.35
18.03	20 TH	45.80
18.18	25 TH	46.19
18.32	30 TH	46.53
18.44	35 TH	46.84
18.56	40 TH	47.14
18.67	45 TH	47.42
18.78	50 TH	47.71
18.89	55 TH	47.99
19.01	60 TH	48.28
19.12	65 TH	48.57
19.25	70 TH	48.88
19.38	75 TH	49.22
19.53	80 TH	49.60
19.70	85 TH	50.05
19.93	90 TH	50.61
20.26	95 TH	51.46
20.48	97 TH	52.02
20.64	98 TH	52.43
20.90	99 TH	53.09

CHEST BREADTH (24)

MEAN	STANDARD DEVIATION	RANGE	
12.88 (0.02)	0.81 (0.01)	10.26 - 16.23	IN
32.72 (0.05)	2.07 (0.04)	26.05 - 41.15	CM
COEFFICIENT OF VARIATION =		6.32 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
11.17	1 ST	28.36
11.35	2 ND	28.82
11.46	3 RD	29.12
11.62	5 TH	29.53
11.88	10 TH	30.17
12.05	15 TH	30.61
12.19	20 TH	30.97
12.32	25 TH	31.29
12.43	30 TH	31.58
12.54	35 TH	31.85
12.64	40 TH	32.11
12.74	45 TH	32.36
12.84	50 TH	32.62
12.94	55 TH	32.88
13.05	60 TH	33.14
13.16	65 TH	33.42
13.28	70 TH	33.72
13.40	75 TH	34.05
13.55	80 TH	34.42
13.72	85 TH	34.86
13.95	90 TH	35.43
14.29	95 TH	36.29
14.51	97 TH	36.86
14.68	98 TH	37.29
14.95	99 TH	37.97

WAIST BREADTH (25)

MEAN	STANDARD DEVIATION	RANGE	
11.97 (0.02)	0.84 (0.02)	8.88 - 15.01	IN
30.39 (0.05)	2.12 (0.04)	22.55 - 38.05	CM
COEFFICIENT OF VARIATION =		6.98 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
9.99	1 ST	25.38
10.24	2 ND	26.00
10.39	3 RD	26.39
10.60	5 TH	26.92
10.91	10 TH	27.72
11.12	15 TH	28.25
11.29	20 TH	28.66
11.42	25 TH	29.02
11.55	30 TH	29.33
11.66	35 TH	29.62
11.77	40 TH	29.89
11.87	45 TH	30.15
11.97	50 TH	30.41
12.07	55 TH	30.66
12.17	60 TH	30.92
12.28	65 TH	31.19
12.39	70 TH	31.47
12.51	75 TH	31.78
12.65	80 TH	32.13
12.81	85 TH	32.54
13.02	90 TH	33.06
13.34	95 TH	33.88
13.56	97 TH	34.45
13.73	98 TH	34.88
14.02	99 TH	35.60

HIP BREADTH (26)

MEAN	STANDARD DEVIATION	RANGE	
13.78 (0.02)	0.70 (0.01)	11.28 - 16.31	IN
34.99 (0.05)	1.78 (0.03)	28.65 - 41.35	CM
COEFFICIENT OF VARIATION = 5.10 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
12.13	1 ST	30.81
12.31	2 ND	31.27
12.43	3 RD	31.57
12.59	5 TH	31.99
12.85	10 TH	32.65
13.03	15 TH	33.10
13.17	20 TH	33.46
13.30	25 TH	33.77
13.40	30 TH	34.05
13.51	35 TH	34.30
13.60	40 TH	34.55
13.69	45 TH	34.78
13.78	50 TH	35.01
13.87	55 TH	35.24
13.96	60 TH	35.47
14.06	65 TH	35.70
14.15	70 TH	35.95
14.26	75 TH	36.22
14.37	80 TH	36.51
14.51	85 TH	36.85
14.67	90 TH	37.27
14.92	95 TH	37.89
15.07	97 TH	38.29
15.19	98 TH	38.58
15.37	99 TH	39.03

CHEST DEPTH (27)

MEAN STANDARD DEVIATION RANGE
 9.39 (0.02) 0.71 (0.01) 7.42 - 11.90 IN
 23.85 (0.05) 1.79 (0.03) 18.85 - 30.15 CM
 COEFFICIENT OF VARIATION = 7.53 PERCENT

INCHES	PERCENTILES	CENTIMETERS
7.82	1 ST	19.85
7.99	2 ND	20.28
8.10	3 RD	20.56
8.25	5 TH	20.95
8.49	10 TH	21.56
8.65	15 TH	21.98
8.79	20 TH	22.32
8.90	25 TH	22.61
9.01	30 TH	22.87
9.10	35 TH	23.12
9.19	40 TH	23.35
9.28	45 TH	23.58
9.37	50 TH	23.81
9.46	55 TH	24.04
9.55	60 TH	24.27
9.65	65 TH	24.51
9.75	70 TH	24.76
9.86	75 TH	25.04
9.98	80 TH	25.35
10.12	85 TH	25.71
10.30	90 TH	26.17
10.57	95 TH	26.86
10.75	97 TH	27.31
10.88	98 TH	27.65
11.09	99 TH	28.18

WAIST DEPTH (28)

MEAN	STANDARD DEVIATION	RANGE	
8.55 (0.02)	0.76 (0.01)	6.08 - 11.58	IN
21.72 (0.05)	1.92 (0.03)	15.45 - 29.35	CM
COEFFICIENT OF VARIATION =		8.86 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
6.86	1 ST	17.43
7.03	2 ND	17.85
7.14	3 RD	18.15
7.31	5 TH	18.57
7.58	10 TH	19.26
7.77	15 TH	19.73
7.92	20 TH	20.11
8.04	25 TH	20.43
8.16	30 TH	20.72
8.26	35 TH	20.98
8.36	40 TH	21.23
8.45	45 TH	21.47
8.54	50 TH	21.70
8.64	55 TH	21.94
8.73	60 TH	22.17
8.82	65 TH	22.41
8.92	70 TH	22.67
9.03	75 TH	22.94
9.16	80 TH	23.26
9.30	85 TH	23.63
9.49	90 TH	24.11
9.80	95 TH	24.89
10.02	97 TH	25.45
10.20	98 TH	25.90
10.51	99 TH	26.69

BUTTOCK DEPTH (29)

MEAN	STANDARD DEVIATION	RANGE	
9.50 (0.02)	0.74 (0.01)	7.26 - 12.29	IN
24.13 (0.05)	1.87 (0.03)	18.45 - 31.15	CM
COEFFICIENT OF VARIATION =		7.74 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
7.81	1 ST	19.85
8.01	2 ND	20.35
8.14	3 RD	20.67
8.31	5 TH	21.11
8.57	10 TH	21.77
8.74	15 TH	22.21
8.88	20 TH	22.56
9.00	25 TH	22.86
9.11	30 TH /	23.14
9.21	35 TH	23.39
9.30	40 TH	23.63
9.39	45 TH	23.86
9.48	50 TH	24.09
9.58	55 TH	24.32
9.67	60 TH	24.56
9.77	65 TH	24.80
9.87	70 TH	25.07
9.98	75 TH	25.35
10.11	80 TH	25.67
10.26	85 TH	26.05
10.45	90 TH	26.54
10.74	95 TH	27.28
10.94	97 TH	27.78
11.08	98 TH	28.15
11.32	99 TH	28.76

HIP BREADTH-SITTING (30)

MEAN	STANDARD DEVIATION	RANGE	
14.49 (0.02)	0.85 (0.02)	11.95 - 17.92	IN
36.80 (0.06)	2.17 (0.04)	30.35 - 45.45	CM
COEFFICIENT OF VARIATION = 5.90 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
12.69	1 ST	32.23
12.83	2 ND	32.59
12.94	3 RD	32.86
13.10	5 TH	33.28
13.38	10 TH	33.99
13.58	15 TH	34.50
13.75	20 TH	34.92
13.89	25 TH	35.29
14.02	30 TH	35.62
14.14	35 TH	35.92
14.26	40 TH	36.21
14.37	45 TH	36.49
14.48	50 TH	36.77
14.59	55 TH	37.05
14.69	60 TH	37.33
14.81	65 TH	37.61
14.93	70 TH	37.91
15.05	75 TH	38.24
15.20	80 TH	38.60
15.37	85 TH	39.03
15.58	90 TH	39.57
15.91	95 TH	40.41
16.13	97 TH	40.98
16.31	98 TH	41.43
16.60	99 TH	42.18

NECK CIRCUMFERENCE (31)

MEAN	STANDARD DEVIATION	RANGE	
15.14 (0.02)	0.72 (0.01)	13.09 - 17.81	IN
38.46 (0.05)	1.84 (0.03)	33.25 - 45.15	CM
COEFFICIENT OF VARIATION =		4.78 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
13.52	1 ST	34.34
13.69	2 ND	34.78
13.81	3 RD	35.07
13.97	5 TH	35.48
14.22	10 TH	36.12
14.39	15 TH	36.56
14.53	20 TH	36.91
14.65	25 TH	37.21
14.76	30 TH /	37.48
14.86	35 TH	37.73
14.95	40 TH	37.97
15.04	45 TH	38.20
15.13	50 TH	38.43
15.22	55 TH	38.65
15.31	60 TH	38.88
15.40	65 TH	39.12
15.50	70 TH	39.37
15.61	75 TH	39.65
15.73	80 TH	39.96
15.88	85 TH	40.33
16.06	90 TH	40.80
16.36	95 TH	41.55
16.56	97 TH	42.06
16.72	98 TH	42.46
16.98	99 TH	43.13

SHOULDER CIRCUMFERENCE (32)

MEAN	STANDARD DEVIATION	RANGE	
45.76 (0.05)	2.14 (0.04)	38.09 - 54.62	IN
116.23 (0.14)	5.44 (0.10)	96.75 - 138.65	CM
COEFFICIENT OF VARIATION = 4.68 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
41.00	1 ST	104.14
41.51	2 ND	105.43
41.84	3 RD	106.28
42.31	5 TH	107.46
43.04	10 TH	109.32
43.55	15 TH	110.61
43.95	20 TH	111.64
44.31	25 TH	112.54
44.62	30 TH	113.34
44.92	35 TH	114.09
45.20	40 TH	114.80
45.47	45 TH	115.49
45.74	50 TH	116.17
46.01	55 TH	116.85
46.28	60 TH	117.55
46.56	65 TH	118.27
46.86	70 TH	119.03
47.19	75 TH	119.86
47.55	80 TH	120.79
47.98	85 TH	121.88
48.53	90 TH	123.27
49.36	95 TH	125.38
49.92	97 TH	126.79
50.33	98 TH	127.85
51.01	99 TH	129.57

