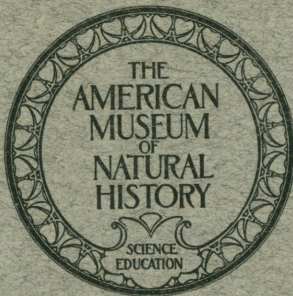


ANTHROPOLOGICAL PAPERS
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

VOLUME XXXI, PART I

CONTRIBUTIONS TO THE CRANIOLOGY OF
CENTRAL EUROPE
I. CRANIA FROM GREIFENBERG IN CARINTHIA

By H. L. SHAPIRO



BY ORDER OF THE TRUSTEES
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK CITY
1929

THE AMERICAN MUSEUM OF NATURAL HISTORY

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II. (In preparation)

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INTRODUCTION

During the course of the second half of the nineteenth century, numerous investigations were carried out on the racial composition of the Central Europeans. For the most part southern Germany, Switzerland and the Tirol were rather completely covered. For Switzerland particularly, Schwerz, in the early part of this century, published a series of important studies on the historical aspect of the racial composition of that country. Unfortunately, except for the fragmentary work of Zuckerkandl in Carinthia, very little has been done for the area east of the Swiss highlands. Obviously, this is an important sector in the study of the invasions of eastern peoples. In this paper, intended as one of a series, the object is to describe and evaluate anthropologically the position of a series of 496 crania which were exhumed from a charnel house in Greifenberg, in southwest Carinthia. To what extent this series may be representative of Carinthia as a whole, it is difficult to say, but at any rate in the absence of other data it assumes some significance. Leaving for later studies the precise analysis of the series into types, and the discussion of variability under isolation, this paper will be concerned mainly with gross descriptive features of the group as a whole, together with an attempt to determine from statistical data the approximate affiliations which this Greifenberg series exhibits to other neighboring groups. Perhaps by this method we can derive some indication of the essential character of Central Europe and a determination of the various strains which enter into the complex. Obviously many key points must be investigated before a satisfactory theory can be developed but we may, from the evidence at hand, erect a tentative hypothesis which can explain some of the facts.

MATERIAL

The original material on which this study is based consists of 496 crania without mandibles. They were collected by von Luschan from a charnel house located on a mountain above the small village of Greifenberg which is situated in southwestern Carinthia in the valley of the Drave River. It is the custom in small villages of Central Europe to disinter, after twenty to forty years, the burials which crowd the limited space of the graveyards. The bones are then placed in a small chapel which in the course of time becomes full with the remains of preceding generations. According to von Luschan's notes it was from such a charnel house that he collected these crania, which unfortunately it is impossible to arrange in a chronological sequence but which represent a large part of the population of Greifenberg in the seventeenth, eighteenth, and nineteenth centuries.

The principal comparative groups are from the Alpine regions of Tirol and Switzerland, southern Germany, and southeastern Europe. Ranke's series from Bavaria includes 100 male and 100 female crania from charnel houses in Upper and Lower Bavaria and Upper Palatinate, dating mainly from the nineteenth and the latter part of the eighteenth centuries. Ried's series of Bavarians from the foothills of the Alps contains 101 males and 43 females from the neighborhood of Neukirchen near Miesbach. These, for the most part, represent the population of the sixteenth, seventeenth, and eighteenth centuries. The Würtembergers were measured by Häcker and the statistical constants were recalculated by MacDonell. They are from various towns in Würtemberg and consist of 98 males and 19 females. Tirol is well represented, but the most important group was studied by Frizzi who obtained his material from numerous towns. The total group includes 1064 crania, but not all these are represented for each measurement. An important but small group of 47 crania (30 males and 17 females) from the town of Laas in the valley of Vintschgau was also measured by Frizzi. Vorarlberg is represented by a series which contains 44 males and 26 females collected by Wacker in the Walser valley. Reicher's important group includes 41 males and 9 females from Danis in the district of Disentis, canton Graubünden. From the same district Wettstein measured a series of 252 Disentis crania. From southeastern Switzerland we have Pittard's excellent series of 796 crania from the canton of Valais. Weisbach's material is less localized than the preceding groups. In some cases he used linguistic determinations. His groups contain 60 Slovenes, 80 Serbokroats, 6 Bosnians, 40 Rumanians, 95 Greeks, and 70 Turks.

To orientate the reader these comparative groups are given in a map (Fig. 1) of the area with which we are concerned.

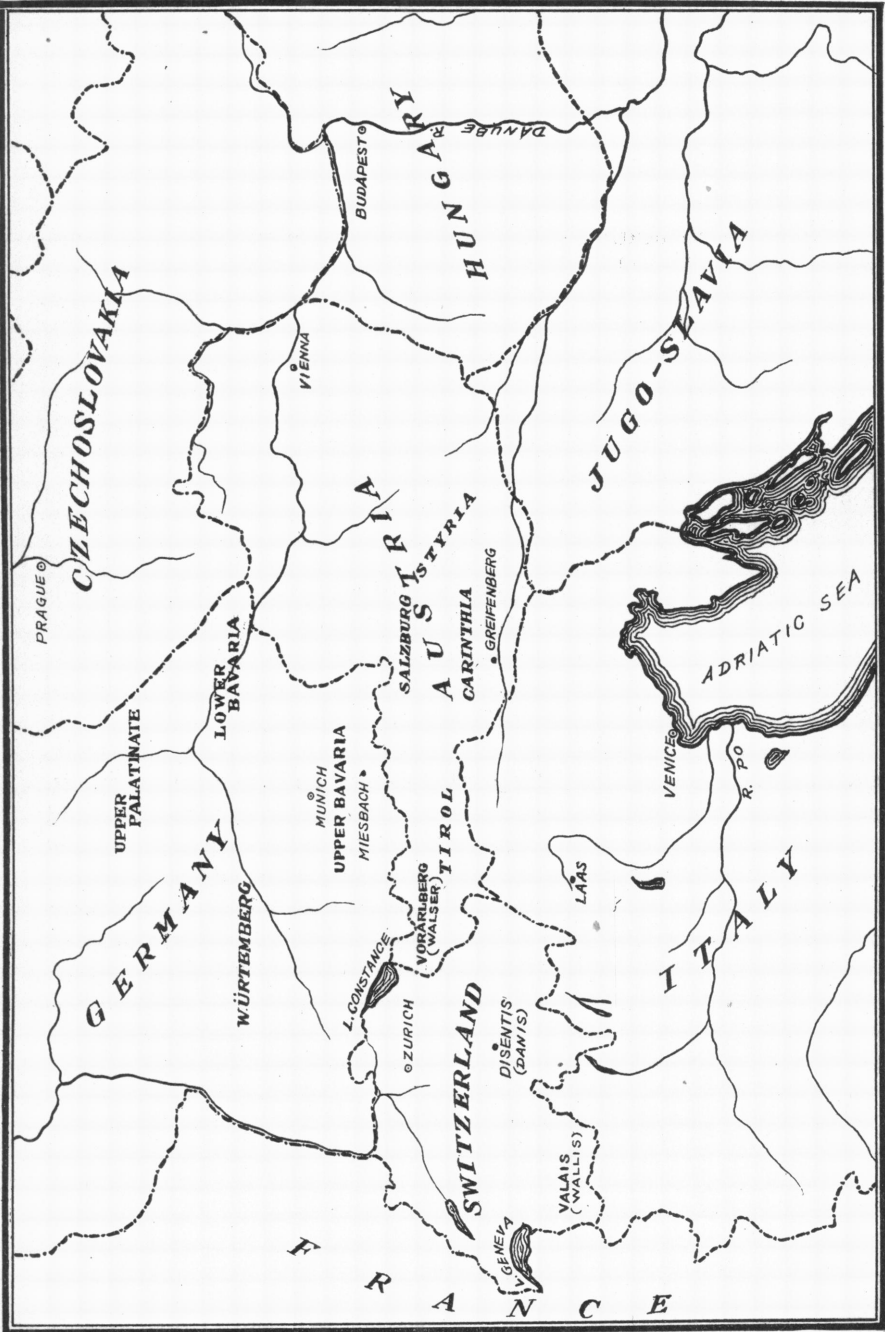


Fig. 1. Map of Central Europe

METHOD

Since the publication of Martin's *Lehrbuch der Anthropologie*, cranio-logical technique has become more and more standardized according to that admirable guide. It is unnecessary, therefore, in view of the universal recognition of and general acquaintance with Martin's *Lehrbuch*, to do more than indicate that the technique employed in this study is based on his definitions. Wherever there is a choice of several variants, the one selected will be indicated under the discussion of the particular measurement. Most of the morphological traits observed are self-explanatory, but in doubtful cases the text will describe the method of observation in more detail.

In this day of wide use of statistical methods, there is no need to describe the procedure for deriving the simple constants with which it is necessary to work. The means were obtained by the short method of trial means. The standard deviations and the coefficients of variation were derived in the usual way. The errors were calculated with the aid of Pearson's Tables of χ_1 and χ_2 .

The sexing was done by myself, using a number of anatomical traits such as size, development of glabella, general musculature markings, especially on the nuchal plane, borders of the orbits, conformation and size of the teeth, foramen magnum, alveolus, zygomatic arches, and others. It is of course the experience of every anatomist who attempts to sex crania that no one of these characters may be used exclusively and that frequently the degree of development in all is not in the same direction, but taking each cranium on its own merits it is possible to make a fairly accurate division within limits inherent in the method and the personal equation. I wish to thank Doctor Bruno Oettking for his kindness in checking a sample series. The error between his determinations and mine was small. All doubtful cases were placed in a separate category and excluded statistically from the series of males and females.

MEASUREMENTS

CRANIAL CAPACITY

The method employed in obtaining the cranial capacities of the Greifenberg series was based on Hrdlička's technique. To maintain a constant level of accuracy in the determinations I used a standard bronze *crâne étalon* which to a large extent ensured uniformity of method. Mustard seed was used as packing material. It is improbable that millet seed gives a difference which is significant beyond the error inherent in the method itself. Shot, however, gives larger readings and should be discounted in comparisons. In the groups measured by Weisbach peas and sand were both used, but in the absence of any conversion table it is difficult to estimate the proper allowances which should be made for his determinations.

In Table 1 the Greifenberg series is compared with both Central and Southern Europeans. The mean of 1494 cc. for males and 1317 cc. for females places this group in the class of aristencephals. Of all the groups listed the Württembergers approach the Carinthians from Greifenberg most closely; indeed, the Württemberg mean of 1493.8 cc. is identical with the mean for our males. On examining the table in more detail it becomes clear that the Greifenberg group shows the greatest affinity with the southern Germans from Württemberg and Bavaria. Following these are the Swiss groups of which the Daniser display a tendency to approximate the southern German group. The Tirolese series has the smallest capacities and is the most divergent from the Greifenbergers. Because of Weisbach's technique, the significance of the Slavic groups is considerably lessened. With a few exceptions they are all large headed and, in general, approximate in size the Central European brachycephals.

HORIZONTAL CIRCUMFERENCE

The mean horizontal circumference for Greifenberg males is about 518 mm. and for females 493 mm. These means agree closely with those for the Württembergers, the inhabitants of the Bavarian Foothills, and the Swiss Daniser. The Old Bavarians, however, have a slightly larger mean horizontal circumference. In general the Carinthian series from Greifenberg forms a unit with the southern Germans and Disentis Swiss; whereas the Tirolese group tends to exceed them by a significant margin. The Slavic groups, on the contrary, have smaller circumferences, the difference from the Greifenberg mean amounting in the case of the Slovenes to 8 mm. and the Serbokroats to 4 mm.

TABLE 1
CRANIAL CAPACITY

	Male	Male and Female	Female
Greifenberg	1494.03±5.10	1435.52	1316.96±5.83
Old Bavarian (Ranke)	1503.50		1335.50
Bavarian Foothills (Ried)	1464.00	1387.00	1309.00
Württemberg (Häcker)	1493.77(1494.45) ¹	(1457.07)	1336.83(1324.17)
Laas (Frizzi)	1358.00	1324.00	1260.00
Tirol (Tappeiner)	1508.00	1337.70 ²	1347.00
Walser (Wacker)	1436.00		1303.00
Daniser (Reicher)	1467.00		1349.00
Disentis (Wettstein)	1429.00		1333.00
Schaffhausen (Schwurz)	1529.00		1328.00
Alamannen (Schwurz)		1426.00	
Magyar (Davida)	1401.00	1353.00	1240.00
Walach (Davida)	1397.00	1348.00	1248.00
Weisbach			
German Austrians	1521.00		
Germans (Styria and Carinthia)	1440.00		
Slovenes	1406.00		
Serbokroats	1524.55		
Old Bosnians	1491.70(6)		
Czechs	1507.00		
Poles	1495.00		
Magyars	1437.00		
Rumanians	1478.00		
Bulgars	1393.00		
Great Russians	1471.00		
Gypsies	1407.00		
Ruthenians	1532.00		
Venetians	1501.00		
Greeks	1489.00		
Turks	1461.00		

¹The figures in parentheses in this and the following tables are the means derived by Häcker himself the others are the means derived by MacDonell who re-worked the series.²Corrected for comparison with determinations made with millet.

TABLE 2
HORIZONTAL CIRCUMFERENCE

	Male	Male and Female	Female
Greifenberg	517.92±.58	509.85	493.23±.71
Old Bavarian (Ranke)	524.35	513.00	501.40
Bavarian Foothills (Ried)	517.00	511.00	495.00
Württemberg (Häcker)	517.82(519.30)	(514.11)	500.58(501.24)
Laas (Frizzi)	513.00	509.00	504.00
Tirol (Frizzi)		525.00	
Tirol (Holl)		523.00	
Walser (Wacker)	520.00		504.00
Danis (Reicher)	516.00	510.00	495.00
Disentis (Wettstein)		513.00	
Wallis (Pittard)	522.00	511.00	499.00
Schaffhausen (Schwerz)		527.00	
Langnau (Schwerz)		525.00	
Waadt (Schwerz)		519.00	
Bündner (Quatrefages et Hamy)		507.00	
Puschlaver (Scholl)		509.00	
Davoser (Scholl)		512.00	
Alamannen (Schwerz)	533.30	525.00	508.10
Burgundians (Schwerz)		528.00	
Weisbach:			
Germans (Styria and Carinthia)	515.00		
Slovenes	510.00		
Serbokroats	514.00		
Old Bosnians	512.00(9)		
Czechs	518.00		
Poles	515.00		
Ruthenians	513.00		
Russians	511.00		
Venetians	510.00		
Greeks	510.00		
Turks	513.00		

FRONTAL, PARIETAL, AND OCCIPITAL ARCS

In the frontal arc we find that the Greifenberg mean is in close agreement with the Bavarian as well as the Slavic groups. The Tirolese and the Swiss, with the exception of the Walliser, tend toward higher values for the frontal arc. For the parietal arc the affiliations of the

Greifenberg series are clearly with the Central European groups although for this measurement the Württembergers and the Bavarians of the Foothills have greater means. The Slavic groups on the whole have greater parietal arcs than the Carinthians, but the Slovenes, who are nearest geographically, have a mean which is almost equivalent to the Greifenberg average. For the occipital arc the Greifenberg group lines up with the Central European groups and reveals a significant divergence from the Serbokroats and Slovenes. Consequently we may conclude that the difference between the Greifenbergers and the Slavic groups rests largely on the larger parietal and smaller occipital arcs of the latter. On the whole the Greifenberg series is allied with the Central Europeans in the magnitude of these sagittal arcs.

TABLE 3
FRONTAL ARC

	Male	Male and Female	Female
Greifenberg	126.56±.25	124.79	121.20±.31
Old Bavarian (Ranke)		125.00	
Bavarian Foothills (Ried)	128.00	126.00	124.00
Württemberg (Häcker)	(129.10)	(127.63)	(123.88)
Laas (Frizzi)	126.00	125.00	123.00
Tirol (Frizzi)		127.00	
Walser (Wacker)	129.00	127.00	123.00
Disentis (Wettstein)		128.00	
Wallis (Pittard)		124.00	
Schaffhausen (Schwenz)		132.00	
Alamannen (Schwenz)		127.00	
Weisbach:			
Slovenes	126.00		
Serbokroats	128.00		

TABLE 4
PARIETAL ARC

	Male	Male and Female	Female
Greifenberg	122.51±.32	120.50	116.40±.44
Bavarian Foothills (Ried)	124.00	123.00	119.00
Württemberg (Häcker)	(124.77)	(123.65)	(120.24)

TABLE 4 (*Continued*)

PARIETAL ARC

	Male	Male and Female	Female
Laas (Frizzi)	120.00	120.00	119.00
Tirol (Frizzi)		122.00	
Walser (Wacker)	120.00	118.00	114.00
Disentis (Wettstein)		120.00	
Wallis (Pittard)		121.00	
Schaffhausen (Schwerz)		125.00	
Alamannen (Schwerz)		126.90	
Weisbach:			
Slovenes	123.00		
Serbokroats	126.00		
Poles	127.00		
Czechs	124.00		
Ruthenians	125.00		
Venetians	124.00		
Greeks	128.00		
Turks	127.00		

TABLE 5

OCCIPITAL ARC

	Male	Male and Female	Female
Greifenberg	115.33±.32	113.92	110.88±.39
Bavarian Foothills (Ried)	114.00	112.00	107.00
Württemberg (Häcker)	(115.07)	(113.85)	(110.76)
Laas (Frizzi)	111.00	111.00	111.00
Tirol (Frizzi)		114.00	
Walser (Wacker)	117.00	115.00	113.00
Disentis (Wettstein)		113.00	
Wallis (Pittard)		111.00	
Schaffhausen (Schwerz)		115.00	
Alamannen (Schwerz)		118.90	
Weisbach:			
Slovenes	109.00		
Serbokroats	112.00		
Ruthenians	113.00		

SAGITTAL ARC

A great many of the differences which we observed for the segments of the sagittal arc are lost when we compare the various groups with regard to the total sagittal arc. The Greifenberg male average is close to those of the Walser, the Old Bavarians, and the Bavarians of the Foothills; is somewhat smaller than that of the Würtemberger and larger than that of the Daniser. On the whole, taking the complete sagittal arc, the resemblance to the brachycephalic Central European type is close. The Slovenes, principally because of their much smaller occipital arc, have a sagittal arc which is much smaller than the Greifenberg average. The other Slavic groups which showed less resemblance for the individual arcs here again seem to be close to the Greifenbergers.

TABLE 6
SAGITTAL ARC

	Male	Male and Female	Female
Greifenberg	364.03±.49	358.99	348.90±.57
Old Bavarian (Ranke)	365.10	359.00	353.40
Bavarian Foothills (Ried)	365.80		350.80
Württemberg (Häcker)	367.20(379.10)	(372.08)	358.16(354.88)
Laas (Frizzi)	357.00	355.00	353.00
Tirol (Frizzi)		362.00	
Walser (Wacker)	365.00	360.00	351.00
Danis (Reicher)	361.00	358.00	350.00
Disentis (Wettstein)		361.00	
Wallis (Pittard)		356.00	
Schaffhausen (Schwerz)		372.00	
Langnau (Schwerz)		370.00	
Waadt (Schwerz)		368.00	
Alamannen (Schwerz)		372.80	
Burgundians (Schwerz)		373.00	
Weisbach:			
Slovenes	358.00		
Serbokroats	366.00		
Old Bosnians	363.20		
Czechs	363.00		
Poles	363.00		
Ruthenians	365.00		
Venetians	362.00		
Greeks	365.00		
Turks	364.00		

TRANSVERSE ARC

The mean transverse arc of the Greifenbergers is very much smaller than we find in related groups of Central Europeans. This is not unexpected in view of the fact that the cranial width and the basion-bregma height of the Greifenberg series is smaller than that of the typical Alpine brachycephal. Only in the case of the Laaser, Slovenes, and Walliser do we find any similarity to the Greifenberg values.

TABLE 7
TRANSVERSE ARC

	Male	Male and Female	Female
Greifenberg	315.52±.44	311.43	302.98±.54
Old Bavarian (Ranke)	329.70	323.00	318.70 ¹
Bavarian Foothills (Ried)	327.90(326.70)	323.90(322.90)	314.50(313.70)
Württemberg (Häcker)	323.97(350.16)	324.13	314.95(313.69)
Laas (Frizzi)	314.00	314.00	314.00
Tirol (Frizzi)		322.00	
Walser (Wacker)	332.00	329.00	323.00
Danis (Reicher)	328.00	325.00	319.00
Disentis (Wettstein)		326.00	
Wallis (Pittard)		312.00	
Schaffhausen (Schwurz)		326.00	
Langnau (Schwurz)		329.00	
Waadt (Schwurz)		324.00	
Alamannen (Schwurz)		309.10	
Burgundians (Schwurz)		311.00	
Weisbach:			
Slovenes	314.00		
Serbokroats	323.00		
Old Bosnians	318.20		
Turks	320.00		

CRANIAL LENGTH

The brachycephalic Disentis type, which Reicher and others have described as typical for the Alpine people of Central Europe, is very short-headed. The means given in Table 8 illustrate this clearly enough. The Danis and the two Disentis series of combined male and female have a mean cranial length of about 173-174 mm., the Tirolese, about 176-177 mm., and the southern Germans slightly higher. The combined male and female mean for the Greifenbergers tends to approximate the

¹Perpendicular to eye-ear plane.

average for the Tirolese. The mean of the males is, however, only 1.2 mm. less than that for the Württemberg males. Compared with the means for Slavic males given by Weisbach, the Greifenberg group is probably significantly greater, at least 3 mm. in the case of the Slovenes and Serbokroats. The closest approximation to the Greifenberg males is, however, with the linguistic Germans from Styria and Carinthia. The Greifenberg women are relatively shorter-headed and consequently they show closest resemblance to such a group as the Walser (Vorarlberg) women. From this brief survey it appears that in Switzerland and in the Tirol there is a center of short-headedness. An increasing tendency towards longer heads is observed as one passes to the Bavarians and Württembergers on the north and the Greifenbergers on the east. Another focus of short-headedness is found in southeastern Europe among the Slovenes and Serbokroats.

TABLE 8
CRANIAL LENGTH

	Male	Male and Female	Female
Greifenberg	178.26±.29	175.11	168.65±.33
Old Bavarian (Ranke)	180.58	177.00	173.45
Bavarian Foothills (Ried)	177.17	173.06	168.94
Württemberg (Häcker)	179.48(179.83)	178.37(178.01)	172.74(172.58)
Laas (Frizzi)	175.00	174.00	172.00
Tirol (Frizzi)		176.00	
Tirol (Holl)		176.00	
Tirol (Strauch)		177.00	
Walser (Wacker)	176.00	174.00	169.00
Danis (Reicher)	175.15	173.20	164.30
Disentis (Wettstein)		173.00	
Disentis (Schwerz)		174.00	
Wallis (Pittard)		175.00	
Alamannen (Schwerz)		183.50	
Bohemians (Asmus)	185.20		
Weisbach:			
Germans (Styria and Carinthia)	179.00		
Slovenes	175.00		
Serbokroats	175.00		
Old Bosnians	175.60		
Czechs	177.00		
Poles	176.00		

CRANIAL WIDTH

The mean cranial widths of the Disentis and Tirolese are among the largest in Europe. This same broad-headedness includes Bavaria, Württemberg, and Vorarlberg, where equivalent means have been found. The Greifenbergers, however, do not equal the great cranial width of the typical Central European brachycephals. The mean for the Greifenberg males of 146.9 is about 1 mm. less than that for the Württembergers and agrees closely with the Slovenes and Serbokroats. The Germans of Styria and Carinthia are identical in cranial width with our series, which indicates that the linguistic classification is a purely artificial one. At least there is evidence that the Slovene influence penetrated southern Austria.

This comparison of cranial widths reveals a geographic distribution somewhat similar to that found for head length: that is, the center of extreme broad-headedness is concentrated in the central highlands of Switzerland and Tirol; while towards the northwest, among the Württembergers, and in the east, in Carinthia, there is evidence of a decrease in the width of the head.

TABLE 9
CRANIAL WIDTH

	Male	Male and Female	Female
Greifenberg	146.91±.23	144.70	140.18±.28
Old Bavarian (Ranke)	150.24	147.00	143.96
Bavarian Foothills (Ried)	149.50	146.36(147.63)	143.22
Württemberg (Häcker)	147.88(147.94)		142.90(142.94)
Laas (Frizzi)	143.00	143.00	143.00
Tirol (Frizzi)		149.00	
Tirol (Holl)		146.00	
Tirol (Strauch)		148.00	
Walser (Wacker)	150.00	147.00	144.00
Danis (Reicher)	149.40	148.10	145.10
Disentis (Wettstein)		148.00	
Disentis (Schwerz)		148.00	
Wallis (Pittard)		148.00	
Alamannen (Schwerz)		141.80	
Weisbach:			
Germans (Styria and Carinthia)	147.00		
Slovenes	146.00		
Serbokroats	147.00		
Old Bosnians	145.70(9)		
Czechs	148.00		

BASION-BREGMA HEIGHT

If we examine Table 10 carefully it is apparent that there are two well-defined groups in the distribution of the means for basion-bregma height. One group of moderately elevated crania includes the Swiss, Tirolese, and southern Germans from Bavaria and Württemberg. The other of absolutely higher skulls consists of the Slavic series measured by Weisbach. The Greifenberg series is absolutely and in comparison with the Central Europeans and the Slavs low-vaulted. However, the Laaser males also approach the Greifenberg mean. The low basion-bregma height of our group appears to be anomalous in this situation. Among the Mongoloid people such as the Telenget and Buriat similarly low-vaulted crania are found.

TABLE 10

BASION-BREGMA HEIGHT

	Male	Male and Female	Female
Greifenberg	128.71±.23	126.99	122.70±.30
Old Bavarian (Ranke)	133.78	131.00	128.01
Bavarian Foothills (Ried)	133.46		128.60
Württemberg (Häcker)	130.94(131.31)	(130.55)	126.26(125.88)
Laas (Frizzi)	128.00	128.00	127.00
Tirol (Frizzi)		130.00	
Tirol (Holl)		129.00	
Tirol (Strauch)		132.00	
Walser (Wacker)	131.00	130.00	127.00
Danis (Reicher)	132.10		
Disentis (Wettstein)		131.00	
Wallis (Pittard)	133.00	130.00	128.00
Alamannen (Schwurz)		132.30	
Weisbach:			
Slovenes	133.00		
Serbokroats	136.00		
Old Bosnians	135.00(9)		
Ruthenians	138.00		
Greeks	136.00		

MINIMUM FRONTAL DIAMETER

The means for minimum frontal diameter given in Table 11 show the same relationships which we observed for cranial width. In other words, the brachycephalic groups of the central highlands of Switzerland, the Tirol, and southern Bavaria, have the widest minimum frontal diameters. Both the Württemberg and Greifenberg groups show the same decrease in frontal width which was characteristic in cranial width. The Laas series which appears to be atypical for Tirol also possesses a narrower frontal diameter. The Slavic groups exhibit close similarity in minimum frontal diameter to the Carinthians from Greifenberg.

TABLE 11

MINIMUM FRONTAL DIAMETER

	Male	Male and Female	Female
Greifenberg	97.62±.18	96.31	93.58±.25
Old Bavarian (Ranke)	103.70	100.00	96.30
Bavarian Foothills (Ried)	100.64	99.00	94.69
Württemberg (Häcker)	97.19(98.22)	(97.24)	93.90(94.47)
Laas (Frizzi)	98.00	98.00	97.00
Tirol (Frizzi)		99.00	
Walser (Wacker)	100.00	99.00	97.00
Danis (Reicher)	100.00	99.00	96.50
Alamannen (Schwurz)		98.00	
Weisbach:			
Slovenes	97.00		
Serbokroats	99.00		
Old Bosnians	97.20(9)		
Greeks	97.00		

BIZYGOMATIC DIAMETER

The variation for face width among our comparative groups is very small. Consequently, we find that the Greifenbergers do not show any significant difference from their neighbors. In fact, the means of the inhabitants of the Bavarian Foothills and the Würtembergers are practically identical with our group. The representative Daniser also approach the Greifenberg mean closely. The Tirolese, however, are wider faced.

TABLE 12

BIZYGOMATIC DIAMETER

	Male	Male and Female	Female
Greifenberg	133.61±.27	130.65	124.74±.32
Old Bavarian (Ranke)	135.00	131.00	126.30
Bavarian Foothills (Ried)	133.56	130.98	125.00
Württemberg (Häcker)	133.33(134.06)	(132.09)	124.44(125.25)
Laas (Frizzi)	130.00	129.00	126.00
Tirol (Frizzi)		134.00	
Walser (Wacker)	134.00	131.00	128.00
Danis (Reicher)	134.10	131.20	123.20
Alamannen (Schwerz)		131.00	
Weisbach:			
Slovenes	134.00		
Serbokroats	136.00		
Old Bosnians	134.50(6)		
Czechs	133.00		
Poles	131.00		
Ruthenians	133.00		
Venetians	131.00		
Turks	133.00		

UPPER FACE HEIGHT

The Greifenberg males have an average upper face height which is identical with that for the inhabitants of the Bavarian Foothills. There is, however, a discrepancy between the females of these two groups. The same similarity between the males is shared by Ranke's Bavarians. As one passes west to the Württembergers, there is a lengthening of the upper face.