CHEST CIRCUMFERENCE (33)

MEAN	STANDARD DEVIATION	RANGE	
38.92 (0.06)	2.27 (0.04)	30.81 - 47.92	IN
98.85 (0.15)	5.78 (0.10)	78.25 - 121.65	CM
COEFFICIENT OF VARIATION =		5.85 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
33.71	1 ST	85.64
34.30	2 ND	87.11
34.68	3 RD	88.09
35.21	5 TH	89.44
36.04	10 TH	91.55
36.60	15 TH	92.97
37.04	20 TH	94.08
37.42	25 TH	95.04
37.75	30 TH	95.88
38.05	35 TH	96.65
38.34	40 TH	97.38
38.61	45 TH	98.08
38.88	50 TH	98.77
39.16	55 TH	99.45
39.43	60 TH	100.15
39.71	65 TH	100.87
40.01	70 TH	101.63
40.34	75 TH	102.47
40.72	80 TH	103.42
41.16	85 TH	104.55
41.76	90 TH	106.06
42.72	95 TH	108.51
43.42	97 TH	110.29
43.98	98 TH	111.71
44.96	99 TH	114.19

WAIST CIRCUMFERENCE (34)

MEAN	STANDARD DEVIATION	RANGE	
33.61 (0.07)	2.58 (0.05)	23.33 - 43.99	IN
85.36 (0.17)	6.57 (0.12)	59.25 - 111.65	CM
COEFFICIENT OF VARIATION =		7.69 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
27.63	1 ST	70.18
28.29	2 ND	71.86
28.73	3 RD	72.97
29.34	5 TH	74.52
30.30	10 TH	76.96
30.95	15 TH	78.61
31.46	20 TH	79.91
31.90	25 TH	81.02
32.29	30 TH	82.01
32.64	35 TH	82.91
32.98	40 TH	83.76
33.30	45 TH	84.58
33.61	50 TH	85.38
33.93	55 TH	86.18
34.24	60 TH	86.98
34.57	65 TH	87.81
34.91	70 TH	88.68
35.29	75 TH	89.63
35.71	80 TH	90.69
36.20	85 TH	91.94
36.84	90 TH	93.58
37.85	95 TH	96.14
38.56	97 TH	97.94
39.12	98 TH	99.36
40.07	99 TH	101.78

BUTTOCK CIRCUMFERENCE (35)

MEAN	STANDARD DEVIATION	RANGE	
38.60 (0.75)	2.00 (0.04)	32.19 - 45.95	IN
98.03 (0.13)	5.07 (0.09)	81.75 - 116.65	CM
COEFFICIENT OF VARIATION =		5.17 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
33.98	1 ST	86.32
34.44	2 ND	87.48
34.77	3 RD	88.30
35.23	5 TH	89.49
35.99	10 TH	91.42
36.51	15 TH	92.74
36.93	20 TH	93.79
37.28	25 TH	94.69
37.59	30 TH	95.49
37.88	35 TH	96.21
38.15	40 TH	96.89
38.40	45 TH	97.53
38.65	50 TH	98.16
38.89	55 TH	98.78
39.13	60 TH	99.40
39.38	65 TH	100.04
39.64	70 TH	100.69
39.92	75 TH	101.40
40.23	80 TH	102.19
40.60	85 TH	103.11
41.07	90 TH	104.31
41.80	95 TH	106.18
42.33	97 TH	107.52
42.75	98 TH	108.59
43.49	99 TH	110.45

BUTTOCK CIRCUMFERENCE-SITTING (36)

MEAN	STANDARD DEVIATION	RANGE	
41.90 (0.06)	2.29 (0.04)	35.33 - 51.86	IN
106.44 (0.15)	5.83 (0.10)	89.75 - 131.65	CM
COEFFICIENT OF VARIATION =		5.47 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
36.68	1 ST	93.17
37.27	2 ND	94.66
37.65	3 RD	95.62
38.17	5 TH	96.95
38.98	10 TH	99.02
39.54	15 TH	100.43
39.97	20 TH	101.54
40.35	25 TH	102.50
40.69	30 TH	103.35
41.00	35 TH	104.15
41.30	40 TH	104.90
41.58	45 TH	105.62
41.87	50 TH	106.34
42.15	55 TH	107.07
42.44	60 TH	107.80
42.74	65 TH	108.56
43.06	70 TH	109.36
43.40	75 TH	110.24
43.79	80 TH	111.23
44.25	85 TH	112.40
44.85	90 TH	113.92
45.77	95 TH	116.27
46.41	97 TH	117.88
46.90	98 TH	119.12
47.71	99 TH	121.18

THIGH CIRCUMFERENCE (37)

MEAN	STANDARD DEVIATION	RANGE	
22.63 (0.04)	1.58 (0.03)	17.22 - 28.24	IN
57.47 (0.10)	4.02 (0.07)	43.75 - 71.65	CM
COEFFICIENT OF VARIATION =		6.99 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
18.82	1 ST	47.79
19.28	2 ND	48.97
19.58	3 RD	49.72
19.98	5 TH	50.74
20.59	10 TH	52.30
21.00	15 TH	53.33
21.31	20 TH	54.14
21.59	25 TH	54.83
21.83	30 TH	55.44
22.04	35 TH	55.99
22.25	40 TH	56.52
22.45	45 TH	57.02
22.64	50 TH	57.51
22.84	55 TH	58.01
23.03	60 TH	58.50
23.23	65 TH	59.01
23.44	70 TH	59.55
23.67	75 TH	60.13
23.93	80 TH	60.79
24.23	85 TH	61.55
24.62	90 TH	62.54
25.22	95 TH	64.07
25.63	97 TH	65.11
25.95	98 TH	65.92
26.48	99 TH	67.26

LOWER THIGH CIRCUMFERENCE (38)

MEAN	STANDARD DEVIATION	RANGE	
15.97 (0.03)	1.17 (0.02)	12.30 - 20.56	IN
40.57 (0.08)	2.97 (0.05)	31.25 - 52.15	CM
COEFFICIENT OF VARIATION = 7.32 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
13.45	1 ST	34.16
13.71	2 ND	34.83
13.88	3 RD	35.26
14.12	5 TH	35.87
14.50	10 TH	36.83
14.76	15 TH	37.50
14.98	20 TH	38.04
15.16	25 TH	38.51
15.33	30 TH	38.94
15.49	35 TH	39.34
15.64	40 TH	39.72
15.79	45 TH	40.09
15.93	50 TH	40.47
16.08	55 TH	40.84
16.23	60 TH	41.23
16.39	65 TH	41.63
16.56	70 TH	42.05
16.74	75 TH	42.51
16.94	80 TH	43.04
17.18	85 TH	43.65
17.49	90 TH	44.43
17.95	95 TH	45.59
18.25	97 TH	46.36
18.47	98 TH	46.92
18.83	99 TH	47.82

CALF CIRCUMFERENCE (39)

MEAN	STANDARD DEVIATION	RANGE	
14.76 (0.02)	0.87 (0.02)	11.20 - 17.88	IN
37.49 (0.06)	2.20 (0.04)	28.45 - 45.35	CM
COEFFICIENT OF VARIATION = 5.88 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
12.75	1 ST	32.39
13.02	2 ND	33.06
13.17	3 RD	33.46
13.38	5 TH	33.99
13.69	10 TH	34.78
13.90	15 TH	35.29
14.05	20 TH	35.70
14.19	25 TH	36.05
14.31	30 TH	36.36
14.43	35 TH	36.65
14.54	40 TH	36.92
14.64	45 TH	37.19
14.75	50 TH	37.46
14.86	55 TH	37.73
14.96	60 TH	38.01
15.08	65 TH	38.30
15.20	70 TH	38.61
15.34	75 TH	38.95
15.49	80 TH	39.34
15.67	85 TH	39.80
15.90	90 TH	40.39
16.26	95 TH	41.29
16.49	97 TH	41.89
16.67	98 TH	42.34
16.95	99 TH	43.05

ANKLE CIRCUMFERENCE (40)

MEAN	STANDARD DEVIATION	RANGE	
8.89 (0.01)	0.49 (0.01)	7.15 - 10.80	IN
22.58 (0.03)	1.25 (0.02)	18.15 - 27.35	CM
COEFFICIENT OF VARIATION = 5.53 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
7.78	1 ST	19.75
7.92	2 ND	20.11
8.00	3 RD	20.33
8.11	5 TH	20.61
8.28	10 TH	21.03
8.39	15 TH	21.31
8.48	20 TH	21.53
8.55	25 TH	21.72
8.62	30 TH	21.90
8.68	35 TH	22.06
8.75	40 TH	22.22
8.81	45 TH	22.37
8.87	50 TH	22.52
8.93	55 TH	22.68
8.99	60 TH	22.84
9.06	65 TH	23.01
9.13	70 TH	23.19
9.21	75 TH	23.39
9.30	80 TH	23.62
9.40	85 TH	23.88
9.54	90 TH	24.23
9.74	95 TH	24.75
9.88	97 TH	25.09
9.98	98 TH	25.34
10.13	99 TH	25.72

SCYE CIRCUMFERENCE (41)

MEAN	STANDARD DEVIATION	RANGE	
17.69 (0.03)	1.05 (0.02)	13.48 - 23.32	IN
44.93 (0.07)	2.67 (0.05)	34.25 - 59.15	CM
COEFFICIENT OF VARIATION =		5.94 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
15.51	1 ST	39.41
15.73	2 ND	39.95
15.87	3 RD	40.31
16.07	5 TH	40.82
16.40	10 TH	41.64
16.62	15 TH	42.22
16.81	20 TH	42.69
16.97	25 TH	43.10
17.11	30 TH	43.47
17.25	35 TH	43.82
17.38	40 TH	44.15
17.51	45 TH	44.47
17.64	50 TH	44.80
17.77	55 TH	45.13
17.90	60 TH	45.47
18.04	65 TH	45.82
18.19	70 TH	46.20
18.35	75 TH	46.61
18.54	80 TH	47.09
18.76	85 TH	47.65
19.05	90 TH	48.39
19.50	95 TH	49.54
19.82	97 TH	50.34
20.06	98 TH	50.95
20.46	99 TH	51.97