Comparing the combined male and female, Reicher's Daniser show a slightly smaller average. The mean for Wettstein's Disentis crania is clearly smaller. The Tirolese, however, have definitely larger means. Among the Slavs, the Serbokroats tend to approximate the male average of the Greifenberg series, while the Slovenes exceed it.

TABLE 13

UPPER FACE HEIGHT

	Male	Male and Female	Female
Greifenberg	69.32±.22	67.77	64.56±.31
Old Bavarian (Ranke)	70.80	68.64	66.80
Bavarian Foothills (Ried)	69.28	68.68	67.27
Württemberg (Häcker)	71.46(71.75)	69.00(69.90)	65.80(67.00)
Laas (Frizzi)	68.00	67.00	66.00
Tirol (Frizzi)		71.00	
Walser (Wacker)	72.00	70.00	67.00
Danis (Reicher)		66.90	
Disentis (Wettstein)		65.00	
Alamannen (Schwerz)		69.10	
Weisbach:			
Slovenes	71.00		
Serbokroats	70.00		
Old Bosnians	70.30(7)		
Czechs	71.00		
Poles	69.00		
Ruthenians	70.00		
Venetians	70.00		
Greeks	71.00		
Turks	71.00		

BASION-NASION DIAMETER

Although the Greifenbergers are slightly longer headed than are the Disentis brachycephals or the Slavic types, nevertheless they have smaller basion-nasion diameters. The Serbokroats exceed the Greifenberg males by 4 mm. and the Slovenes by 2 mm. Our only information concerning the Tirolese is derived from the figures given by Frizzi for the Laaser who are considerably longer for basion-nasion. Wacker's Walser, however, exceed the Greifenberg males only by 1 mm., although the difference between the females is much more pronounced. The closest approximation to our series is by the Württembergers, who, as we have seen in other characters, are very similar to the Greifenbergers.

TABLE 14

BASION-NASION DIAMETER

	Male	Male and Female	Female
Greifenberg	98.05±.17	• 96.06	92.02±.23
Old Bavarian (Ranke)	100.30		95.80
Bavarian Foothills (Ried)	99.90	97.00	94.20
Württemberg (Häcker)	98.60(98.62)	(97.18)	93.63(89.13)
Laas (Frizzi)	102.00	98.00	94.00
Walser (Wacker)	99.00	98.00	97.00
Danis (Reicher)	99.29		
Alamannen (Schwerz)		99.30	
Weisbach:			
Slovenes	99.80		
Serbokroats	102.00		
Old Bosnians	100.80(9)		
Ruthenians	102.00		

BASION-PROSTHION DIAMETER

Although the Greifenberg males have shorter skull bases than their neighbors in Central and Southern Europe, nevertheless the discrepancies are much less marked for basion-prosthion. This indicates a relatively longer or projecting face for the Greifenberg series. For example, the Laaser males, although significantly longer in skull base, are almost identical for basion-prosthion. Similarly the Walser, Serbokroats, and Slovenes are very close to the Greifenbergers. Other Central European series such as the Daniser and the inhabitants of the Bavarian Foothills also show a close approximation to the Carinthians from Greifenberg.

TABLE 15

BASION-PROSTHION DIAMETER

	Male	Male and Female	Female
Greifenberg	93.22± .26	91.56	88.00± .38
Bavarian Foothills (Ried)	94.10	91.00(92.3)	88.00
Laas (Frizzi)	93.00	92.00	90.00
Tirol (Frizzi)		95.00	
Walser (Wacker)	94.00	93.00	91.00
Danis (Reicher)		91.80	
Weisbach:			
Slovenes	94.00		
Serbokroats	93.00		
Czechs	95.00		
Poles	96.00		
Ruthenians	94.00		
Venetians	93.00		
Greeks	94.00		
Turks	94.00		

NOSE HEIGHT

The variation of the means listed in our comparative series is relatively small, ranging from 49 mm. for the Laaser males to 51.45 for the Württembergers. From this range we may see that the Greifenberg mean of 50.58 is about intermediate. The Slavic groups also have averages similar to the Greifenberg series. The sex difference of the Greifenberg series is smaller than that for the Württembergers.

TABLE 16
NOSE HEIGHT

	Male	Male and Female	Female
Greifenberg	50.58±.12	49.59	47.56±.17
Bavarian Foothills (Ried)	49.67	48.92	47.25
Old Bavarian (Ranke)	50.90		48.20
Württemberg (Häcker)	51.45(50.07)	(49.19)	45.74(46.88)
Laas (Frizzi)	49.00	49.00	48.00
Walser (Wacker)	51.00	51.00	49.00
Wallis (Pittard)	50.10		46.90
Alamannen (Schwerz)		51.10	
Weisbach:			
Slovenes	50.00		
Serbokroats	51.00		
Old Bosnians	50.40		
Greeks	51.00		
Turks	52.00		

NOSE WIDTH

Here again, as for nasal height, the variation of the means is very small, ranging from about 23 mm. to 26 mm. The mean of the Greifenberg males is 24.55, which does not differ markedly from any of the groups, with the possible exception of the Slovenes.

TABLE 17

NOSE WIDTH

	Male	Male and Female	Female
Greifenberg	24.55±.08	24.19	23.42±.08
Bavarian Foothills (Ried)	24.55	24.12	23.16
Old Bavarian (Ranke)	24.80		23.70
Württemberg (Häcker)	23.91(23.92)	23.88	23.05(23.18)
Laas (Frizzi)	24.00	24.00	24.00
Walser (Wacker)	24.00	23.00	23.00
Alamannen (Schwerz)		24.20	
Weisbach:			
Slovenes	23.00		
Serbokroats	24.00		
Old Bosnians	25.90		

ORBIT WIDTH

The width of the orbit was measured from dacryon to ectoconchion. The orbital width of the Bavarian groups was measured in the same way. For the Laaser and Walser, however, the landmark used was maxillo-frontale, which gives a slightly greater width. Making the necessary allowances for dissimilar techniques, there do not appear to be any significant differences between the Greifenbergers and the Central European groups.

TABLE 18
ORBIT WIDTH

	Male	Male and Female	Female
Greifenberg	r 40.06±.07 l 39.61±.07	39.48 39.07	38.24±.10 37.95±.09
Old Bavarian (Ranke)	39.90 ¹		38.32
Bavarian Foothills (Ried)	39.50 ¹	39.00	38.40
Württemberg (Häcker)	39.78(39.74)	(39.21)	37.95(38.00)
Laas (Frizzi)	41.00 ²	41.00	40.00
Walser (Wacker)	40.00 ²	40.00	39.00
Weisbach:			
Slovenes	39.00		
Serbokroats	39.00		
Old Bosnians	38.90(7)		
Poles	38.00		
Czechs	39.00		
Venetians	39.00		
Greeks	39.00		
Turks	38.00		

¹Orbital width taken to dacryon.²Orbital width taken to maxillo-frontale.

ORBIT HEIGHT

The Alpine groups in Table 19 show a small mean variation for orbit height. Only the Laaser males display a significantly higher orbit than the Greifenbergers. Both Bavarian series resemble our group closely. The Slavic groups represented by the Slovenes and Serbokroats have mean orbital heights which are only slightly smaller. This lower orbit becomes more emphasized among the Ruthenians and Poles.

TABLE 19
ORBIT HEIGHT

	Male	Male and Female	Female
Greifenberg	r 33.50±.09 1 33.38±.09	33.18 33.05	32.47±.11 32.40±.11
Old Bavarian (Ranke)	33.72		33.18
Bavarian Foothills (Ried)	33.30	33.30	33.20
Württemberg (Häcker)	34.10(34.02)	(33.53)	32.21(32.71)
Laas (Frizzi)	35.00	34.00	33.00
Walser (Wacker)	34.00	34.00	33.00
Wallis (Pittard)	32.80		32.30
Weisbach:			
Slovenes	33.00		
Serbokroats	33.00		
Old Bosnians	32.60(7)		
Poles	31.00		
Czechs	33.00		
Ruthenians	32.00		
Venetians	33.00		
Greeks	34.00		
Turks	34.00		

MAXILLO-ALVEOLAR LENGTH

The data for this measurement are extremely scanty. The Walser males have the same mean maxillo-alveolar length as the Greifenberg average. The Württemberg mean, also, is very similar to that for Greifenberg. For Laas the measurement is defined as *maxillar lange*. However, it is so much greater that undoubtedly the technique was different. The Tirolese of Frizzi have a shorter maxillo-alveolar length.

MAXILLO-ALVEOLAR BREADTH

Here also the data are insufficient for a satisfactory comparison. It appears that the maxillo-alveolar breadth of the Greifenberg males is considerably greater than that for the Walser and consequently relatively so.

TABLE 20

MAXILLO-ALVEOLAR LENGTH

	Male	Male and Female	Female
Greifenberg	52.01±.16	51.08	48.91±.22
Bavarian Foothills (Ried)	51.08	49.03	46.97
Württemberg (Häcker)	(51.74)	51.22	(50.27) ¹
Laas (Frizzi)	61.00	61.00	61.00
Tirol (Frizzi)		49.00	
Walser (Wacker)	52.00	51.00	50.00

TABLE 21

MAXILLO-ALVEOLAR BREADTH

	Male	Male and Female	Female
Greifenberg	63.39±.20	62.00	59.56±.22
Bavarian Foothills (Ried)	60.62	61.29	61.96
Laas (Frizzi)	64.00	63.00	62.00
Walser (Wacker)	61.00	61.00	59.00

¹Measured from orale to the spina nasalis posterior.

LENGTH-BREADTH INDEX

As a result of the great number of groups for which the length-breadth index has been computed we have an admirable series of means for the area surrounding Carinthia. Even a cursory examination of Table 22 reveals that our series from Greifenberg is among the least brachycephalic of those listed.

Viewing the whole Alpine area, we see that the center for brachycephaly is located in mountains of Switzerland and Tirol. The type series of Reicher and Wettstein have indices averaging over 85.00. Passing to the outskirts of this area, the mean index suffers a progressive diminution. In the Bavarian Foothills the mean index is 84.40 for males, which is still further decreased to 83.20 in the Bavarian plains. West of Bavaria, in Würtemberg, the length-breadth index averages 82.45. In a similar fashion the index becomes lower towards the east in Carinthia. Consequently, we find for the length-breadth index, as for other characters, that the Greifenbergers and Würtembergers are practically identical in their average value.

South and southeast of Carinthia, the length-breadth index increases among the Slavic Slovenes and Serbokroats both of which groups are 1 and 1.5 units higher respectively than the Greifenbergers.

Thus we find that in an area of general brachycephaly the Greifenberg series stands between two centers of high indices, but that its nearest affinities are with the Würtembergers.

Table 23 gives the percentages for the various divisions of the length-breadth index. From an inspection of these percentages it is clear that the Greifenberg percentages in general are like both the Würtembergers and the Slovenes and Austrian Slavs (Toldt). The Germans from Styria and Carinthia also have similar proportions. At least as far as the length-breadth index is concerned, the linguistic differences between the Slavic Austrians and the Germans is not borne out by similar somatic differences.

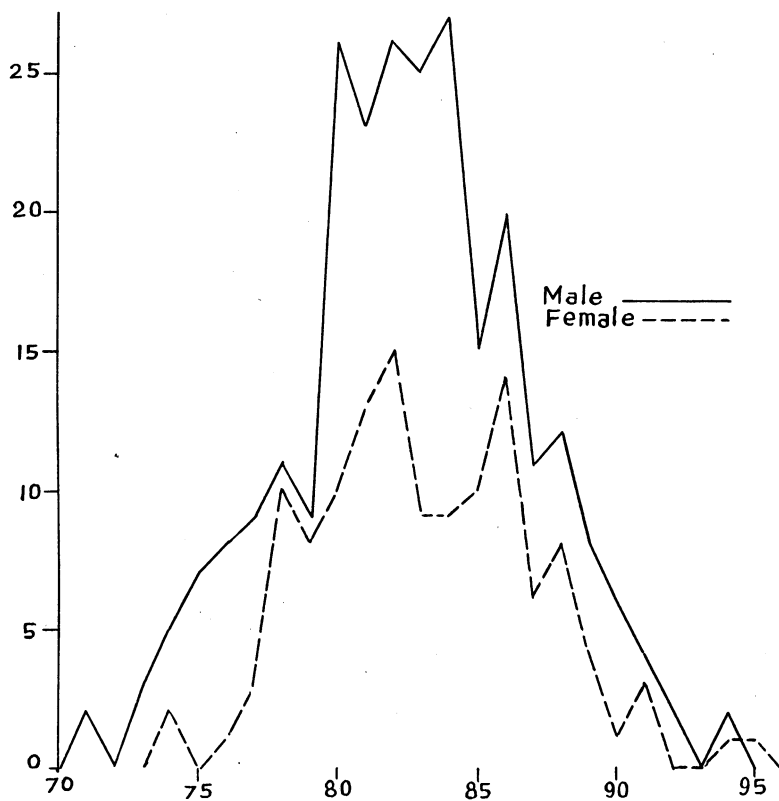


Fig. 2. Distribution of Length-Breath Index

TABLE 22
LENGTH-BREADTH INDEX

	Male	Male and Female	Female
Greifenberg	82.51±.18	82.71	83.13±.23
Old Bavarian (Ranke)	83.20	83.10	83.00
Bavarian Foothills (Ried)	84.40	84.50	84.80
Württemberg (Häcker)	82.45(82.61)	(82.71)	82.78(82.73)
Laas (Frizzi)	82.10	82.60	83.40
Tirol (Frizzi)		84.20	
Tirol (Strauch)		83.60	
Walser (Wacker)	85.12	85.05	84.92
Danis (Reicher)	85.30±.34	85.50±.29	88.30±.54
Disentis (Wettstein)		85.40	
Wallis (Pittard)	84.46	84.48	84.51
Puschlaver (Scholl)		86.00	
Davoser (Scholl)		85.50	
Bündner (Hovelacque)		84.50	
Bündner (His)		84.90	
Bündner (Baer)		90.80	
Alamannen (Schwenz)		76.60	
Magyar (Davida)	82.70	83.00	83.90
Walach (Davida)	84.20	84.30	84.50
Weisbach:			
Germans (Styria and Carinthia)	82.10		
Slovenes	83.40		
Serbokroats	84.00		
Old Bosnians	83.00(9)		
Czechs	83.60		
Poles	82.90		
Ruthenians	82.30		
Venetians	81.80		
Greeks	81.20		
Turks	82.80		

TABLE 23

	DIVISIONS OF LENGTH-BREADTH INDEX				Hyperbrachycephal %	Ultrabrachycephal %
	Dolichocephal %	Mesocephal %	Brachycephal %			
Greifenberg	♂ 6.5 ♀ 1.6	24.0 25.0	44.0 44.0	25.0 30.0		
Old Bavarian (Ranke)	0.8	16.3	52.8	30.1		
Bavarian Foothills (Ried)		7.7	45.8	46.5		
Württemberg (Häcker)	2.08(2)	20.83(20)	53.13(51)	23.96(23)		
Laas (Frizzi)	8.3	25.0	27.8	38.9		
Tirol (Frizzi)	2.2	18.3	41.7	37.8		
Tirol (Tappeiner)	♂ 1.62(9) ♀ 0.58(2)	17.7(99) 11.82(41)	39.5(220) 36.88(128)	29.98(167) 30.55(106)	11.13(62) 20.17(70)	
Vorarlberg (Holl)	0.65(6)	12.6(115)	50.3(457)	36.2(329)		
Disentis (Wettstein)		6.4	40.5	53.1		
Wallis (Pittard)	1.6	10.9	39.8	47.7		
Magyar (David)	3.4(3)	20.4(18)	39.8(35)	32.9(29)		3.4(3)
Walach (David)	3.7(2)	10.9(6)	45.4(25)	27.3(15)		12.7(7)
Slovenes (Weisbach)		23.30(14)	46.60(46)	30.00(18)		
Serbokroats (Weisbach)		11.21(13)	57.76(57)	31.03(36)		
Austrian Slavs and Slovenes (Toldt)	2.1(2)	21.5(20)	48.4(45)	28.0(26)		

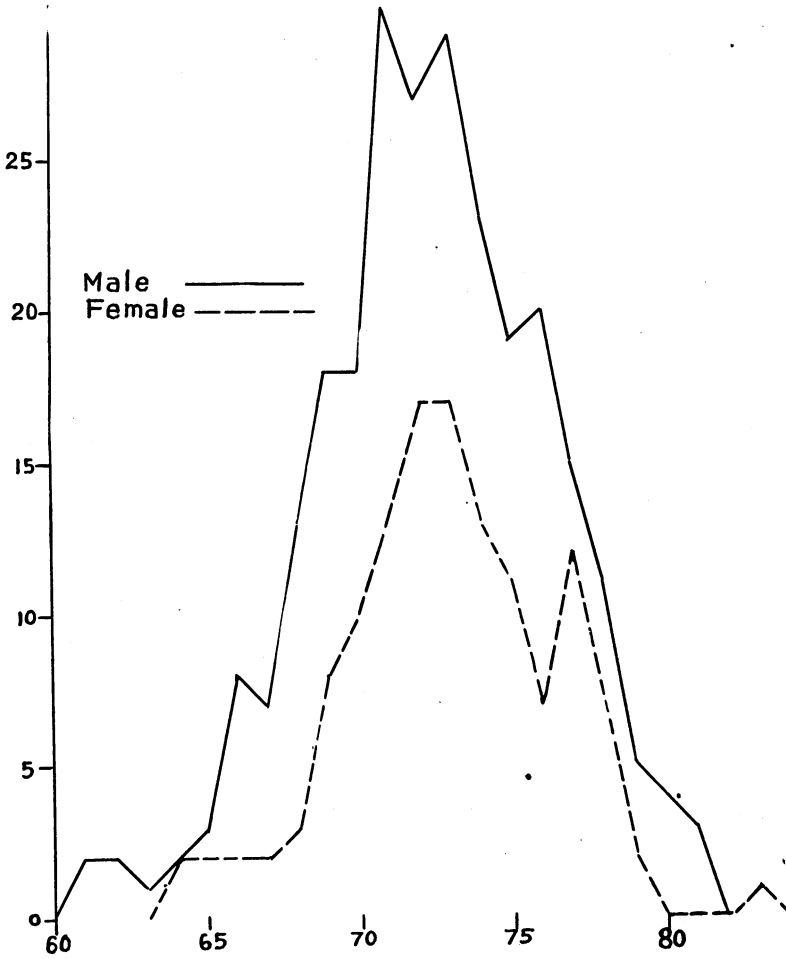


Fig. 3. Distribution of Length-Height Index

LENGTH-HEIGHT INDEX

The mean length-height index given in Table 24 is 72.40 for Greifenberg males and 72.85 for females, and according to Martin's classification orthocran. When we examine Table 24 we discover that the distribution of this index follows closely that for the length-breadth index. The highest indices are found among the Swiss and Tirolese of the central Alpine area. Here the tendency is very strong towards hypsicrany. Although the inhabitants of the Bavarian Foothills of the Alps are still characterized by hypsicrany, the index decreases among the Bavarians of the plains. Even more marked is this drop among the Württembergers and the Carinthians from Greifenberg. Interestingly enough, the Laaser again are divergent from the Tirolese and tend to approximate the Greifenbergers. The Slavic contingents bordering on Carinthia are strikingly higher headed than are the Greifenbergers.

It is perhaps of significance that both the Württembergers and Greifenbergers have lower cranial and length-height indices than the typical brachycephals of the central highlands. In both these characters the deviation is towards the mixed Nordic Alamannen, although in neither is the approximation very complete.

TABLE 24
LENGTH-HEIGHT INDEX

	Male	Male and Female	Female
Greifenberg	72.40± .16	72.60	72.85± .20
Old Bavarian (Ranke)	74.20	74.10	73.90
Bavarian Foothills (Ried)	75.30	75.60	76.10
Württemberg (Häcker)	73.02(72.92)	73.22	73.17(72.86)
Laas (Frizzi)	72.50	73.10	74.30
Tirol (Frizzi)		73.80	
Walser (Wacker)	74.73	74.79	74.89
Danis (Reicher)	75.50± .29	75.60± .24	76.10± .42
Disentis (Wettstein)		75.50	
Wallis (Pittard)	74.59	74.48	74.37
Puschlaver (Scholl)		74.60	
Davoser (Scholl)		76.20	
Bündner (Hovelacque)		77.00	
Bündner (His)		80.90	
Bündner (Baer)		81.80	
Alamannen (Schwurz)	71.50	71.60	71.90

TABLE 24 (Continued)
LENGTH-HEIGHT INDEX

	Male	Male and Female	Male
Magyar (Davida)	75.3	74.7	73.30
Walach (Davida)	76.8	76.5	75.80
Weisbach:			
Slovenes	76.50		
Serbokroats	77.70		
Old Bosnians	76.90(9)		
Czechs	74.50		
Poles	76.50		
Ruthenians	78.40		
Venetians	75.70		
Greeks	77.20		
Turks	77.10		

TABLE 25
DIVISIONS OF THE LENGTH-HEIGHT INDEX

	Chamaekrane %	Orthokrane %	Hypsikrane %
Greifenberg	♂ 28.46 ♀ 22.48	49.23 55.04	22.31 22.48
Old Bavarian (Ranke)	11.3	39.7	49.0
Bavarian Foothills (Ried)	♂ 5.0 ♀ 7.0	39.6 27.9	55.4 65.1
Laas (Frizzi)	18.2	54.6	27.2
Tirol (Frizzi)	20.8	46.4	32.8
Disentis (Wettstein)	4.0	40.9	55.1
Alamannen of Augst (Schwerz)	22.0	59.0	19.0
Magyar (Davida)	10.3	41.4	48.3
Walach (Davida)	7.3	32.7	60.0
Slovenes (Weisbach)	1.6(1)	33.3(20)	65.0(39)
Serbokroats (Weisbach)		10.0(8)	90.0(72)

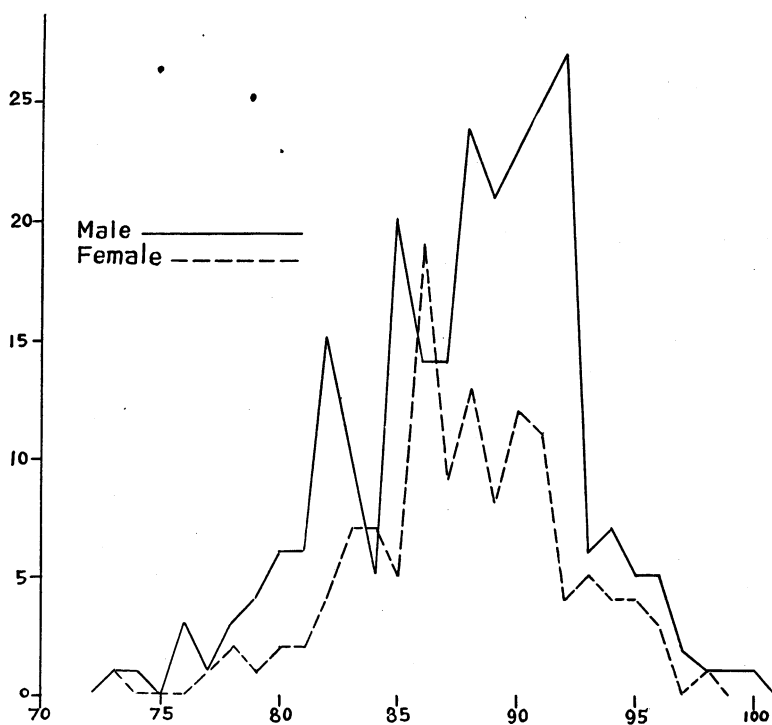


Fig. 4. Distribution of Breadth-Height Index

BREADTH-HEIGHT INDEX

Reicher has mentioned the lesser importance of the breadth-height index in defining the relative height of the skull. To a certain degree the differences which we established between the Greifenberg and other series are not so evident here. The Bündner group from Switzerland still maintains this difference but other Swiss such as the Daniser, the Walliser, and the Tirolese show not a great dissimilarity between their means and the means for the Greifenbergers. As we would expect under such circumstances, the Württembergers do not differ to an essential degree from our series.

TABLE 26

BREADTH-HEIGHT INDEX

	Male	Male and Female	Female
Greifenberg	87.82±.20	87.77	87.66±.26
Old Bavarian (Ranke)	89.10		88.80
Bavarian Foothills (Ried)	89.30	89.40	89.80
Württemberg (Häcker)	88.50(88.32)	(88.60)	88.46(88.07)
Laas (Frizzi)	88.00	88.00	88.20
Tirol (Frizzi)		87.50	
Tirol (Holl)		88.40	
Tirol (Strauch)		89.50	
Walser (Wacker)	87.89	88.02	88.23
Danis (Reicher)	88.40±.38	88.10±.30	87.30±.65
Disentis (Wettstein)		88.50	
Wallis (Pittard)	88.42	88.06	87.64
Puschlaver (Scholl)		86.80	
Davoser (Scholl)		89.40	
Bündner (Hovelacque)		91.00	
Bündner (His)		95.40	
Bündner (Baer)		90.10	
Alamannen (Schwerz)		92.80	
Magyar (Davida)	91.20	90.10	87.60
Walach (Davida)	91.30	90.80	89.70

TABLE 27
DIVISIONS OF THE BREADTH-HEIGHT INDEX

	Tapeinocran X—91.9 %	Metriocran 92.0—97.9 %	Akrocran 98—X %
Greifenberg	♂ 88.84 ♀ 86.40	11.16 13.60	
Bavarian Foothills (Ried)	♂ 73.3 ♀ 69.8	23.7 30.2	3.0
Tirol (Frizzi)	77.5	19.9	2.6
Disentis (Wettstein)	81.1	16.9	2.0
Franks of Hainaut (Houzé)	33.3	45.4	21.2

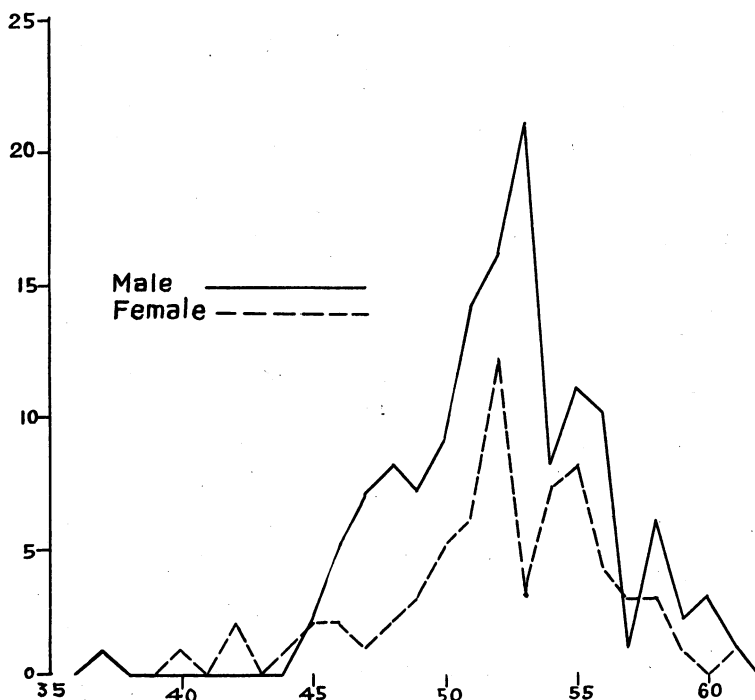


Fig. 5. Distribution of Upper Facial Index

UPPER FACIAL INDEX

The mean upper face index of both male and female Greifenbergers falls well within the mesene group. The pure Disentis type, on the other hand, described by Reicher and Wettstein, is relatively broader faced, averaging just above euryene. The Greifenbergers can not be said to be distinctive among their neighbors since we find that the differences for the upper face index between them and the inhabitants of the Bavarian Foothills, Old Bavarians, Tirolese, and Slavs as well as other groups are not of great magnitude. Unfortunately, we have only the index of the means for the Württembergers, but assuming this as approximate, the difference between it and the means for the Greifenbergers is not large.