AXILLARY ARM CIRCUMFERENCE (42)

MEAN	STANDARD DEVIATION	RANGE	
13.00 (0.02)	0.98 (0.02)	9.39 - 16.07	IN
33.02 (0.06)	2.48 (0.04)	23.85 - 40.75	CM
COEFFICIENT OF VARIATION =		7.51 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
10.72	1 ST	27.22
10.97	2 ND	27.88
11.14	3 RD	28.30
11.38	5 TH	28.90
11.74	10 TH	29.82
11.99	15 TH	30.45
12.18	20 TH	30.95
12.35	25 TH	31.37
12.50	30 TH	31.75
12.64	35 TH	32.10
12.77	40 TH	32.43
12.89	45 TH	32.75
13.02	50 TH	33.06
13.14	55 TH	33.37
13.26	60 TH	33.68
13.39	65 TH	34.00
13.52	70 TH	34.33
13.66	75 TH	34.70
13.82	80 TH	35.10
14.00	85 TH	35.57
14.24	90 TH	36.17
14.60	95 TH	37.08
14.84	97 TH	37.69
15.02	98 TH	38.16
15.32	99 TH	38.92

BICEPS CIRCUMFERENCE-FLEXED (43)

MEAN	STANDARD DEVIATION	RANGE	
12.97 (0.02)	0.95 (0.02)	10.02 - 15.84	IN
32.93 (0.06)	2.41 (0.04)	25.45 - 40.15	CM
COEFFICIENT OF VARIATION = 7.33 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
10.88	1 ST	27.63
11.06	2 ND	28.09
11.19	3 RD	28.43
11.39	5 TH	28.94
11.73	10 TH	29.79
11.96	15 TH	30.39
12.15	20 TH	30.87
12.32	25 TH	31.29
12.46	30 TH	31.66
12.60	35 TH	32.00
12.73	40 TH	32.33
12.85	45 TH	32.64
12.97	50 TH	32.94
13.09	55 TH	33.25
13.21	60 TH	33.55
13.33	65 TH	33.86
13.46	70 TH	34.19
13.60	75 TH	34.54
13.76	80 TH	34.94
13.94	85 TH	35.40
14.17	90 TH	36.00
14.54	95 TH	36.93
14.79	97 TH	37.58
15.00	98 TH	38.09
15.35	99 TH	38.98

LOWER ARM CIRCUMFERENCE-FLEXED (44)

MEAN	STANDARD DEVIATION	RANGE	
11.84 (0.02)	0.69 (0.01)	9.63 - 14.50	IN
30.06 (0.04)	1.76 (0.03)	24.45 - 36.75	CM
COEFFICIENT OF VARIATION =		5.85 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
10.33	1 ST	26.25
10.50	2 ND	26.66
10.60	3 RD	26.93
10.74	5 TH	27.29
10.97	10 TH	27.87
11.13	15 TH	28.26
11.25	20 TH	28.57
11.36	25 TH	28.85
11.46	30 TH	29.10
11.55	35 TH	29.33
11.64	40 TH	29.55
11.72	45 TH	29.77
11.81	50 TH	29.99
11.89	55 TH	30.21
11.98	60 TH	30.43
12.07	65 TH	30.66
12.17	70 TH	30.91
12.28	75 TH	31.19
12.40	80 TH	31.50
12.54	85 TH	31.86
12.73	90 TH	32.34
13.02	95 TH	33.07
13.21	97 TH	33.56
13.36	98 TH	33.94
13.60	99 TH	34.55

WRIST CIRCUMFERENCE (45)

MEAN	STANDARD DEVIATION	RANGE	
6.71 (0.01)	0.32 (0.01)	5.57 - 7.69	IN
17.04 (0.72)	0.80 (0.01)	14.15 - 19.45	CM
COEFFICIENT OF VARIATION =		4.72 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
5.98	1 ST	15.18
6.07	2 ND	15.42
6.13	3 RD	15.56
6.20	5 TH	15.75
6.31	10 TH	16.03
6.38	15 TH	16.22
6.44	20 TH	16.36
6.49	25 TH	16.49
6.54	30 TH	16.60
6.58	35 TH	16.71
6.62	40 TH	16.81
6.66	45 TH	16.91
6.70	50 TH	17.02
6.74	55 TH	17.12
6.78	60 TH	17.22
6.82	65 TH	17.33
6.87	70 TH	17.45
6.92	75 TH	17.57
6.98	80 TH	17.72
7.04	85 TH	17.89
7.13	90 TH	18.10
7.25	95 TH	18.43
7.34	97 TH	18.63
7.40	98 TH	18.79
7.49	99 TH	19.02

SLEEVE INSEAM (46)

MEAN	STANDARD DEVIATION	RANGE	
18.31 (0.02)	0.93 (0.02)	15.33 - 21.31	IN
46.52 (0.06)	2.37 (0.04)	38.95 - 54.05	CM
COEFFICIENT OF VARIATION =		5.09 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
16.24	1 ST	41.25
16.48	2 ND	41.86
16.63	3 RD	42.24
16.83	5 TH	42.75
17.14	10 TH	43.53
17.35	15 TH	44.07
17.52	20 TH	44.51
17.67	25 TH	44.89
17.81	30 TH	45.23
17.94	35 TH	45.56
18.06	40 TH	45.87
18.18	45 TH	46.17
18.30	50 TH	46.47
18.42	55 TH	46.78
18.54	60 TH	47.09
18.67	65 TH	47.42
18.81	70 TH	47.77
18.95	75 TH	48.14
19.12	80 TH	48.56
19.31	85 TH	49.05
19.55	90 TH	49.66
19.90	95 TH	50.54
20.11	97 TH	51.08
20.26	98 TH	51.46
20.48	99 TH	52.01

SLEEVE LENGTH (47)

MEAN	STANDARD DEVIATION	RANGE	
34.99 (0.03)	1.38 (0.02)	30.81 - 39.85	IN
88.86 (0.09)	3.50 (0.06)	78.25 - 101.15	CM
COEFFICIENT OF VARIATION =		3.94 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
31.96	1 ST	81.18
32.29	2 ND	82.01
32.50	3 RD	82.55
32.79	5 TH	83.28
33.24	10 TH	84.44
33.56	15 TH	85.24
33.81	20 TH	85.88
34.03	25 TH	86.44
34.23	30 TH	86.95
34.42	35 TH	87.43
34.60	40 TH	87.89
34.78	45 TH	88.33
34.95	50 TH	88.78
35.13	55 TH	89.23
35.31	60 TH	89.69
35.50	65 TH	90.17
35.70	70 TH	90.68
35.92	75 TH	91.24
36.17	80 TH	91.86
36.45	85 TH	92.59
36.82	90 TH	93.52
37.36	95 TH	94.90
37.72	97 TH	95.80
37.97	98 TH	96.45
38.37	99 TH	97.47

GLUTEAL ARC (48)

MEAN	STANDARD DEVIATION	RANGE	
10.91 (0.02)	0.78 (0.01)	8.68 - 13.71	IN
27.71 (0.05)	1.99 (0.04)	22.05 - 34.75	CM
COEFFICIENT OF VARIATION = 7.19 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
9.13	1 ST	23.19
9.33	2 ND	23.71
9.46	3 RD	24.03
9.64	5 TH	24.48
9.91	10 TH	25.16
10.09	15 TH	25.63
10.24	20 TH	26.01
10.37	25 TH	26.33
10.48	30 TH	26.63
10.59	35 TH	26.90
10.69	40 TH	27.16
10.79	45 TH	27.42
10.89	50 TH	27.67
10.99	55 TH	27.93
11.10	60 TH	28.19
11.20	65 TH	28.46
11.32	70 TH	28.74
11.44	75 TH	29.06
11.58	80 TH	29.41
11.74	85 TH	29.81
11.94	90 TH	30.32
12.23	95 TH	31.07
12.42	97 TH	31.55
12.56	98 TH	31.89
12.76	99 TH	32.42

VERTICAL TRUNK CIRCUMFERENCE (49)

MEAN STANDARD DEVIATION RANGE
 65.88 (0.07) 2.62 (0.05) 57.78 - 74.89 IN
 167.33 (0.17) 6.65 (0.12) 146.75 - 190.15 CM
 COEFFICIENT OF VARIATION = 3.98 PERCENT

INCHES	PERCENTILES	CENTIMETERS
60.03	1 ST	152.47
60.59	2 ND	153.91
60.98	3 RD	154.90
61.55	5 TH	156.33
62.47	10 TH	158.66
63.11	15 TH	160.29
63.62	20 TH	161.60
64.07	25 TH	162.73
64.47	30 TH	163.75
64.84	35 TH	164.69
65.19	40 TH	165.58
65.53	45 TH	166.43
65.86	50 TH	167.28
66.19	55 TH	168.13
66.53	60 TH	168.98
66.87	65 TH	169.86
67.24	70 TH	170.78
67.63	75 TH	171.78
68.07	80 TH	172.90
68.58	85 TH	174.20
69.24	90 TH	175.87
70.24	95 TH	178.42
70.92	97 TH	180.15
71.45	98 TH	181.48
72.32	99 TH	183.69

INTERSCYE (50)

MEAN	STANDARD DEVIATION	RANGE	
16.19 (0.03)	1.20 (0.02)	12.11 - 21.15	IN
41.13 (0.08)	3.04 (0.05)	30.75 - 53.65	CM
COEFFICIENT OF VARIATION =		7.38 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
13.54	1 ST	34.39
13.80	2 ND	35.05
13.97	3 RD	35.50
14.23	5 TH	36.14
14.64	10 TH	37.20
14.94	15 TH	37.94
15.17	20 TH	38.53
15.37	25 TH	39.04
15.55	30 TH	39.50
15.72	35 TH	39.93
15.88	40 TH	40.34
16.03	45 TH	40.73
16.19	50 TH	41.12
16.34	55 TH	41.50
16.49	60 TH	41.89
16.65	65 TH	42.29
16.82	70 TH	42.72
17.00	75 TH	43.17
17.20	80 TH	43.69
17.44	85 TH	44.29
17.74	90 TH	45.06
18.20	95 TH	46.23
18.52	97 TH	47.03
18.76	98 TH	47.64
19.16	99 TH	48.65

INTERSCYE MAXIMUM (51)