TABLE 28
UPPER FACIAL INDEX

	Male	Male and Female	Female
Greifenberg	52.26±.20	52.18	52.03±.34
Old Bavarian (Ranke)	52.4	52.60	52.80
Bavarian Foothills (Ried)	51.87	52.44	53.81
Württemberg (Häcker)	53.60		52.88 ¹
Laas (Frizzi)	55.10	53.90	52.00
Tirol (Frizzi)		52.50	
Walser (Wacker)	53.53	53.08	52.31
Danis (Reicher)	50.00±.34	50.10±.30	52.00±.85
Disentis (Wettstein)		50.10	
Zurich (Schwerz)	54.50		54.50
Alamannen (Schwerz)		53.40	
Magyar (Davida)	51.10		51.40
Walach (Davida)	49.30		50.60
Weisbach:			
Serbokroats	51.40		
Old Bosnians	52.70(6)		
Czechs	53.30		
Poles	52.60		
Ruthenians	52.60		
Venetians	53.40		
Greeks	53.70		
Turks	53.30		

¹Index of means.

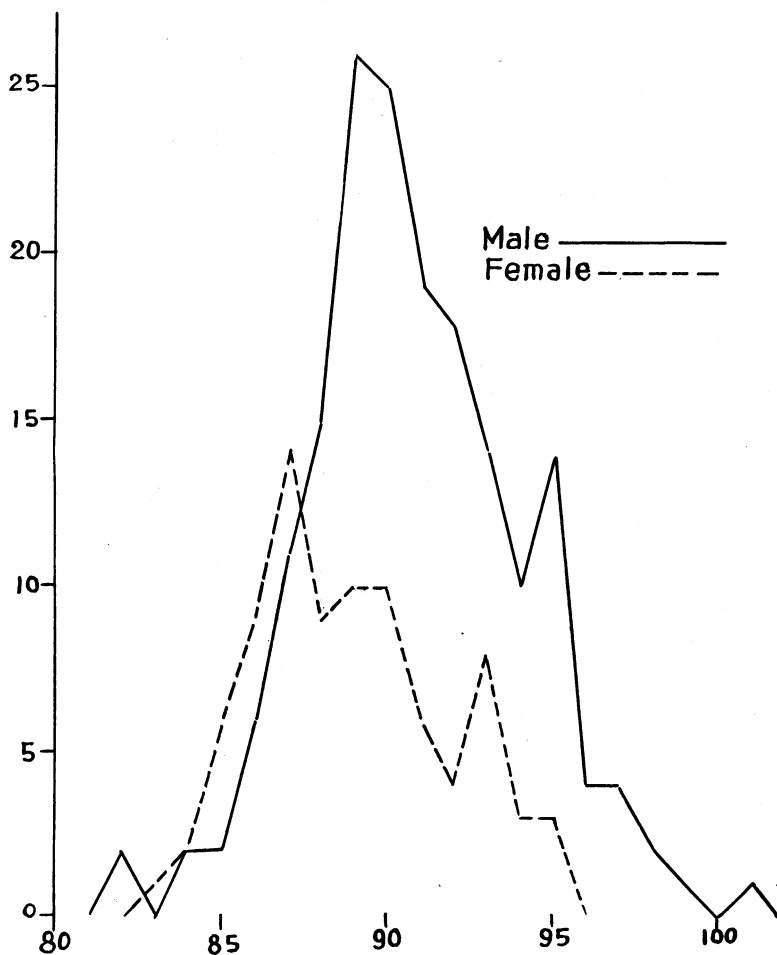


Fig. 6. Distribution of Cranio-Facial Index

CRANIO-FACIAL INDEX

The mean cranio-facial index of 90.82 for Greifenberg males is slightly higher than that for the modern Swiss groups. The agreement with the Tirolese, however, is closer. The Alamannen have an average cranio-facial index which is still higher than the Carinthian.

TABLE 29

CRANIO-FACIAL INDEX

	Male	Male and Female	Female
Greifenberg	90.82±.16	90.21	88.94±.21
Old Bavarian (Ranke)		89.10	
Bavarian Foothills (Ried)	89.33	88.72	87.27
Württemberg (Häcker)	90.16		87.08 ¹
Laas (Frizzi)	90.90	90.21	88.10 ¹
Tirol (Frizzi)		90.10	
Walser (Wacker)	89.43	89.20	88.80
Danis (Reicher)	89.90±.35	88.80±.34	85.30±.72
Disentis (Wettstein)		88.51	
North Swiss (Schwurz)		88.30	
Alamannen (Schwurz)		91.40	
Alamannen Baden (Schwurz)		91.90	

¹Index of means.

FRONTO-PARIETAL INDEX

The modern brachycephals of the central highlands show great similarity in the mean fronto-parietal index. From Schwerz's data on Nordic and mixed Nordic groups it is apparent that for this trait the present Alpine type is clearly differentiated from the Alamannen and kindred groups. Among the Alamannen, the Carolingians, the Merovingians, the Northwest Germans, and the Swedes this index ranges from 69 to about 71. For the Swiss and Tirolese in Table 30 the index averages 66-67. Not only the Greifenbergers but the Bavarians and Württembergers agree very closely with the modern Swiss and Tirolese.

TABLE 30
FRONTO-PARIETAL INDEX

	Male	Male and Female	Female
Greifenberg	66.42±.12	66.52	66.74±.17
Old Bavarian (Ranke)		67.80	
Bavarian Foothills (Ried)	67.30	66.70(67.0)	66.10
Württemberg (Häcker)	65.70		65.70
Laas (Frizzi)	66.50	67.10	67.80
Tirol (Frizzi)		66.60	
Walser (Wacker)	66.61	66.90	67.38
Danis (Reicher)	66.90	66.80	66.80
Disentis (Wettstein)		66.40	
North Swiss (Schwerz)		67.10	
Schaffhausen (Schwerz)		66.60	
Alamannen (Schwerz)	68.90	69.20	69.70

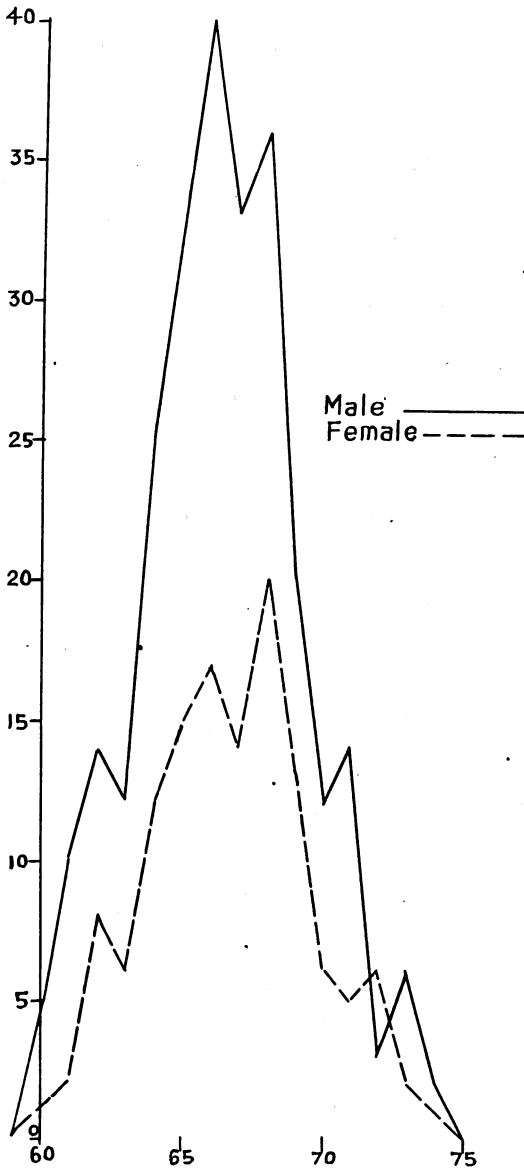


Fig. 7. Distribution of Fronto-Parietal Index

NASAL INDEX

In general the range of mean nasal index in Table 31 is very small. Although its diagnostic value is lessened in this instance, there are small differences which are of some significance. Both the Swiss and the Tirolese are in rather close agreement with the Greifenbergers and are in the mesorrhine division. The Württembergers and Walser tend, however, toward leptorrhiny. Among the Slovenes and Serbokroats also the mean nasal index is lower than that of the Carinthians from Greifenberg.

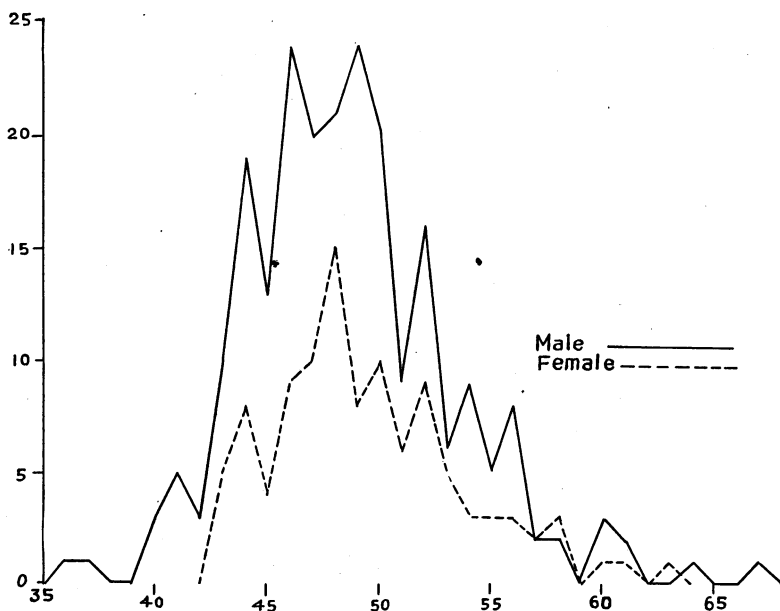


Fig. 8. Distribution of Nasal Index

TABLE 31
NASAL INDEX

	Male	Male and Female	Female
Greifenberg	48.61±.21	48.93	49.61±.28
Old Bavarian (Ranke)	48.70	48.90	49.20
Bavarian Foothills (Ried)	49.42	49.30	49.01
Württemberg (Häcker)	46.59(46.99)	(47.56)	50.33(49.43)
Laas (Frizzi)	48.90	48.70	48.30
Tirol (Frizzi)		47.50	
Walser (Wacker)	46.72	46.57	46.32

TABLE 31 (Continued)

NASAL INDEX

	Male	Male and Female	Female
Danis (Reicher)	47.10±.37	48.20±.36	47.50±.76
Disentis (Wettstein)		48.30	
Wallis (Pittard)	48.30		49.95
Schaffhausen (Schwerz)		46.60	
Alamannen (Schwerz)		47.30	
Magyar (Davida)	48.30		50.00
Walach (Davida)	48.60		50.20
Weisbach:			
Slovenes	46.00		
Serbokroats	47.00		
Old Bosnians	49.40		
Greeks	47.00		
Turks	46.10		

TABLE 32

DIVISIONS OF THE NASAL INDEX

	Leptorrhine	Mesorrhine	Chamaerhine	Hyper-chamaerhine
	%	%	%	%
Greifenberg	{ ♂ 43.42 ♀ 32.26	32.46 35.09	21.05 26.42	3.07 2.83
Old Bavarian (Ranke)	{ ♂ 27.15 ♀ 33.3 ♂ + ♀ 30.3	41.4 31.9 36.6	27.15 30.6 28.9	4.3 4.2 4.2
Bavarian Foothills (Ried)	{ ♂ 27.8 ♀ 35.7 ♂ + ♀ 30.2	34.0 23.8 30.9	35.1 38.1 36.0	3.1 2.4 2.9
Laas (Frizzi)	43.7	20.5	33.3	2.6
Tirol (Frizzi)	49.7	27.2	21.5	1.6
Walser (Wacker)	{ ♂ 47.0 ♀ 57.7 ♂ + ♀ 51.5	43.0 26.9 37.1	10.0 15.4 11.4	
Disentis (Wettstein)	42.0	31.6	23.3	3.2
Wallis (Pittard)	{ ♂ 50.7 ♀ 33.0	33.9 44.0	15.0 22.0	
Wallis (total)	51.9	32.7	15.3	
Magyar (Davida)	47.1	27.1	27.1	4.7
Walach (Davida)	35.2	33.3	29.6	1.8

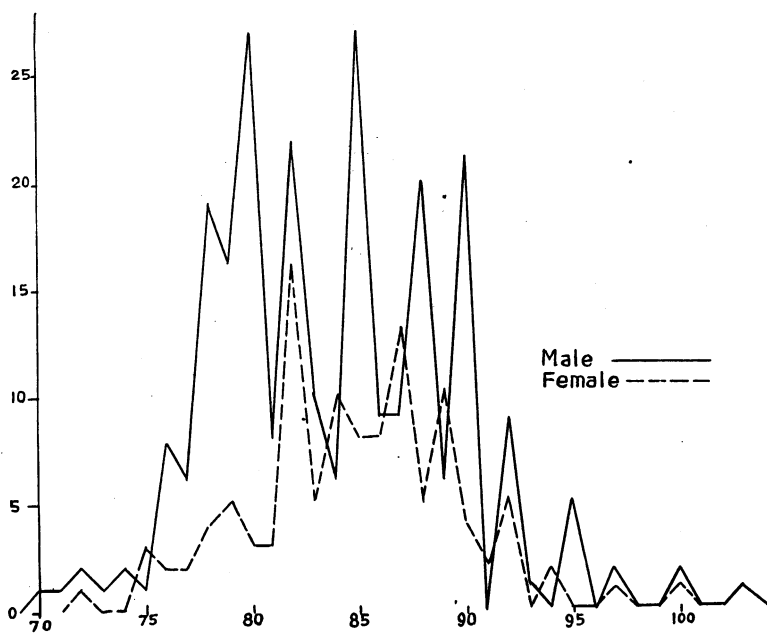


Fig. 9. Distribution of Orbit Index—Right

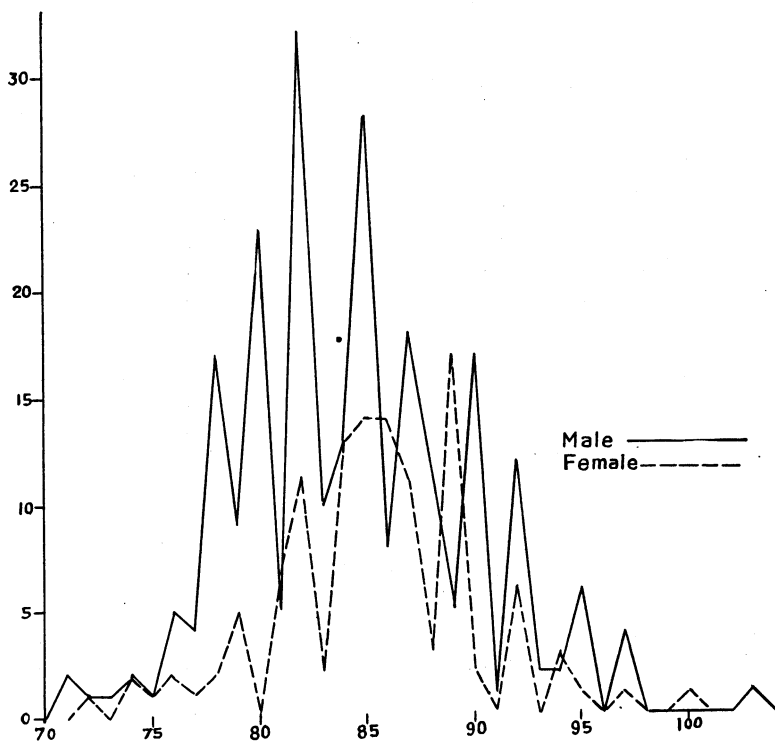


Fig. 10. Distribution of Orbit Index—Left

ORBITAL INDEX

The differences in technique used in measuring orbital width are sufficient to account for the variations in the orbital index given in Table 33. For the Greifenbergers and the two Bavarian series dacryon was the anatomical point used. The Tirolese and the Swiss groups, with the exception of the Disentis, were measured from maxillo-frontale, thus giving lower indices. However, all these Central European brachycephals are mesoconch. It is probable that, were the technique comparable in each case, the agreement would be closer. The Bavarians have slightly higher indices than the Greifenbergers. The Slovenes and Serbokroats also show an approximation to the Carinthians.