MEAN	STANDARD DEVIATION	RANGE	
21.38 (0.03)	1.36 (0.02)	17.03 - 27.65	IN
54.31 (0.09)	3.45 (0.06)	43.25 - 70.15	CM
COEFFICIENT OF VARIATION =		6.35 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
18.35	1 ST	46.60
18.65	2 ND	47.36
18.85	3 RD	47.87
19.14	5 TH	48.60
19.60	10 TH	49.80
19.93	15 TH	50.63
20.20	20 TH	51.31
20.43	25 TH	51.90
20.64	30 TH	52.43
20.84	35 TH	52.93
21.02	40 TH	53.40
21.20	45 TH	53.86
21.38	50 TH	54.31
21.56	55 TH	54.76
21.74	60 TH	55.21
21.92	65 TH	55.68
22.11	70 TH	56.17
22.32	75 TH	56.70
22.55	80 TH	57.28
22.81	85 TH	57.95
23.14	90 TH	58.77
23.61	95 TH	59.96
23.90	97 TH	60.71
24.11	98 TH	61.25
24.43	99 TH	62.06

FOOT LENGTH (52)

MEAN	STANDARD DEVIATION	RANGE	
10.48 (0.01)	0.47 (0.01)	9.04 - 12.02	IN
26.62 (0.03)	1.20 (0.02)	22.95 - 30.45	CM
COEFFICIENT OF VARIATION =		4.52 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
9.46	1 ST	24.02
9.57	2 ND	24.30
9.64	3 RD	24.48
9.73	5 TH	24.72
9.88	10 TH	25.10
9.99	15 TH	25.37
10.07	20 TH	25.59
10.15	25 TH	25.78
10.22	30 TH	25.95
10.28	35 TH	26.11
10.34	40 TH	26.27
10.40	45 TH	26.42
10.46	50 TH	26.58
10.52	55 TH	26.73
10.59	60 TH	26.89
10.65	65 TH	27.06
10.72	70 TH	27.23
10.80	75 TH	27.42
10.88	80 TH	27.64
10.98	85 TH	27.89
11.11	90 TH	28.21
11.29	95 TH	28.67
11.40	97 TH	28.97
11.49	98 TH	29.18
11.61	99 TH	29.49

FOOT BREADTH (53)

MEAN	STANDARD DEVIATION	RANGE	
4.03 (0.01)	0.30 (0.01)	3.33 - 5.13	IN
10.24 (0.02)	0.77 (0.01)	8.45 - 12.95	CM
COEFFICIENT OF VARIATION =		7.54 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
3.46	1 ST	8.78
3.50	2 ND	8.89
3.53	3 RD	8.97
3.58	5 TH	9.09
3.66	10 TH	9.29
3.72	15 TH	9.44
3.76	20 TH	9.56
3.81	25 TH	9.67
3.85	30 TH	9.78
3.89	35 TH	9.88
3.93	40 TH	9.97
3.96	45 TH	10.07
4.00	50 TH	10.17
4.04	55 TH	10.27
4.08	60 TH	10.37
4.13	65 TH	10.48
4.17	70 TH	10.60
4.22	75 TH	10.73
4.28	80 TH	10.87
4.35	85 TH	11.05
4.44	90 TH	11.28
4.58	95 TH	11.63
4.67	97 TH	11.86
4.74	98 TH	12.03
4.85	99 TH	12.31

HAND LENGTH (54)

MEAN	STANDARD DEVIATION	RANGE	
7.53 (0.01)	0.34 (0.01)	6.48 - 8.99	IN
19.12 (0.02)	0.86 (0.02)	16.45 - 22.75	CM
COEFFICIENT OF VARIATION =		4.50 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
6.81	1 ST	17.29
6.87	2 ND	17.45
6.92	3 RD	17.57
6.98	5 TH	17.74
7.09	10 TH	18.01
7.17	15 TH	18.21
7.23	20 TH	18.37
7.29	25 TH	18.52
7.34	30 TH	18.65
7.39	35 TH	18.77
7.43	40 TH	18.88
7.48	45 TH	18.99
7.52	50 TH	19.10
7.57	55 TH	19.22
7.61	60 TH	19.33
7.66	65 TH	19.44
7.70	70 TH	19.57
7.76	75 TH	19.70
7.81	80 TH	19.85
7.88	85 TH	20.02
7.97	90 TH	20.23
8.09	95 TH	20.55
8.17	97 TH	20.75
8.23	98 TH	20.90
8.32	99 TH	21.13

HAND BREADTH (55)

MEAN	STANDARD DEVIATION	RANGE	
3.53 (0.00)	0.17 (0.00)	2.97 - 4.06	IN
8.96 (0.01)	0.43 (0.01)	7.55 - 10.25	CM
COEFFICIENT OF VARIATION = 4.75 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
3.15	1 ST	8.00
3.19	2 ND	8.09
3.21	3 RD	8.16
3.25	5 TH	8.25
3.31	10 TH	8.41
3.35	15 TH	8.51
3.38	20 TH	8.59
3.41	25 TH	8.67
3.44	30 TH	8.73
3.46	35 TH	8.79
3.48	40 TH	8.85
3.51	45 TH	8.90
3.53	50 TH	8.96
3.55	55 TH	9.01
3.57	60 TH	9.07
3.59	65 TH	9.12
3.62	70 TH	9.18
3.64	75 TH	9.25
3.67	80 TH	9.32
3.70	85 TH	9.40
3.74	90 TH	9.50
3.80	95 TH	9.66
3.84	97 TH	9.76
3.87	98 TH	9.84
3.92	99 TH	9.96

HAND BREADTH AT THUMB (56)

MEAN	STANDARD DEVIATION	RANGE
4.20 (0.00)	0.19 (0.00)	3.45 - 4.85 IN
10.66 (0.01)	0.49 (0.01)	8.75 - 12.25 CM
COEFFICIENT OF VARIATION = 4.63 PERCENT		

INCHES	PERCENTILES	CENTIMETERS
3.74	1 ST	9.49
3.80	2 ND	9.64
3.83	3 RD	9.73
3.88	5 TH	9.85
3.95	10 TH	10.03
4.00	15 TH	10.15
4.03	20 TH	10.25
4.07	25 TH	10.33
4.09	30 TH	10.40
4.12	35 TH	10.46
4.15	40 TH	10.53
4.17	45 TH	10.59
4.19	50 TH	10.65
4.22	55 TH	10.71
4.24	60 TH	10.78
4.27	65 TH	10.84
4.30	70 TH	10.91
4.33	75 TH	10.99
4.36	80 TH	11.07
4.40	85 TH	11.17
4.45	90 TH	11.29
4.52	95 TH	11.47
4.56	97 TH	11.58
4.59	98 TH	11.66
4.64	99 TH	11.78

THICKNESS AT METACARPLE-III (57)

MEAN	STANDARD DEVIATION	RANGE	
1.22 (0.00)	0.08 (0.00)	0.85 -	1.58 IN
3.11 (0.01)	0.21 (0.00)	2.15 -	3.95 CM
COEFFICIENT OF VARIATION =		6.69 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
1.06	1 ST	2.68
1.07	2 ND	2.73
1.09	3 RD	2.76
1.10	5 TH	2.80
1.13	10 TH	2.86
1.14	15 TH	2.91
1.16	20 TH	2.94
1.17	25 TH	2.97
1.18	30 TH	3.00
1.19	35 TH	3.02
1.20	40 TH	3.04
1.21	45 TH	3.07
1.22	50 TH	3.09
1.23	55 TH	3.12
1.24	60 TH	3.14
1.25	65 TH	3.17
1.26	70 TH	3.20
1.27	75 TH	3.23
1.29	80 TH	3.27
1.30	85 TH	3.31
1.33	90 TH	3.38
1.37	95 TH	3.48
1.40	97 TH	3.55
1.42	98 TH	3.61
1.46	99 TH	3.71

HAND CIRCUMFERENCE (58)

MEAN	STANDARD DEVIATION	RANGE	
8.42 (0.01)	0.40 (0.01)	6.79 - 9.85	IN
21.38 (0.03)	1.00 (0.02)	17.25 - 24.95	CM
COEFFICIENT OF VARIATION =		4.69 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
7.48	1 ST	19.01
7.60	2 ND	19.30
7.67	3 RD	19.48
7.76	5 TH	19.72
7.91	10 TH	20.09
8.01	15 TH	20.34
8.09	20 TH	20.54
8.15	25 TH	20.71
8.21	30 TH	20.86
8.27	35 TH	21.00
8.32	40 TH	21.13
8.37	45 TH	21.26
8.42	50 TH	21.39
8.47	55 TH	21.51
8.52	60 TH	21.64
8.57	65 TH	21.77
8.62	70 TH	21.91
8.68	75 TH	22.05
8.75	80 TH	22.22
8.82	85 TH	22.41
8.92	90 TH	22.65
9.06	95 TH	23.01
9.15	97 TH	23.24
9.22	98 TH	23.41
9.32	99 TH	23.67

HAND CIRCUMFERENCE AT THUMB (59)

MEAN	STANDARD DEVIATION	RANGE	
10.03 (0.01)	0.44 (0.01)	8.68 - 11.51	IN
25.46 (0.03)	1.12 (0.02)	22.05 - 29.15	CM
COEFFICIENT OF VARIATION =		4.41 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
9.02	1 ST	22.91
9.14	2 ND	23.21
9.21	3 RD	23.40
9.31	5 TH	23.65
9.46	10 TH	24.04
9.57	15 TH	24.30
9.65	20 TH	24.51
9.72	25 TH	24.69
9.79	30 TH	24.85
9.85	35 TH	25.01
9.90	40 TH	25.15
9.96	45 TH	25.30
10.02	50 TH	25.44
10.07	55 TH	25.58
10.13	60 TH	25.73
10.19	65 TH	25.88
10.25	70 TH	26.04
10.32	75 TH	26.22
10.40	80 TH	26.42
10.49	85 TH	26.64
10.60	90 TH	26.93
10.77	95 TH	27.36
10.88	97 TH	27.63
10.96	98 TH	27.83
11.07	99 TH	28.13

HEAD CIRCUMFERENCE (60)

MEAN	STANDARD DEVIATION	RANGE	
22.65 (0.01)	0.55 (0.01)	21.00 - 24.66	IN
57.54 (0.04)	1.40 (0.03)	53.35 - 62.55	CM
COEFFICIENT OF VARIATION = 2.44 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
21.35	1 ST	54.22
21.51	2 ND	54.62
21.61	3 RD	54.88
21.74	5 TH	55.22
21.95	10 TH	55.75
22.09	15 TH	56.10
22.19	20 TH	56.38
22.29	25 TH	56.61
22.37	30 TH	56.82
22.45	35 TH	57.01
22.52	40 TH	57.20
22.59	45 TH	57.37
22.66	50 TH	57.54
22.72	55 TH	57.72
22.79	60 TH	57.89
22.86	65 TH	58.07
22.94	70 TH	58.26
23.02	75 TH	58.47
23.11	80 TH	58.70
23.22	85 TH	58.98
23.36	90 TH	59.33
23.57	95 TH	59.87
23.71	97 TH	60.23
23.82	98 TH	60.51
24.01	99 TH	60.97