TABLE 33
ORBITAL INDEX

	Male	Male and Female	Female
Greifenberg	r 83.77 ¹ ±.24 1 84.32 ¹ ±.23	84.08 84.65	84.74±.29 85.30±.29
Old Bavarian (Ranke)		85.50	
Bavarian Foothills (Ried)	84.40 ¹	85.90	87.50
Württemberg (Häcker)	85.85 ¹ (85.57)	(85.41)	85.11(86.45)
Laas (Frizzi)	81.00 ²	81.90	83.40
Tirol (Frizzi)		80.60	
Walser (Wacker)	78.51 ²	78.81	79.31
Danis (Reicher)	81.20 ² ±.43	81.70±.37	83.90±.82
Disentis (Wettstein)		87.30 ¹	
Schaffhausen (Schwerz)		80.30 ²	
Alamannen (Schwerz)		81.10 ²	
Magyar (Davida)	87.70		88.30
Walach (Davida)	83.50		87.90
Weisbach:			
Slovenes	84.00		
Serbokroats	84.60		
Old Bosnians	83.80		
Czechs	84.60		
Poles	81.50		
Ruthenians	82.00		
Venetians	84.60		
Greeks	87.10		
Turks	89.40		

¹Orbital width taken to dacryon.²Orbital width taken to maxillo-frontale.

GNATHIC INDEX

The mean gnathic index for the Greifenberg males is 95.35 and for the females 95.36. Although, as a measure of prognathism, this index is not as satisfactory nor as widely used as the profile angles, it does give a crude estimate of the projection of the face. According to the classification of the gnathic index the Greifenbergers are orthognathous. This agrees with the orthognathous character, measured by angles, of the comparative groups. The index of the means, obtained for the combined males and females of the Bavarian Foothills series, is 93.8, and therefore indicates a slightly more orthognathous face.

MAXILLO-ALVEOLAR INDEX

The groups listed in Table 34 are all brachyuranic, but the means for the Greifenbergers are relatively broader by a considerable margin than any of the comparative series. In fact, the Greifenbergers stand midway between the Kalmucks and the Central Europeans.

TABLE 34
MAXILLO-ALVEOLAR INDEX

	Male	Male and Female	Female
Greifenberg	121.48±.48	121.71	122.14±.72
Bavarian Foothills (Ried)	116.34	118.09	123.09
Walser (Wacker)	117.70	118.15	118.91
Danis (Reicher)		117.70	

TABLE 35
SUMMARY OF MEASUREMENTS AND INDICES

Measurements	N	Mean	P. E.	S. D.	P. E.	Coef. of Var.	P. E.
Cranial Capacity	m. 233	1494.03	5.10	115.46	3.61	7.73	.24
	f. 115	1316.96	5.83	92.76	4.12	7.04	.31
Head Length	m. 277	178.26	.29	7.06	.20	3.96	.11
	f. 135	168.65	.33	5.62	.23	3.33	.14
Head Width	m. 266	146.91	.23	5.53	.16	3.76	.11
	f. 130	140.18	.28	4.80	.20	3.42	.14
Basion-Bregma	m. 266	128.71	.23	5.59	.16	4.34	.13
	f. 131	122.70	.30	5.01	.21	4.08	.17
Minimum Frontal Diameter	m. 281	97.62	.18	4.51	.13	4.62	.13
	f. 135	93.58	.25	4.34	.18	4.64	.19
Bizygomatic Diameter	m. 176	133.61	.27	5.24	.19	3.92	.14
	f. 88	124.74	.32	4.50	.23	3.61	.18
Upper Face Height	m. 192	69.32	.22	4.43	.15	6.39	.22
	f. 93	64.56	.31	4.45	.22	6.89	.34
Nose Height	m. 255	50.58	.12	2.88	.09	5.69	.17
	f. 124	47.56	.17	2.86	.12	6.01	.26
Nose Width	m. 233	24.55	.08	1.89	.06	7.70	.24
	f. 108	23.42	.08	1.27	.06	5.42	.25
Orbit Width—rt	m. 246	40.06	.07	1.66	.05	4.14	.13
	f. 115	38.24	.10	1.66	.07	4.34	.19
Orbit Width—lt	m. 246	39.61	.07	1.74	.05	4.39	.13
	f. 120	37.95	.09	1.48	.06	3.90	.17
Orbit Height—rt	m. 252	33.50	.09	2.07	.06	6.18	.19
	f. 116	32.47	.11	1.73	.08	5.33	.24
Orbit Height—lt	m. 247	33.38	.09	2.07	.06	6.20	.19
	f. 123	32.40	.11	1.84	.08	5.68	.24
Basion-Nasion	m. 263	98.05	.17	4.19	.12	4.27	.13
	f. 130	92.02	.23	3.93	.16	4.27	.18
Basion-Prosthion	m. 180	93.22	.26	5.10	.18	5.47	.19
	f. 84	88.00	.38	5.23	.27	5.94	.31
Maxillo-Alveolar Length	m. 183	52.01	.16	3.18	.11	6.11	.22
	f. 79	48.91	.22	2.86	.15	5.85	.31
Maxillo-Alveolar Breadth	m. 116	63.39	.20	3.26	.14	5.14	.23
	f. 66	59.56	.22	2.65	.16	4.45	.26
Foramen Magnum Length	m. 263	37.55	.12	2.93	.09	7.80	.23
	f. 126	35.05	.15	2.47	.10	7.05	.30
Foramen Magnum Breadth	m. 259	31.67	.10	2.41	.07	7.61	.23
	f. 125	29.59	.13	2.08	.09	7.03	.30
Horizontal Cir- cumference	m. 272	517.92	.58	14.14	.41	2.73	.08
	f. 132	493.23	.71	12.15	.50	2.46	.10
Sagittal Arc to Bregma	m. 267	126.56	.25	6.07	.18	4.80	.14
	f. 132	121.20	.31	5.25	.22	4.33	.18

TABLE 35 (*Continued*)

SUMMARY OF MEASUREMENTS AND INDICES							
Measurements	N	Mean	P. E.	S. D.	P. E.	Coef. of Var.	P. E.
Bregma to Lambda	m. 223	122.51	.32	7.02	.22	5.73	.18
	f. 109	116.40	.44	6.80	.31	5.84	.27
Lambda to	m. 234	115.33	.32	7.34	.23	6.36	.20
Opisthion	f. 108	110.88	.39	6.05	.28	5.46	.25
Sagittal Arc	m. 261	364.03	.49	11.78	.35	3.07	.09
Entire	f. 130	348.90	.57	9.66	.40	2.77	.12
Transverse Arc	m. 273	315.52	.44	10.83	.31	3.43	.10
	f. 132	302.98	.54	9.17	.38	3.03	.13
Indices							
Length-Breadth	m. 261	82.51	.18	4.29	.13	5.20	.15
	f. 128	83.13	.23	3.93	.17	4.73	.20
Length-Height	m. 260	72.40	.16	3.83	.11	5.29	.16
	f. 129	72.85	.20	3.39	.14	4.65	.20
Breadth-Height	m. 251	87.82	.20	4.74	.14	5.40	.16
	f. 125	87.66	.26	4.36	.19	4.95	.21
Fronto-Parietal	m. 264	66.42	.12	2.91	.09	4.38	.13
	f. 128	66.74	.17	2.89	.12	4.33	.18
Gnathic	m. 179	95.35	.23	4.64	.17	4.87	.17
	f. 83	95.36	.37	4.98	.26	5.22	.27
Cranio-Facial	m. 176	90.82	.16	3.21	.12	3.53	.13
	f. 85	88.94	.21	2.89	.15	3.25	.17
Upper Facial	m. 132	52.26	.20	3.49	.14	6.68	.28
	f. 67	52.03	.34	4.17	.24	8.01	.47
Nasal Index	m. 228	48.61	.21	4.65	.15	9.57	.30
	f. 106	49.61	.28	4.23	.20	8.53	.40
Orbital—rt	m. 242	83.77	.24	5.49	.17	6.55	.20
	f. 113	84.74	.29	4.53	.20	5.35	.24
Orbital—lt	m. 241	84.32	.23	5.33	.17	6.32	.20
	f. 120	85.30	.29	4.70	.20	5.51	.24
Maxillo-Alveolar	m. 116	121.48	.48	7.68	.34	6.32	.28
	f. 64	122.14	.72	8.51	.51	6.97	.42
Foramen Magnum	m. 253	84.64	.25	5.78	.17	6.83	.20
	f. 122	84.64	.36	5.82	.25	6.88	.30

OBSERVATIONS

Each skull was carefully observed for the degree of development of a number of non-mensurable traits which have a diagnostic value both for racial differentiation and the evolution of human characters. For the most part, the standards used in estimating the various degrees of development are based on those given by Martin (1914). The inadequacy of some of the classifications, as well as the lack of standardization, reduce considerably the significance of the conclusions which may be drawn from statistical comparisons. The comparative data are unfortunately very inadequate so that our descriptions must of necessity be specific.

The contour of the skull in the *norma verticalis* was classified according to Sergi's scheme. From Table 36 it is apparent that the differences between the males and females are not very great. In general, the females are more evenly divided among all the classes.

The vault viewed from the *norma facialis* may be classified according to contours which may be flat, convex, scaphoid, or ridged. Usually scaphoid and ridged contours are regarded as primitive characters and are indeed found frequently among the Australians where the skull gives an impression of being poorly filled out. In Table 37 we see that in the male 10.9 per cent are scaphoid and .4 per cent are ridged. Compared with Hooton's Canary Islanders this is relatively few. The sex difference is clearly shown in the greater tendency for the female crania to present rounded contours.

TABLE 36
CONTOUR OF THE VAULT IN NORMA VERTICALIS

	Male		Female	
	No.	%	No.	%
Ellipse	48	17.2	18	13.0
Ovoid	59	21.1	26	19.3
Sphenoid	32	11.5	26	19.3
Pentagonoid	42	15.1	28	20.7
Sphere	82	29.4	21	15.6
Rhomboid	16	5.7	16	11.9
Total	279	100.0	135	99.8

TABLE 37
CONTOUR OF THE VAULT IN NORMA FACIALIS

	Male		Female	
	No.	%	No.	%
Ridged	1	.4	0	0.0
Scaphoid	31	10.9	4	2.9
Convex	220	77.7	109	79.0
Flat	31	10.9	25	18.1
Total	283	99.9	138	100.0

Both the coronal and sagittal sutures were observed and recorded as simple, medium, or complex; the progress in obliteration of the sutural lines was also noted. As we expect, the Greifenbergers show a very high percentage of complicated sutural lines. The sex difference is small and unimportant. The coronal suture is much more complex and has a higher percentage of open sutural lines than the sagittal. This agrees with Hooton's demonstration that the sagittal suture is first in the sequence of obliteration.

TABLE 38
SAGITTAL SUTURE

	Male		Female	
	No.	%	No.	%
Complex	30	14.0	24	19.0
Medium	116	54.0	64	50.8
Simple	69	32.1	38	30.2
Total	215	100.1	126	100.0
Open	122	43.3	101	74.8
Medium	93	33.0	24	17.8
Obliterated	67	23.7	10	7.4
Total	282	100.0	135	100.0

TABLE 39
CORONAL SUTURE

	Male		Female	
	No.	%	No.	%
Complex	125	47.3	63	49.2
Medium	110	41.7	54	42.2
Simple	29	11.0	11	8.6
Total	264	100.0	128	100.0
Open	191	68.7	102	75.00
Medium	67	24.1	25	18.4
Obliterated	20	7.2	9	6.6
Total	278	100.0	136	100.0

Wormian bones represent disturbances in ossification and are found along the sutural lines of the vault. They appear in the region of lambda in about 40 per cent of the Greifenberg series. In the coronal suture they are present in about 5 per cent and are very rare in the sagittal suture. The bregma bone is absent among males and occurs in 2.2 per cent of the females. Ried found a bregma bone in 1.38 per cent of his series from the Bavarian Foothills. The inca bone also is extremely rare, being present in its complete form in only .4 per cent of the males. Wacker states that wormian bones are frequent in the Walser, but he gives no percentages. Among the Bavarians of the Foothills Ried found 25.9 per cent with wormian bones, but a complete absence of the inca bone.