SAGITTAL

SAGGITAL ARC (61)

MEAN	STANDARD DEVIATION	RANGE	
14.53 (0.02)	0.86 (0.02)	11.87 - 16.90	IN
36.91 (0.06)	2.17 (0.04)	30.15 - 42.85	CM

COEFFICIENT OF VARIATION = 5.89 PERCENT

INCHES	PERCENTILES	CENTIMETERS
12.46	1 ST	31.65
12.63	2 ND	32.09
12.77	3 RD	32.43
12.98	5 TH	32.96
13.34	10 TH	33.87
13.59	15 TH	34.52
13.79	20 TH	35.04
13.97	25 TH	35.48
14.12	30 TH /	35.87
14.26	35 TH	36.23
14.39	40 TH	36.55
14.51	45 TH	36.86
14.63	50 TH	37.15
14.74	55 TH	37.43
14.84	60 TH	37.71
14.95	65 TH	37.98
15.06	70 TH	38.25
15.17	75 TH	38.54
15.29	80 TH	38.84
15.42	85 TH	39.17
15.57	90 TH	39.56
15.80	95 TH	40.13
15.95	97 TH	40.50
16.06	98 TH	40.79
16.26	99 TH	41.30

BITRAGON-CORONAL ARC (62)

MEAN	STANDARD DEVIATION	RANGE	
13.98 (0.01)	0.52 (0.01)	11.52 - 15.99	IN
35.52 (0.03)	1.32 (0.02)	29.25 - 40.55	CM
COEFFICIENT OF VARIATION =		3.72 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
12.77	1 ST	32.44
12.92	2 ND	32.82
13.01	3 RD	33.06
13.14	5 TH	33.37
13.33	10 TH	33.85
13.45	15 TH	34.17
13.55	20 TH	34.43
13.64	25 TH	34.64
13.72	30 TH	34.84
13.79	35 TH	35.02
13.85	40 TH	35.19
13.92	45 TH	35.35
13.98	50 TH	35.52
14.05	55 TH	35.68
14.11	60 TH	35.85
14.18	65 TH	36.02
14.25	70 TH	36.21
14.33	75 TH	36.40
14.42	80 TH	36.63
14.52	85 TH	36.88
14.65	90 TH	37.20
14.83	95 TH	37.66
14.94	97 TH	37.96
15.03	98 TH	38.16
15.15	99 TH	38.48

BITRAGON-MINIMUM FRONTAL ARC (63)

MEAN	STANDARD DEVIATION	RANGE	
11.89 (0.01)	0.43 (0.01)	10.45 - 13.44	IN
30.20 (0.03)	1.08 (0.02)	26.55 - 34.05	CM
COEFFICIENT OF VARIATION =		3.59 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
10.92	1 ST	27.75
11.03	2 ND	28.02
11.10	3 RD	28.20
11.20	5 TH	28.45
11.35	10 TH	28.84
11.46	15 TH	29.10
11.54	20 TH	29.31
11.61	25 TH	29.48
11.67	30 TH	29.64
11.73	35 TH	29.79
11.78	40 TH	29.93
11.83	45 TH	30.06
11.89	50 TH	30.19
11.94	55 TH	30.32
11.99	60 TH	30.46
12.05	65 TH	30.60
12.10	70 TH	30.74
12.17	75 TH	30.91
12.24	80 TH	31.09
12.32	85 TH	31.30
12.43	90 TH	31.58
12.61	95 TH	32.02
12.72	97 TH	32.32
12.82	98 TH	32.56
12.97	99 TH	32.95

BITRAGION-SUBNASALE ARC (64)

MEAN	STANDARD DEVIATION	RANGE	
11.29 (0.01)	0.42 (0.01)	9.31 - 12.61	IN
28.68 (0.03)	1.06 (0.02)	23.65 - 31.95	CM
COEFFICIENT OF VARIATION =		3.71 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
10.31	1 ST	26.20
10.44	2 ND	26.52
10.52	3 RD	26.72
10.62	5 TH	26.97
10.77	10 TH	27.35
10.87	15 TH	27.60
10.94	20 TH	27.79
11.01	25 TH	27.96
11.07	30 TH	28.11
11.12	35 TH	28.25
11.17	40 TH	28.38
11.23	45 TH	28.51
11.28	50 TH	28.65
11.33	55 TH	28.78
11.38	60 TH	28.91
11.44	65 TH	29.05
11.50	70 TH	29.20
11.56	75 TH	29.37
11.64	80 TH	29.55
11.72	85 TH	29.77
11.83	90 TH	30.06
12.00	95 TH	30.49
12.11	97 TH	30.77
12.19	98 TH	30.97
12.32	99 TH	31.30

BITRAGION-MENTON ARC (65)

MEAN	STANDARD DEVIATION	RANGE	
12.68 (0.01)	0.50 (0.01)	10.30 - 14.54	IN
32.21 (0.03)	1.27 (0.02)	26.15 - 36.85	CM
COEFFICIENT OF VARIATION = 3.95 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
11.43	1 ST	29.04
11.62	2 ND	29.51
11.73	3 RD	29.79
11.86	5 TH	30.14
12.06	10 TH	30.63
12.18	15 TH	30.94
12.28	20 TH	31.18
12.36	25 TH	31.38
12.43	30 TH	31.56
12.49	35 TH	31.73
12.56	40 TH	31.89
12.62	45 TH	32.04
12.68	50 TH	32.20
12.74	55 TH	32.35
12.80	60 TH	32.51
12.86	65 TH	32.68
12.93	70 TH	32.85
13.01	75 TH	33.04
13.09	80 TH	33.26
13.19	85 TH	33.51
13.32	90 TH	33.84
13.51	95 TH	34.31
13.63	97 TH	34.61
13.71	98 TH	34.83
13.84	99 TH	35.15

BITRAGON-SUBMANDIBULAR ARC (66)

MEAN	STANDARD DEVIATION	RANGE	
12.29 (0.01)	0.56 (0.01)	9.35 - 13.95	IN
31.22 (0.04)	1.41 (0.03)	23.75 - 35.35	CM
COEFFICIENT OF VARIATION = 4.53 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
11.00	1 ST	27.93
11.15	2 ND	28.33
11.25	3 RD	28.57
11.38	5 TH	28.90
11.58	10 TH	29.41
11.71	15 TH	29.75
11.82	20 TH	30.02
11.91	25 TH	30.26
12.00	30 TH	30.47
12.07	35 TH	30.67
12.15	40 TH	30.86
12.22	45 TH	31.04
12.29	50 TH	31.22
12.36	55 TH	31.41
12.44	60 TH	31.59
12.51	65 TH	31.78
12.59	70 TH	31.98
12.68	75 TH	32.20
12.77	80 TH	32.44
12.88	85 TH	32.72
13.02	90 TH	33.06
13.20	95 TH	33.54
13.32	97 TH	33.82
13.39	98 TH	34.01
13.50	99 TH	34.28

BITRAGION-INION ARC (67)

MEAN	STANDARD DEVIATION	RANGE	
12.38 (0.02)	0.82 (0.01)	10.18 - 15.36	IN
31.44 (0.05)	2.09 (0.04)	25.85 - 38.95	CM
COEFFICIENT OF VARIATION = 6.65 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
10.86	1 ST	27.58
11.00	2 ND	27.93
11.08	3 RD	28.15
11.19	5 TH	28.43
11.37	10 TH	28.89
11.51	15 TH	29.24
11.63	20 TH	29.54
11.74	25 TH	29.83
11.85	30 TH	30.10
11.96	35 TH	30.37
12.06	40 TH	30.64
12.17	45 TH	30.91
12.28	50 TH	31.20
12.40	55 TH	31.49
12.52	60 TH	31.80
12.65	65 TH	32.12
12.78	70 TH	32.47
12.94	75 TH	32.86
13.11	80 TH	33.30
13.31	85 TH	33.80
13.55	90 TH	34.41
13.87	95 TH	35.23
14.04	97 TH	35.67
14.15	98 TH	35.93
14.25	99 TH	36.19

HEAD LENGTH(68)

MEAN	STANDARD DEVIATION	RANGE	
7.81 (0.01)	0.26 (0.00)	6.99 - 8.71	IN
19.83 (0.02)	0.66 (0.01)	17.75 - 22.05	CM
COEFFICIENT OF VARIATION =		3.32 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
7.22	1 ST	18.34
7.28	2 ND	18.50
7.32	3 RD	18.60
7.38	5 TH	18.75
7.47	10 TH	18.98
7.54	15 TH	19.14
7.59	20 TH	19.27
7.63	25 TH	19.38
7.67	30 TH	19.48
7.70	35 TH	19.57
7.74	40 TH	19.66
7.77	45 TH	19.74
7.80	50 TH	19.82
7.84	55 TH	19.91
7.87	60 TH	19.99
7.91	65 TH	20.08
7.94	70 TH	20.17
7.98	75 TH	20.27
8.03	80 TH	20.38
8.08	85 TH	20.51
8.14	90 TH	20.68
8.24	95 TH	20.94
8.31	97 TH	21.11
8.36	98 TH	21.23
8.44	99 TH	21.44

TRACION TO WALL (69)

MEAN	STANDARD DEVIATION	RANGE	
4.26 (0.01)	0.30 (0.01)	3.17 - 5.68	IN
10.81 (0.02)	0.76 (0.01)	8.05 - 14.35	CM
COEFFICIENT OF VARIATION = 7.01 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
3.58	1 ST	9.08
3.66	2 ND	9.30
3.71	3 RD	9.43
3.78	5 TH	9.61
3.89	10 TH	9.87
3.96	15 TH	10.05
4.01	20 TH	10.18
4.06	25 TH	10.30
4.10	30 TH	10.41
4.14	35 TH	10.51
4.17	40 TH	10.60
4.21	45 TH	10.69
4.24	50 TH	10.78
4.28	55 TH	10.87
4.32	60 TH	10.96
4.35	65 TH	11.06
4.40	70 TH	11.16
4.44	75 TH	11.28
4.49	80 TH	11.41
4.55	85 TH	11.57
4.64	90 TH	11.78
4.77	95 TH	12.11
4.86	97 TH	12.34
4.93	98 TH	12.52
5.05	99 TH	12.82

NASAL ROOT TO WALL (70)

MEAN	STANDARD DEVIATION	RANGE	
7.89 (0.01)	0.27 (0.00)	6.83 - 9.34	IN
20.04 (0.02)	0.69 (0.01)	17.35 - 23.65	CM
COEFFICIENT OF VARIATION =		3.43 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
7.27	1 ST	18.47
7.35	2 ND	18.68
7.40	3 RD	18.81
7.47	5 TH	18.97
7.56	10 TH	19.21
7.63	15 TH	19.37
7.67	20 TH	19.49
7.71	25 TH	19.59
7.75	30 TH	19.69
7.78	35 TH	19.77
7.82	40 TH	19.85
7.85	45 TH	19.93
7.88	50 TH	20.01
7.91	55 TH	20.10
7.94	60 TH	20.18
7.98	65 TH	20.27
8.02	70 TH	20.36
8.06	75 TH	20.47
8.10	80 TH	20.59
8.16	85 TH	20.73
8.24	90 TH	20.92
8.35	95 TH	21.22
8.44	97 TH	21.43
8.50	98 TH	21.59
8.60	99 TH	21.85

PRONASALE TO WALL (71)

MEAN	STANDARD DEVIATION	RANGE	
8.99 (0.01)	0.30 (0.01)	7.54 - 10.29	IN
22.85 (0.02)	0.76 (0.01)	19.15 - 26.05	CM
COEFFICIENT OF VARIATION = 3.31 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
8.28	1 ST	21.03
8.39	2 ND	21.31
8.45	3 RD	21.47
8.53	5 TH	21.67
8.64	10 TH	21.94
8.71	15 TH	22.11
8.76	20 TH	22.25
8.80	25 TH	22.36
8.84	30 TH	22.46
8.88	35 TH	22.56
8.92	40 TH	22.65
8.95	45 TH	22.73
8.99	50 TH	22.82
9.02	55 TH	22.91
9.06	60 TH	23.01
9.10	65 TH	23.11
9.14	70 TH	23.21
9.18	75 TH	23.33
9.24	80 TH	23.46
9.30	85 TH	23.62
9.38	90 TH	23.82
9.50	95 TH	24.12
9.57	97 TH	24.32
9.63	98 TH	24.46
9.71	99 TH	24.67

EXTERNAL CANTHUS TO WALL (72)

MEAN	STANDARD DEVIATION	RANGE	
7.00 (0.01)	0.28 (0.00)	5.45 - 8.28	IN
17.78 (0.02)	0.70 (0.01)	13.85 - 20.95	CM
COEFFICIENT OF VARIATION =		3.94 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
6.33	1 ST	16.09
6.44	2 ND	16.35
6.49	3 RD	16.50
6.57	5 TH	16.69
6.67	10 TH	16.95
6.74	15 TH	17.12
6.79	20 TH	17.24
6.83	25 TH	17.35
6.87	30 TH	17.44
6.90	35 TH	17.53
6.93	40 TH	17.61
6.96	45 TH	17.69
7.00	50 TH	17.77
7.03	55 TH	17.85
7.06	60 TH	17.93
7.09	65 TH	18.02
7.13	70 TH	18.11
7.17	75 TH	18.21
7.22	80 TH	18.33
7.27	85 TH	18.46
7.34	90 TH	18.65
7.45	95 TH	18.93
7.53	97 TH	19.12
7.58	98 TH	19.26
7.67	99 TH	19.49

HEAD BREADTH (73)

MEAN	STANDARD DEVIATION	RANGE	
6.13 (0.01)	0.21 (0.00)	5.33 - 6.78	IN
15.57 (0.01)	0.53 (0.01)	13.55 - 17.15	CM
COEFFICIENT OF VARIATION =		3.39 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
5.64	1 ST	14.32
5.70	2 ND	14.48
5.74	3 RD	14.58
5.79	5 TH	14.71
5.87	10 TH	14.90
5.92	15 TH	15.03
5.95	20 TH	15.13
5.99	25 TH	15.21
6.02	30 TH	15.29
6.05	35 TH	15.36
6.07	40 TH	15.43
6.10	45 TH	15.49
6.13	50 TH	15.56
6.15	55 TH	15.63
6.18	60 TH	15.69
6.21	65 TH	15.76
6.24	70 TH	15.84
6.27	75 TH	15.92
6.30	80 TH	16.01
6.34	85 TH	16.11
6.40	90 TH	16.25
6.47	95 TH	16.44
6.52	97 TH	16.56
6.56	98 TH	16.65
6.61	99 TH	16.78

BITRAGON DIAMETER (74)

MEAN STANDARD DEVIATION RANGE
 5.51 (0.01) 0.21 (0.00) 4.74 - 6.27 IN
 13.99 (0.01) 0.52 (0.01) 12.05 - 15.85 CM
 COEFFICIENT OF VARIATION = 3.73 PERCENT

INCHES	PERCENTILES	CENTIMETERS
5.02	1 ST	12.75
5.08	2 ND	12.92
5.12	3 RD	13.01
5.17	5 TH	13.14
5.25	10 TH	13.33
5.30	15 TH	13.46
5.34	20 TH	13.56
5.37	25 TH	13.64
5.40	30 TH	13.72
5.43	35 TH	13.79
5.45	40 TH	13.85
5.48	45 TH	13.92
5.50	50 TH	13.98
5.53	55 TH	14.04
5.55	60 TH	14.11
5.58	65 TH	14.18
5.61	70 TH	14.25
5.64	75 TH	14.33
5.67	80 TH	14.41
5.72	85 TH	14.52
5.77	90 TH	14.65
5.85	95 TH	14.85
5.90	97 TH	14.98
5.94	98 TH	15.08
6.00	99 TH	15.23

MAXIMUM FRONTAL DIAMETER (75)

MEAN	STANDARD DEVIATION	RANGE	
4.83 (0.01)	0.28 (0.01)	4.04 - 5.99	IN
12.26 (0.02)	0.72 (0.01)	10.25 - 15.15	CM
COEFFICIENT OF VARIATION = 5.86 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
4.28	1 ST	10.86
4.33	2 ND	11.01
4.37	3 RD	11.10
4.42	5 TH	11.22
4.49	10 TH	11.40
4.54	15 TH	11.54
4.58	20 TH	11.65
4.62	25 TH	11.74
4.66	30 TH	11.83
4.69	35 TH	11.92
4.73	40 TH	12.01
4.76	45 TH	12.09
4.80	50 TH	12.18
4.83	55 TH	12.27
4.87	60 TH	12.37
4.91	65 TH	12.47
4.95	70 TH	12.58
5.00	75 TH	12.70
5.06	80 TH	12.84
5.12	85 TH	13.01
5.21	90 TH	13.23
5.34	95 TH	13.57
5.43	97 TH	13.80
5.50	98 TH	13.97
5.60	99 TH	14.23

BIZYGOMATIC DIAMETER (76)

MEAN	STANDARD DEVIATION	RANGE	
5.36 (0.01)	0.28 (0.01)	4.47 - 6.35	IN
13.62 (0.02)	0.71 (0.01)	11.35 - 16.05	CM
COEFFICIENT OF VARIATION =		5.19 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
4.70	1 ST	11.93
4.76	2 ND	12.09
4.81	3 RD	12.21
4.87	5 TH	12.38
4.99	10 TH	12.66
5.06	15 TH	12.86
5.13	20 TH	13.02
5.18	25 TH	13.16
5.23	30 TH	13.28
5.27	35 TH	13.38
5.31	40 TH	13.48
5.35	45 TH	13.58
5.38	50 TH	13.67
5.42	55 TH	13.76
5.45	60 TH	13.85
5.49	65 TH	13.94
5.52	70 TH	14.03
5.56	75 TH	14.12
5.60	80 TH	14.23
5.65	85 TH	14.35
5.71	90 TH	14.49
5.79	95 TH	14.71
5.85	97 TH	14.85
5.89	98 TH	14.97
5.97	99 TH	15.16

BIGONIAL DIAMETER (77)

MEAN	STANDARD DEVIATION	RANGE	
4.69 (0.01)	0.34 (0.01)	3.72 - 5.68	IN
11.91 (0.02)	0.85 (0.02)	9.45 - 14.35	CM
COEFFICIENT OF VARIATION =		7.16 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
4.01	1 ST	10.18
4.07	2 ND	10.35
4.12	3 RD	10.45
4.17	5 TH	10.60
4.26	10 TH	10.83
4.33	15 TH	11.00
4.39	20 TH	11.15
4.44	25 TH	11.28
4.49	30 TH	11.40
4.53	35 TH	11.52
4.58	40 TH	11.63
4.62	45 TH	11.75
4.67	50 TH	11.86
4.72	55 TH	11.98
4.77	60 TH	12.10
4.82	65 TH	12.23
4.87	70 TH	12.37
4.93	75 TH	12.52
4.99	80 TH	12.68
5.07	85 TH	12.87
5.16	90 TH	13.09
5.27	95 TH	13.39
5.33	97 TH	13.55
5.37	98 TH	13.64
5.41	99 TH	13.73

BIOCULAR DIAMETER (78)

MEAN	STANDARD DEVIATION	RANGE	
3.71 (0.00)	0.16 (0.00)	3.21 - 4.42	IN
9.43 (0.01)	0.41 (0.01)	8.15 - 11.15	CM
COEFFICIENT OF VARIATION =		4.30 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
3.36	1 ST	8.54
3.40	2 ND	8.64
3.43	3 RD	8.71
3.46	5 TH	8.79
3.51	10 TH	8.93
3.55	15 TH	9.02
3.58	20 TH	9.09
3.60	25 TH	9.15
3.63	30 TH	9.21
3.65	35 TH	9.26
3.67	40 TH	9.31
3.69	45 TH	9.36
3.71	50 TH	9.41
3.72	55 TH	9.46
3.74	60 TH	9.51
3.77	65 TH	9.57
3.79	70 TH	9.62
3.81	75 TH	9.69
3.84	80 TH	9.76
3.88	85 TH	9.84
3.92	90 TH	9.95
3.99	95 TH	10.12
4.03	97 TH	10.24
4.06	98 TH	10.33
4.12	99 TH	10.46

INTERPUPILLARY DISTANCE (79)