TABLE 40
CORONAL SUTURE BONES

		Male		Female	
		No.	%	No.	%
Absent		269	94.7	132	95.7
Present—Small	—1	5		2	
	2	1			
	3	1			
Medium	—1	5		1	
	2			1	
	3	1		1	
Large	—1	1			
	2			1	
	3	1			
		1½	5.3	6	4.3
Total		284	100.0	138	100.0

TABLE 41
BREGMA BONE

		Male		Female	
		No.	%	No.	%
Present		0	0.0	3	2.2
Absent		284	100.0	138	97.8
Total		284	100.0	141	100.0

TABLE 42
LAMBDOIDAL SUTURE BONES¹

	Male		Female	
	No.	%	No.	%
Absent	169	59.9	82	60.3
Present	113	40.1	54	39.7
Total	282	100.0	136	100.0

TABLE 43
ASTERIONIC SUTURE BONES²

	Male		Female	
	No.	%	No.	%
Absent	191	67.7	91	66.4
Present	91	32.3	46	33.6
Total	282	100.0	137	100.0

TABLE 44
INCA BONE

	Male		Female	
	No.	%	No.	%
Absent	280	99.3	137	100.0
Incomplete	1	.4	0	0.0
Complete	1	.4	0	0.0
Total	282	100.1	137	100.0

In about 60 per cent of both males and females the narrow H form appears on right and left sides of the skull. In 23 per cent the broad H is found on both sides. In eleven males and four females epipteric bones occur on right and left sides. The remaining crania show combinations of narrow and broad H, *pterion retourné*, and epipteric bone; the *pterion retourné* and epipteric bone being the least frequent.

¹The tabulation of the number and size of the lambdoidal suture bones present is too complicated to be very significant. The bones are of all sizes and range in number from one or two up to twenty or more, with a number of doubtful cases.

²See note for lambdoidal suture bones.

Metopism is found most frequently in Europeans. It is classified as complete when the suture extends from nasion to bregmatic area. In 12.7 per cent of males and 19.6 per cent of females the metopic suture was complete. It was incomplete in 9.5 per cent of the males and in 7.2 per cent of the females. These figures agree with the percentages given for other Central European groups. Ried found incomplete metopism in 13.2 per cent of his Bavarian series and 6.25 per cent with complete metopism. Among other Central European groups various authors give percentages from 7.14 to 10.7 for complete metopism.

TABLE 45

METOPISM

	Male		Female	
	No.	%	No.	%
Absent	220	77.7	101	73.2
Nasion to Glabella	27	9.5	10	7.2
Complete	36	12.7	27	19.6
Total	283	99.9	138	100.0

The slope of the forehead is given in Table 46. The females show the usual sex tendency toward a more vertical forehead.

TABLE 46

FOREHEAD SLOPE

	Male		Female	
	No.	%	No.	%
Vertical	54	19.6	83	62.4
Moderate slope	154	56.0	46	34.6
Marked slope	67	24.4	4	3.0
Total	275	100.0	133	100.0

Observations on prognathism are only approximate since the classifications of the facial profile were made on judgments of the skull held in the eye-ear plane. Alveolar prognathism is meant to describe the type of facial projection which involves the sub-nasal part of the maxilla. The majority of the Greifenbergers are orthognathous which agrees with observations on other Central European groups. Ried found that in 82.0 per cent of the Bavarians of his group the facial angle fell between 85 and 92 degrees. As we expect the women tend to be less prognathous than the men, but for alveolar prognathism the differences are not great.

The suborbital or canine fossa is medium to shallow among the Greifenbergers. Hooton finds among the Canary Islanders a much greater percentage of deep fossæ. Martin states that in Europeans and Melanesians the canine fossa is deep while it tends to be shallow among Mongols and Mongoloids.

TABLE 47
PROGNATHISM

	Male		Female	
	No.	%	No.	%
Absent	179	68.6	98	78.4
Slight	65	24.9	18	14.4
Medium	8	3.1		
Degree unspecified			2	1.6
Alveolar—slight	8	3.1	5	4.0
medium	1	.4	1	.8
pronounced			1	.8
Total	261	100.1	125	100.0

TABLE 48
SUBORBITAL FOSSAE

	Male		Female	
	No.	%	No.	%
Shallow	118	44.5	77	59.7
Medium	134	50.6	42	32.5
Deep	12	4.5	8	6.2
Shallow right }				
Medium left }	1	.4	0	0.0
Shallow left }				
Medium right }	0	0.0	1	.8
Medium right }				
Deep left }	0	0.0	1	.8
Total	265	100.0	129	100.0

In 24.6 per cent of the females and 2.1 per cent of the males the glabella is smooth while it is pronounced in 32.0 per cent of the males and in none of the females. In Tables 49 and 50 additional data on the region of the glabella show a marked sex difference in prominence of the supraorbital ridge. The ridge is mostly confined to the mesial half of the frontal area although in the males there is a tendency to a greater extension of this area.

TABLE 49
DEVELOPMENT OF GLABELLA

	Male		Female	
	No.	%	No.	%
Absent	6	2.1	34	24.6
Slight	58	20.6	90	65.2
Medium	127	45.2	14	10.1
Marked	90	32.0	0	0.0
Total	281	99.9	138	99.9

TABLE 50
SUPRAORBITAL RIDGE

	Male		Female	
	No.	%	No.	%
Smooth	0	0.0	4	2.9
Mesial half of orbit	242	85.8	132	96.4
Mesial two-thirds of orbit	40	14.2	1	.7
Complete torus	0	0.0	0	0.0
Total	282	100.0	137	100.0
Smooth-no ridge	0	.0	4	2.9
Very slight	0	.0	28	20.4
Slight	44	15.9	88	64.2
Medium	118	42.6	17	12.4
Pronounced	115	41.5	0	0.0
Total	277	100.0	137	99.9

In Tables 51 to 54 the observations on the nose are summarized. The root of the nose is depressed in only 19.2 per cent of the males and in none of the females. This is considerably less than Hooton found for the Canary Islanders. The sex difference in nasion depression is associated with prominence of glabella as a sex character. The bridge of the nose has a slight to medium arch in the majority of individuals, but the males show a greater tendency towards a high arch. The lower border of the nasal aperture is predominantly of the anthropine form. Among the males there is a larger number of more primitive forms. The nasal spine is well developed: to a pronounced degree in 30.5 per cent of the males and 10.1 per cent of females.

TABLE 51
ROOT OF NOSE

	Male		Female	
	No.	%	No.	%
Depressed	52	19.2	0	0.0
Medium	112	41.3	14	10.4
High	107	39.5	120	89.6
Total	271	100.0	134	100.00

TABLE 52
BRIDGE OF NOSE

	Male		Female	
	No.	%	No.	%
Flat	28	18.2	11	18.0
Slight Arch	74	48.1	38	62.3
Medium	47	30.5	12	19.7
High Arch	5	3.2	0	0.0
Total	154	100.0	61	100.0

TABLE 53
LOWER BORDER OF NASAL APERTURE

	Male		Female	
	No.	%	No.	%
Anthropine	174	67.2	92	73.0
Infantile	57	22.0	31	24.6
Fossæ	26	10.0	3	2.4
Sulci	2	.8	0	0.0
Total	259	100.0	126	100.0

TABLE 54
NASAL SPINE

	Male		Female	
	No.	%	No.	%
Absent	1	.5	1	1.3
Slight	40	19.7	28	35.4
Medium	100	49.3	42	53.2
Pronounced	62	30.5	8	10.1
Total	203	100.0	79	100.0

The contour of the upper arch is dominantly of parabola form in both male and female. The percentage for males is 83.3 and females 79.0. Ried gives 47.3 per cent for males and 77.1 per cent for females which is less than those for the Greifenbergers. Frizzi in the Tirol and Wacker in the Vorarlberg also found a smaller number of paraboloid contours for the upper arch. Strangely, the U-shaped contour, which is primitive, was found much more frequently by the above authors than I observed among the Greifenbergers. The Canary Islanders, especially the Teneriffe crania, show the same tendency to paraboloid forms as do the Carinthians from Greifenberg.

The palate is generally medium in depth with a greater trend towards a shallow than a deep palate. The palatine torus appears fre-

quently among the Greifenberg crania. Wacker finds 41.4 per cent among the Walser with a palatine torus. This figure agrees closely with that for our series. The percentage is considerably less, however, for the Bavarians of the Foothills and the Tirolese; Ried gives 15.0 per cent for male Bavarians and Frizzi 16.6 per cent for Tirolese. The wear of the teeth is more marked among males than females.

TABLE 55
CONTOUR OF UPPER ARCH

	Male		Female	
	No.	%	No.	%
Parabola	180	83.3	83	79.0
Ellipse	25	11.6	19	18.1
U-shaped	11	5.1	3	2.9
Total	216	100.0	105	100.0

TABLE 56
DEPTH OF PALATE

	Male		Female	
	No.	%	No.	%
Deep	35	17.8	14	13.7
Medium	103	52.3	48	47.1
Shallow	59	29.9	40	39.2
Total	197	100.0	102	100.0

TABLE 57
PALATINE TORUS

	Male		Female	
	No.	%	No.	%
Absent	153	59.5	61	50.4
Slight	77	30.0	45	37.2
Medium	23	8.9	13	10.7
Pronounced	4	1.6	2	1.7
Total	257	100.0	121	100.0

TABLE 58
WEAR OF TEETH

	Male		Female	
	No.	%	No.	%
Absent	3	2.0	5	6.9
Slight	30	20.4	19	26.4
Medium	51	34.7	27	37.5
Pronounced	63	42.9	21	29.2
Total	147	100.0	72	100.0

The facies of the occipital region show well marked sex differences. In Tables 59 and 60 a perusal of the percentages indicates the much greater relief on the male crania. In general the males have a medium occipital torus and a slight inion, while the female crania are distinguished by a slight torus and no developed inion.

TABLE 59
OCCIPITAL TORUS

	Male		Female	
	No.	%	No.	%
Absent	16	5.7	37	27.2
Slight	126	45.2	89	65.4
Medium	104	37.3	9	6.6
Pronounced	33	11.8	1	.7
Total	279	100.0	136	99.9

TABLE 60
INION

	Male		Female	
	No.	%	No.	%
Absent	108	38.8	110	82.7
Slight	99	35.6	21	15.8
Medium	50	18.0	1	.8
Pronounced	21	7.6	1	.8
Total	278	100.0	133	100.1

TABLE 61
MASTOID DIVISION

	Male		Female	
	No.	%	No.	%
Absent	223	78.8	105	76.6
Trace: Right—Left	49	17.3	25	18.2
Right	3	1.1	3	2.2
Left	1	.4	3	2.2
Complete	5	1.8	0	.0
Miscellaneous	2	.7	1	.7
Total	283	100.1	137	99.9

TABLE 62
MASTOID PROCESSES

	Male		Female	
	No.	%	No.	%
Small	20	7.2	64	47.1
Medium	112	40.6	64	47.1
Large	142	51.4	8	5.9
Miscellaneous	2	.7	0	0.0
Total	276	99.9	136	100.1

TABLE 63
TYMPANUM

	Male		Female	
	No.	%	No.	%
Unperforated	246	86.9	120	87.0
Perforated right	6	2.1	1	.7
Perforated left	18	6.4	4	2.9
Perforated both sides	13	4.6	13	9.4
Total	283	100.0	138	100.0

TABLE 64
PETROUS PARTS

	Male		Female	
	No.	%	No.	%
Depression	5	1.9	1	.8
Slight	107	40.4	46	37.4
Medium	30	11.3	8	6.5
Pronounced	20	7.5	3	2.4
Level	75	28.3	47	38.2
Elevation	24	9.1	13	10.6
Slight	2	.8	2	1.6
Medium	0	0.0	1	.8
Pronounced	2	.8	2	1.6
Total	265	100.1	123	99.9

SUMMARY AND DISCUSSION

In the preceding craniological study it was my purpose to determine the position of the Greifenberg series from Carinthia in relation to representative groups from Central Europe. It was pointed out that this sample of the Carinthian population was obtained from a charnel house in Greifenberg. In Central Europe this method for the disposal of the dead ensured the collection of representative groups, which in this case is a cross-section of the inhabitants of Greifenberg in the seventeenth, eighteenth, and nineteenth centuries. In the absence of adequate published data from Carinthia, this group, although from a single hamlet, has an added significance in the investigation of Central European types and their distribution.

Before passing to our conclusions on the affinities of the Greifenberg series with those of Central Europe, we may succinctly characterize our group on the basis of the material presented. The size of these Carinthian crania, as measured by cranial capacity and the various arcs, is large; in fact, the mean cranial capacity falls in the classification of aristencephal. The mean cranial index is sub-brachycephalic. The height of the cranium in relation to length is moderately high or orthocran, but in its proportion to cranial width it is low or tapeinocran. The face is moderately wide in relation to upper face height, the mean upper face index being mesene. The negative correlation which is believed to exist between the cranial index and transverse fronto-parietal index is borne out in the Greifenberg series which for the fronto-parietal index is classified as metriometop. The cranio-facial index is low, indicating a skull which is wide in proportion to the face width. The nose is moderately wide, mesorrhine; the orbit also is moderately high, mesoconch, with, however, a tendency towards chamaeconch.

The morphological observations show that the series is not particularly distinguished in the *norma verticalis* by any one type of Sergi's type forms. In the *norma facialis*, however, the skull shows a well-rounded contour. The coronal and sagittal sutures have medium to complex serration, with the sagittal suture more complex than the coronal. Wormian bones are relatively rare except in the lambdoid suture where they are present at lambda in about 40 per cent and at asterion in 33 per cent. The inca bone is rare. In over 20 per cent of the skulls a complete or incomplete metopic suture was found. The region of the face reveals a well differentiated sex dimorphism. Prognathism is largely absent, but a slight degree occurs in 25 per cent of the males. The sub-orbital fossa is medium in depth among the males, but tends to be shallow

among the females. The males have well-marked glabellæ and supra-orbital ridges which are mainly confined to the median half of the orbit. The root of the nose is high in the females and medium to high in the males. The arch of the nasal bones is slight among the females, but in the males there is a marked tendency towards medium arch. In the majority of both sexes the lower border of the nasal aperture is anthropine in form; the nasal spine is well developed. Thus the nose shows clearly in its morphological characters a well-marked European development.