MEAN	STANDARD DEVIATION	RANGE	
2.56 (0.00)	0.11 (0.00)	2.15 - 3.00	IN
6.51 (0.01)	0.28 (0.01)	5.45 - 7.55	CM
COEFFICIENT OF VARIATION = 4.32 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
2.32	1 ST	5.89
2.35	2 ND	5.96
2.36	3 RD	6.00
2.39	5 TH	6.06
2.42	10 TH	6.16
2.45	15 TH	6.23
2.47	20 TH	6.28
2.49	25 TH	6.32
2.51	30 TH	6.36
2.52	35 TH	6.40
2.53	40 TH	6.44
2.55	45 TH	6.47
2.56	50 TH	6.50
2.57	55 TH	6.54
2.59	60 TH	6.57
2.60	65 TH	6.61
2.62	70 TH	6.65
2.63	75 TH	6.69
2.65	80 TH	6.73
2.67	85 TH	6.79
2.70	90 TH	6.87
2.75	95 TH	6.98
2.78	97 TH	7.07
2.81	98 TH	7.14
2.86	99 TH	7.26

INTEROCULAR DIAMETER (80)

MEAN	STANDARD DEVIATION	RANGE	
1.26 (0.00)	0.11 (0.00)	0.81 -	1.78 IN
3.21 (0.01)	0.29 (0.01)	2.05 -	4.45 CM
COEFFICIENT OF VARIATION =		9.00 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
1.00	1 ST	2.53
1.03	2 ND	2.61
1.05	3 RD	2.66
1.08	5 TH	2.73
1.12	10 TH	2.84
1.15	15 TH	2.91
1.17	20 TH	2.97
1.19	25 TH	3.02
1.21	30 TH	3.06
1.22	35 TH	3.10
1.24	40 TH	3.14
1.25	45 TH	3.18
1.26	50 TH	3.21
1.28	55 TH	3.25
1.29	60 TH	3.28
1.31	65 TH	3.32
1.32	70 TH	3.36
1.34	75 TH	3.40
1.36	80 TH	3.45
1.38	85 TH	3.50
1.41	90 TH	3.58
1.45	95 TH	3.68
1.48	97 TH	3.76
1.50	98 TH	3.82
1.54	99 TH	3.91

NASAL ROOT BREADTH (81)

MEAN	STANDARD DEVIATION	RANGE	
0.73 (0.00)	0.12 (0.00)	0.30 -	1.11 IN
1.85 (0.01)	0.30 (0.01)	0.75 -	2.75 CM

COEFFICIENT OF VARIATION = 16.12 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.44	1 ST	1.13
0.49	2 ND	1.24
0.51	3 RD	1.30
0.54	5 TH	1.37
0.58	10 TH	1.48
0.61	15 TH	1.55
0.63	20 TH	1.60
0.65	25 TH	1.65
0.66	30 TH	1.69
0.68	35 TH	1.72
0.69	40 TH	1.76
0.71	45 TH	1.80
0.72	50 TH	1.83
0.74	55 TH	1.87
0.75	60 TH	1.91
0.77	65 TH	1.95
0.78	70 TH	1.99
0.80	75 TH	2.04
0.82	80 TH	2.09
0.85	85 TH	2.16
0.88	90 TH	2.24
0.93	95 TH	2.36
0.96	97 TH	2.43
0.98	98 TH	2.48
1.01	99 TH	2.56

NOSE BREADTH (82)

MEAN	STANDARD DEVIATION	RANGE	
1.40 (0.00)	0.10 (0.00)	0.96 -	1.82 IN
3.54 (0.01)	0.26 (0.00)	2.45 -	4.55 CM
COEFFICIENT OF VARIATION = 7.43 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
1.16	1 ST	2.95
1.19	2 ND	3.02
1.21	3 RD	3.07
1.23	5 TH	3.13
1.27	10 TH	3.22
1.29	15 TH	3.28
1.31	20 TH	3.33
1.33	25 TH	3.37
1.34	30 TH	3.40
1.35	35 TH	3.44
1.37	40 TH	3.47
1.38	45 TH	3.50
1.39	50 TH	3.53
1.40	55 TH	3.57
1.42	60 TH	3.60
1.43	65 TH	3.63
1.44	70 TH	3.67
1.46	75 TH	3.71
1.48	80 TH	3.75
1.50	85 TH	3.81
1.53	90 TH	3.88
1.57	95 TH	3.99
1.60	97 TH	4.07
1.62	98 TH	4.12
1.66	99 TH	4.22

LIP LENGTH (83)

MEAN	STANDARD DEVIATION	RANGE	
2.02 (0.00)	0.17 (0.00)	1.28 -	2.73 IN
5.14 (0.01)	0.43 (0.01)	3.25 -	6.85 CM
COEFFICIENT OF VARIATION =		8.34 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
1.63	1 ST	4.14
1.68	2 ND	4.28
1.72	3 RD	4.36
1.76	5 TH	4.46
1.82	10 TH	4.61
1.85	15 TH	4.71
1.88	20 TH	4.79
1.91	25 TH	4.85
1.93	30 TH	4.91
1.96	35 TH	4.97
1.98	40 TH	5.02
2.00	45 TH	5.08
2.02	50 TH	5.13
2.04	55 TH	5.18
2.06	60 TH	5.24
2.08	65 TH	5.29
2.11	70 TH	5.35
2.13	75 TH	5.42
2.16	80 TH	5.49
2.20	85 TH	5.58
2.24	90 TH	5.69
2.30	95 TH	5.85
2.35	97 TH	5.96
2.37	98 TH	6.03
2.42	99 TH	6.14

MENTON-SUBNASALE DISTANCE (84)

MEAN	STANDARD DEVIATION	RANGE	
2.76 (0.01)	0.23 (0.00)	2.07 -	3.55 IN
7.02 (0.02)	0.59 (0.01)	5.25 -	8.95 CM
COEFFICIENT OF VARIATION =		8.42 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
2.21	1 ST	5.60
2.27	2 ND	5.76
2.31	3 RD	5.87
2.37	5 TH	6.01
2.46	10 TH	6.24
2.52	15 TH	6.40
2.57	20 TH	6.52
2.61	25 TH	6.62
2.64	30 TH	6.72
2.68	35 TH	6.80
2.71	40 TH	6.88
2.74	45 TH	6.96
2.77	50 TH	7.03
2.80	55 TH	7.11
2.83	60 TH	7.18
2.86	65 TH	7.26
2.89	70 TH	7.34
2.92	75 TH	7.43
2.96	80 TH	7.52
3.00	85 TH	7.63
3.06	90 TH	7.77
3.14	95 TH	7.97
3.19	97 TH	8.10
3.23	98 TH	8.20
3.29	99 TH	8.36

MENTON-VERTEX HEIGHT (85)

MEAN	STANDARD DEVIATION	RANGE	
8.73 (0.01)	0.40 (0.01)	7.26 - 10.01	IN
22.18 (0.03)	1.02 (0.02)	18.45 - 25.35	CM
COEFFICIENT OF VARIATION = 4.61 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
7.74	1 ST	19.66
7.87	2 ND	20.00
7.95	3 RD	20.20
8.06	5 TH	20.47
8.21	10 TH	20.87
8.32	15 TH	21.12
8.40	20 TH	21.32
8.46	25 TH	21.50
8.52	30 TH	21.65
8.58	35 TH	21.79
8.63	40 TH	21.93
8.68	45 TH	22.06
8.73	50 TH	22.19
8.79	55 TH	22.31
8.84	60 TH	22.45
8.89	65 TH	22.58
8.95	70 TH	22.73
9.01	75 TH	22.88
9.08	80 TH	23.05
9.15	85 TH	23.25
9.25	90 TH	23.50
9.39	95 TH	23.86
9.48	97 TH	24.08
9.54	98 TH	24.23
9.63	99 TH	24.46

HEAD HEIGHT (TRAGION TO VERTEX) (86)

MEAN	STANDARD DEVIATION	RANGE	
5.16 (0.01)	0.25 (0.00)	4.19 - 6.07	IN
13.11 (0.02)	0.64 (0.01)	10.65 - 15.35	CM
COEFFICIENT OF VARIATION =		4.91 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
4.48	1 ST	11.38
4.60	2 ND	11.67
4.66	3 RD	11.84
4.74	5 TH	12.04
4.85	10 TH	12.32
4.92	15 TH	12.49
4.97	20 TH	12.61
5.01	25 TH	12.71
5.04	30 TH	12.81
5.07	35 TH	12.89
5.10	40 TH	12.96
5.13	45 TH	13.04
5.16	50 TH	13.11
5.19	55 TH	13.19
5.22	60 TH	13.26
5.25	65 TH	13.34
5.29	70 TH	13.43
5.32	75 TH	13.52
5.36	80 TH	13.62
5.41	85 TH	13.75
5.48	90 TH	13.91
5.57	95 TH	14.16
5.64	97 TH	14.32
5.69	98 TH	14.44
5.76	99 TH	14.63

LIP-TO-LIP DISTANCE (87)

MEAN	STANDARD DEVIATION	RANGE	
0.65 (0.00)	0.14 (0.00)	0.22 -	1.11 IN
1.66 (0.01)	0.36 (0.01)	0.55 -	2.75 CM

COEFFICIENT OF VARIATION = 21.79 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.31	1 ST	0.78
0.35	2 ND	0.89
0.38	3 RD	0.95
0.41	5 TH	1.05
0.47	10 TH	1.19
0.50	15 TH	1.28
0.53	20 TH	1.36
0.56	25 TH	1.42
0.58	30 TH /	1.48
0.60	35 TH	1.53
0.62	40 TH	1.58
0.64	45 TH	1.62
0.66	50 TH	1.67
0.68	55 TH	1.72
0.69	60 TH	1.76
0.71	65 TH	1.81
0.73	70 TH	1.86
0.75	75 TH	1.91
0.78	80 TH	1.97
0.80	85 TH	2.04
0.84	90 TH	2.12
0.89	95 TH	2.25
0.92	97 TH	2.33
0.94	98 TH	2.38
0.97	99 TH	2.47

NOSE LENGTH (88)

MEAN	STANDARD DEVIATION	RANGE	
2.10 (0.00)	0.15 (0.00)	1.63 -	2.69 IN
5.34 (0.01)	0.37 (0.01)	4.15 -	6.75 CM
COEFFICIENT OF VARIATION =		6.93 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
1.77	1 ST	4.50
1.81	2 ND	4.59
1.83	3 RD	4.65
1.86	5 TH	4.73
1.91	10 TH	4.86
1.95	15 TH	4.95
1.98	20 TH	5.02
2.00	25 TH	5.09
2.03	30 TH	5.14
2.05	35 TH	5.20
2.06	40 TH	5.25
2.08	45 TH	5.29
2.10	50 TH	5.34
2.12	55 TH	5.39
2.14	60 TH	5.43
2.16	65 TH	5.48
2.18	70 TH	5.53
2.20	75 TH	5.59
2.22	80 TH	5.65
2.25	85 TH	5.72
2.29	90 TH	5.81
2.34	95 TH	5.95
2.38	97 TH	6.04
2.40	98 TH	6.11
2.45	99 TH	6.22

NOSE PROTRUSION (89)

MEAN	STANDARD DEVIATION	RANGE
0.90 (0.00)	0.10 (0.00)	0.57 - 1.39 IN
2.29 (0.01)	0.25 (0.00)	1.45 - 3.45 CM

COEFFICIENT OF VARIATION = 10.87 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.69	1 ST	1.74
0.70	2 ND	1.79
0.72	3 RD	1.83
0.74	5 TH	1.88
0.77	10 TH	1.97
0.80	15 TH	2.03
0.82	20 TH	2.08
0.84	25 TH	2.12
0.85	30 TH	2.16
0.86	35 TH	2.19
0.88	40 TH	2.23
0.89	45 TH	2.26
0.90	50 TH	2.29
0.91	55 TH	2.32
0.92	60 TH	2.35
0.94	65 TH	2.38
0.95	70 TH	2.41
0.96	75 TH	2.44
0.98	80 TH	2.48
0.99	85 TH	2.53
1.02	90 TH	2.59
1.06	95 TH	2.69
1.09	97 TH	2.77
1.12	98 TH	2.84
1.16	99 TH	2.96

EAR LENGTH (90)

MEAN	STANDARD DEVIATION	RANGE	
2.57 (0.00)	0.16 (0.00)	2.07 -	3.08 IN
6.53 (0.01)	0.40 (0.01)	5.25 -	7.75 CM
COEFFICIENT OF VARIATION =		6.19 PERCENT	

INCHES	PERCENTILES	CENTIMETERS
2.20	1 ST	5.59
2.25	2 ND	5.70
2.27	3 RD	5.77
2.31	5 TH	5.87
2.37	10 TH	6.01
2.41	15 TH	6.11
2.44	20 TH	6.19
2.46	25 TH	6.25
2.49	30 TH	6.31
2.51	35 TH	6.37
2.53	40 TH	6.42
2.55	45 TH	6.47
2.57	50 TH	6.52
2.59	55 TH	6.58
2.61	60 TH	6.63
2.63	65 TH	6.68
2.65	70 TH	6.74
2.68	75 TH	6.80
2.70	80 TH	6.87
2.74	85 TH	6.95
2.78	90 TH	7.05
2.84	95 TH	7.20
2.88	97 TH	7.31
2.91	98 TH	7.38
2.95	99 TH	7.50

EAR BREADTH (91)

MEAN STANDARD DEVIATION RANGE
 1.41 (0.00) 0.13 (0.00) 0.93 - 2.06 IN
 3.57 (0.01) 0.33 (0.01) 2.35 - 5.15 CM
 COEFFICIENT OF VARIATION = 9.31 PERCENT

INCHES	PERCENTILES	CENTIMETERS
1.09	1 ST	2.77
1.13	2 ND	2.87
1.15	3 RD	2.93
1.19	5 TH	3.02
1.24	10 TH	3.15
1.27	15 TH	3.23
1.30	20 TH	3.30
1.32	25 TH	3.36
1.34	30 TH	3.41
1.36	35 TH	3.45
1.38	40 TH	3.50
1.39	45 TH	3.54
1.41	50 TH	3.58
1.42	55 TH	3.62
1.44	60 TH	3.66
1.46	65 TH	3.70
1.47	70 TH	3.74
1.49	75 TH	3.79
1.51	80 TH	3.84
1.54	85 TH	3.90
1.57	90 TH	3.98
1.61	95 TH	4.10
1.64	97 TH	4.17
1.67	98 TH	4.23
1.71	99 TH	4.33

EAR PROTRUSION (92)

MEAN	STANDARD DEVIATION	RANGE	
0.86 (0.00)	0.14 (0.00)	0.37 - 1.51	IN
2.19 (0.01)	0.35 (0.01)	0.95 - 3.75	CM
COEFFICIENT OF VARIATION = 15.81 PERCENT			

INCHES	PERCENTILES	CENTIMETERS
0.56	1 ST	1.43
0.60	2 ND	1.52
0.62	3 RD	1.57
0.65	5 TH	1.65
0.70	10 TH	1.77
0.73	15 TH	1.85
0.75	20 TH	1.91
0.77	25 TH	1.97
0.79	30 TH	2.01
0.81	35 TH	2.06
0.83	40 TH	2.10
0.84	45 TH	2.14
0.86	50 TH	2.18
0.87	55 TH	2.22
0.89	60 TH	2.26
0.91	65 TH	2.31
0.93	70 TH	2.35
0.95	75 TH	2.40
0.97	80 TH	2.46
1.00	85 TH	2.53
1.03	90 TH	2.62
1.09	95 TH	2.77
1.14	97 TH	2.88
1.17	98 TH	2.97
1.23	99 TH	3.12

SUBSCAPULAR SKINFOLD (93)

MEAN	STANDARD DEVIATION	RANGE	
0.55 (0.00)	0.19 (0.00)	0.02 -	1.43 IN
1.40 (0.01)	0.49 (0.01)	0.05 -	3.55 CM

COEFFICIENT OF VARIATION = 34.77 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.25	1 ST	0.63
0.27	2 ND	0.69
0.29	3 RD	0.73
0.31	5 TH	0.78
0.34	10 TH	0.86
0.37	15 TH	0.93
0.39	20 TH	0.98
0.41	25 TH	1.04
0.43	30 TH	1.09
0.45	35 TH	1.14
0.47	40 TH	1.20
0.49	45 TH	1.25
0.52	50 TH	1.31
0.54	55 TH	1.37
0.56	60 TH	1.43
0.59	65 TH	1.51
0.62	70 TH	1.58
0.66	75 TH	1.67
0.70	80 TH	1.78
0.75	85 TH	1.90
0.82	90 TH	2.07
0.92	95 TH	2.34
0.99	97 TH	2.52
1.05	98 TH	2.65
1.13	99 TH	2.87

JUXTA-NIPPLE SKINFOLD (94)

MEAN	STANDARD DEVIATION	RANGE	
0.47 (0.00)	0.19 (0.00)	0.06 -	1.15 IN
1.18 (0.01)	0.49 (0.01)	0.15 -	2.85 CM

COEFFICIENT OF VARIATION = 41.73 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.15	1 ST	0.39
0.16	2 ND	0.40
0.17	3 RD	0.42
0.18	5 TH	0.47
0.22	10 TH	0.57
0.26	15 TH	0.65
0.29	20 TH	0.73
0.32	25 TH	0.80
0.34	30 TH	0.87
0.37	35 TH	0.94
0.39	40 TH	1.00
0.42	45 TH	1.07
0.45	50 TH	1.13
0.47	55 TH	1.20
0.50	60 TH	1.27
0.53	65 TH	1.34
0.56	70 TH	1.42
0.59	75 TH	1.51
0.63	80 TH	1.60
0.68	85 TH	1.72
0.73	90 TH	1.86
0.82	95 TH	2.08
0.87	97 TH	2.22
0.91	98 TH	2.32
0.98	99 TH	2.48

BACK OF ARM SKINFOLD (95)

MEAN	STANDARD DEVIATION	RANGE	
0.44 (0.00)	0.17 (0.00)	0.10 -	1.19 IN
1.12 (0.01)	0.44 (0.01)	0.25 -	2.95 CM

COEFFICIENT OF VARIATION = 39.19 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.16	1 ST	0.40
0.16	2 ND	0.42
0.17	3 RD	0.44
0.19	5 TH	0.48
0.23	10 TH	0.58
0.26	15 TH	0.65
0.28	20 TH	0.72
0.31	25 TH	0.78
0.33	30 TH	0.84
0.36	35 TH	0.90
0.38	40 TH	0.96
0.40	45 TH	1.01
0.42	50 TH	1.07
0.44	55 TH	1.13
0.47	60 TH	1.19
0.49	65 TH	1.25
0.52	70 TH	1.32
0.55	75 TH	1.40
0.58	80 TH	1.48
0.62	85 TH	1.58
0.67	90 TH	1.71
0.75	95 TH	1.91
0.80	97 TH	2.04
0.84	98 TH	2.14
0.91	99 TH	2.31

MID/AXILLARY LINE AT UMBILICUS SKINFOLD (96)

MEAN	STANDARD DEVIATION	RANGE	
0.85 (0.01)	0.31 (0.01)	0.14 - 1.78	IN
2.17 (0.02)	0.79 (0.01)	0.35 - 4.45	CM

COEFFICIENT OF VARIATION = 36.46 PERCENT

INCHES	PERCENTILES	CENTIMETERS
0.23	1 ST	0.59
0.26	2 ND	0.67
0.29	3 RD	0.75
0.34	5 TH	0.87
0.43	10 TH	1.10
0.51	15 TH	1.28
0.57	20 TH	1.44
0.62	25 TH	1.58
0.67	30 TH	1.70
0.72	35 TH	1.82
0.76	40 TH	1.94
0.81	45 TH	2.05
0.85	50 TH	2.16
0.90	55 TH	2.28
0.94	60 TH	2.39
0.99	65 TH	2.50
1.03	70 TH	2.62
1.08	75 TH	2.75
1.14	80 TH	2.89
1.20	85 TH	3.05
1.27	90 TH	3.23
1.37	95 TH	3.49
1.43	97 TH	3.63
1.47	98 TH	3.73
1.52	99 TH	3.86

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005AEL3-23
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E. C. Gifford, J. R. Provost, and J. Lazo, 13-9040.1
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Body size data for 96 measurements of 1,549 U.S. naval aviators are presented. The techniques of measurement are illustrated by schematic drawings and reference to the literature. Both diametral and surface measurements are included. Dimensions are given in both centimeters and inches. Statistics included are percentiles, means, standard deviations, and coefficients of variation. These data are presented for use by designers of aircraft workspaces and designers of personnel protective clothing and equipment.

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