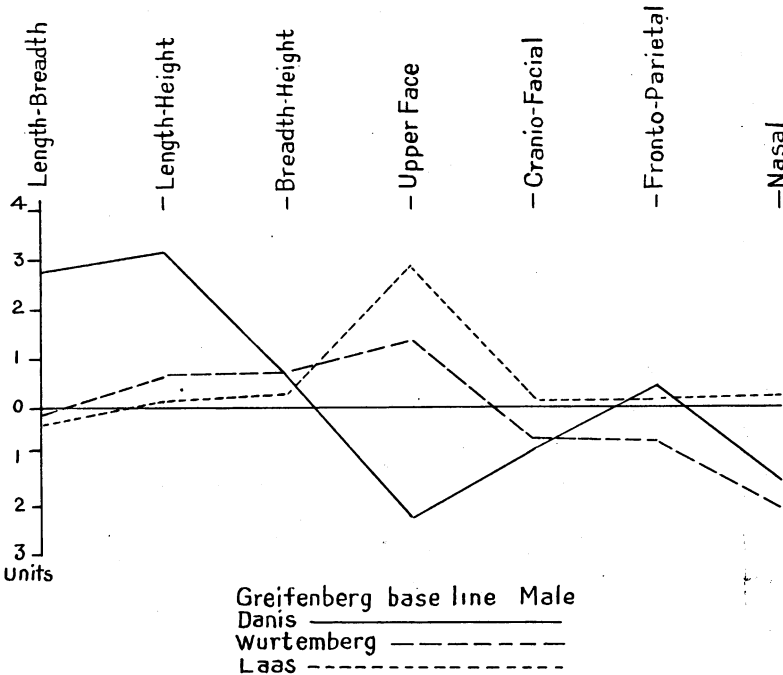


Fig. 11. Comparison of Mean Indices

The palate is paraboloid in contour and is of moderate depth. A palatine torus is absent in more than half of the cases, but in over 30 per cent a slight development is discernible. The occipital region also presents well-marked sex differences, for here the males tend to have medium development of the occipital torus and slight to medium inion, while the females are largely characterized by slight torus and absent inion.

It is apparent from the comparisons previously initiated that the Greifenberg series from Carinthia is related more closely to the brachycephalic groups of Alpine Europe than to any other generalized type.

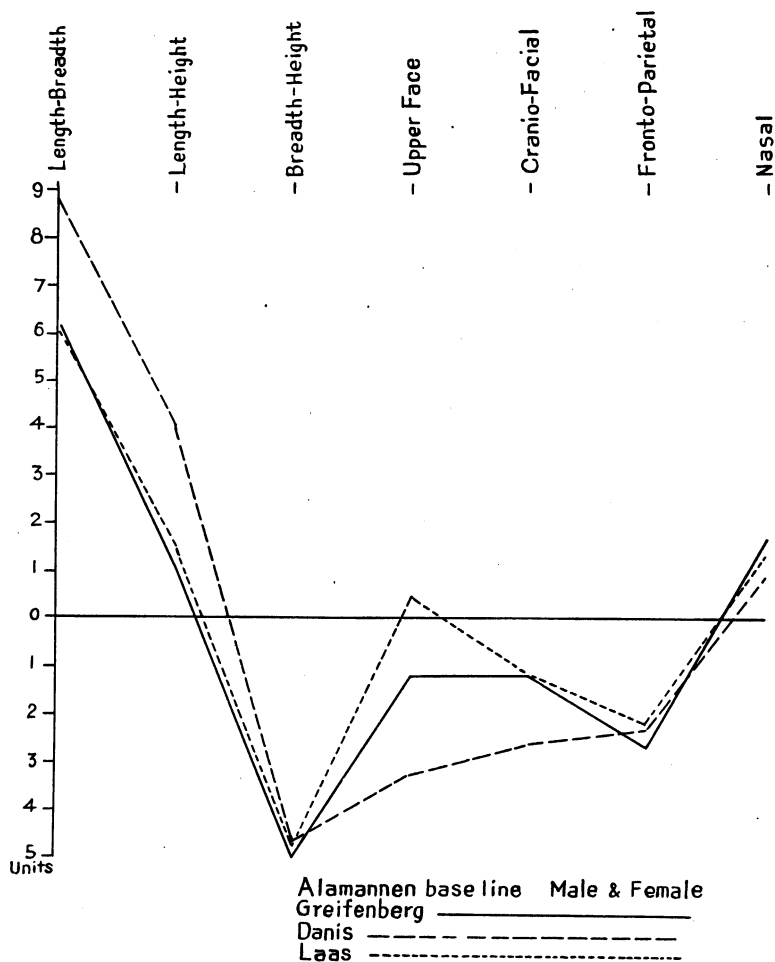


Fig. 12. Comparison of Mean Indices

This, of course, is not altogether unexpected, especially since, geographically, Carinthia is contiguous to the area under discussion. However, our principal interest is in determining the extent and direction of the deviation of the Greifenberg series, for in that is the clue for the isolation of the various elements which are present in this area. Without entering into a tedious enumeration, character by character, it is possible

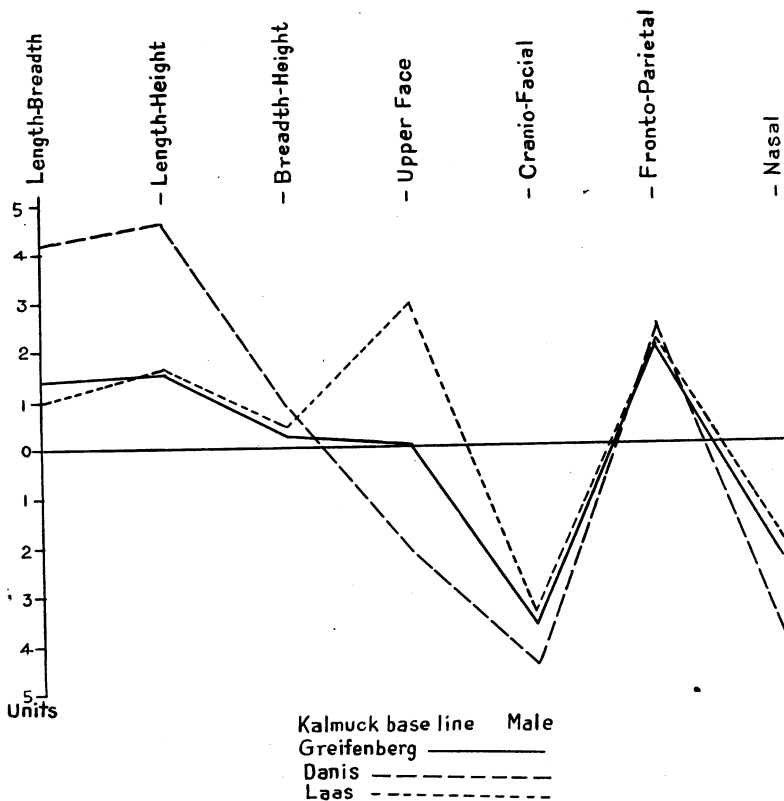


Fig. 13. Comparison of Mean Indices

to point out briefly the more important of the many comparisons which we have already discussed. Furthermore, as a means of presenting at a glance the deviations of the comparative groups from the Greifenberg means, I have prepared two tables, giving the differences of both measurements and indices. From a consideration of Table 65 we may obtain some appreciation of the size differences between the Greifengergers and the comparative groups. By disregarding the signs and

averaging the deviations, we obtain mean differences which bear out the detailed comparisons made above. These results may be briefly stated. The Württembergers are most like the Greifenbergers. The next in order of similarity are the inhabitants of the Bavarian Foothills. In the order of increasing magnitude of the average difference are the Slovenes, the Laaser, the Serbokroats, the Walser, the Daniser, and finally, the Old Bavarians.

Much more significant, however, in estimating relationships are the indices, which are summarized for their differences in Table 66. Here we see that the order is changed considerably. The three groups from Laas, Bavaria, and Württemberg show the least differences from the Greifenbergers. Of the strictly Alpine groups the type series from Danis is the farthest from the Carinthian series. But both Slavic series display the most significant differences. Fig. 11 shows these relationships graphically. In Figs. 12 and 13 the Greifenberg, Laas, and Danis series are plotted against a base line representing the Alamannen and Kalmucks, respectively. The modern Alpine groups compared with their predecessors, the Alamannen, reveal a unity; but, in comparison with the Kalmucks, the contrast is not so well marked for the indices of the vault, although the facial indices, as Reicher has already shown, are significantly different. If we now consider both figures, we discover that the curves of the Greifenberg series plotted against both the Alamannen and the Kalmucks are less divergent than are the corresponding curves of the Daniser.

We may conclude then that there is a center for a brachycephalic type which we may call Alpine or Disentis and which is localized in and typified by the Daniser from the canton of Disentis. This type is spread over much of the general Alpine area and even in neighboring zones its presence has been observed. On the borders, however, of this Alpine area we find certain deviations from the type which, as far as the evidence from Carinthia, Laas, Württemberg, and Bavaria goes, are all in a similar direction. Beyond the suggestion given above we can not go at the present in an attempt to isolate the elements which contribute to this divergence.

TABLE 65
DIFFERENCES OF THE MEANS—MEASUREMENTS

	Old Bavarian	Bavarian Foothills	Württem- berg	Laas	Walser	Danis	Slovenes	Serbo- kroats
Horizontal Circumference	+6.43	— .92	— .10	—4.92	+2.08	—1.92	—7.92	—3.92
Frontal Arc		+1.44	+2.54	— .56	+2.44		— .56	+1.44
Parietal Arc		+1.49	+2.26	—2.51	—2.51		+ .49	+3.49
Occipital Arc		—1.33	— .26	—4.33	+1.67		—6.33	—3.33
Sagittal Arc	+1.07	+1.77	+3.17	—7.03	+ .97	—3.03	—6.03	+1.97
Transverse Arc	+14.18	+12.38	+8.45	—1.52	+16.48	+12.48	—1.52	+7.48
Cranial Length	+2.32	—1.09	+1.22	—3.26	—2.26	—3.11	—3.26	—3.26
Cranial Width	+3.33	+2.59	+ .97	—3.91	+3.09	+2.49	— .91	+ .09
Basion-Bregma	+5.07	+4.75	+2.23	— .71	+2.29	+3.39	+4.29	+7.29
Minimum Frontal	+6.08	+3.02	— .43	+ .38	+2.38	+2.38	— .62	+1.38
Bizygomatic	+1.39	— .05	— .28	—3.61	+ .39	+ .49	+ .39	+2.39
Upper Face Height	+1.48	— .04	+2.14	—1.32	+2.68		+1.68	+ .68
Basion-Nasion	+2.25	+1.85	+ .55	+3.95	+ .95	+1.24	+1.75	+3.95
Basion-Prosthion		+ .88	— .22	— .22	+ .78		+ .78	— .22
Nose Height	+ .32	— .91	+ .87	—1.58	+ .42		— .58	+ .42
Nose Width	+ .25	.00	— .64	— .55	— .55		—1.55	— .55
Average Difference	3.68	2.16	1.74	2.52	2.62	3.39	2.42	2.616

TABLE 66
DIFFERENCES OF THE MEANS—INDICES

	Old Bavarian	Bavarian Foothills	Württemberg berg	Laas	Walser	Danis	Slovenes	Serbo- kroats
Length-Breadth	+ .69	+1.89	+ .06	— .41	+2.61	+2.79	+ .89	+1.49
Length-Height	+1.80	+2.90	+ .62	+ .10	+2.33	+3.10	+4.10	+5.30
Breadth-Height	+1.28	+1.48	+ .68	+ .18	+ .07	+ .58		
Upper Facial	+ .14	— .39	+1.34	+2.84	+1.27	—2.26		— .86
Cranio-Facial		—1.49	— .66	+ .08	—1.39	— .92		
Fronto-Parietal		+ .88	— .72	+ .08	+ .19	+ .48		
Nasal	+ .09	+ .81	—2.02	+ .29	—1.89	—1.51	—2.61	—1.61
Average Difference	.80	1.41	.87	.57	1.39	1.66	2.53	2.32

TABLE 67
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
										r	l	r	l				
3601	1600	187	142	129	96	129	67	52	26	41	40	31	31	100	100	52	56?
3602		175	154?	136	100		65	47	23	39	38	34	34	97	85	44	59
3603	1510	191	140	123	100	129	67	52		43	43	35	34	101	99	57	64
3604	1430	176	141	129	100		75	52	24	39	39	33	32	98	92	55	63
3605	1670	174	154	125	100		67	52	24	39	39	34	34	91	83	48	67
3606	1580	170	149?	136	105	136	72	51	24	39	39	36	35	97	87	50	59
3607		178	155	126	95		70?							96?			
3608		183	143	130	102			53		43	42	36	36	101	88?	51?	60?
3609	1620	177	160	130	103	139	78	58	28	41	40	33	33	104	101	58	60?
3612	1720	185	149	135	95	140	72?	55?	26	41	41	36	36	102	101	52	62
3613	1430	171	144	131	95	129	72	54	23	39	38	38	37	92	87	52	60
3614		188	149?	134	100		71	49	26	40	40	31	31	100	100	52	57?
3616	1460	183	142	132	94	133	77	56	24	39	39	36	35	98	89	50	61
3617	1380	170	142	129	96	128	62?	48	27	37	37	33	32	98	87?	50	65
3618	1500	180	148	130	100	139	63?	50	25	40	40	34	34	100	93?	51	62
3619	1560	177	148	130	101	146	78	54	26	41	42	34	33	97	93	53	68
3620		185	148	132	104	135	72	52	26	39	38	35	34	100	93	51	66
3622	1470	166	156	128	101	141	71	47	25	40	38	31	31	97	91	50	64?
3624		169	144?	129	96	122?	65	48	22	04	40	31	31	92	88	47?	56
3625		180	153	127	101	141	76	54	26	39	39	35	35	101	94	54	66

3626	1520	179	154	135	101	136	70?	52	25	41	41	33	35	104	99	54	62
3629	1510	187	144	128	101	131	70	49	25	36	36	33	32	105	105	55	64?
3631	1500	181	149	119	95	133	66	50	27	41	41	32	33	94	96	55	67
3632	1460	178	152	126	103	131	73	54	23	40	40	34	34	96	95	50	60
3633	1560?	185	139	128	99	136	70?	51	27?	41	41	34	34	102	97?	59?	67
3634	1580	177	161	132	105	143		50	28	42	42	34	34	99			
3635	1530	183	137	126	92	124	71?	57	26	40	38	33	33	95	87?	48?	
3636	1620	198	145	130	94	141		52?	25	41	40	36	36	100			
3637	1700	195	151	130	104	137	65	46	28	40	41	33	32	104	104	54	62
3638	1560	174	145	134	100	132	74	52	23	43	43	33	33	96	91	50	63
3639	1680	188	151	135	105	137		52?	25	41	41	35	35	98			
3640	1560	187	144	128	100	134	74	56	24?	39	39	34	33	102	99	58	67
3641	1590	173	153	128	101	147	71	50	26	40	41	34	33	103	100	55	65
3642	1340	161	147	130	90	132??	67	49	23	39	38	31	31	95	92	52	61
3643 ¹	1300	164	150	126	101	130	73	48	24	38	36	34	33	91	87	52	61
3645	1460	182	140	136	90	125??	74	54	26	39	38	33	33	98	97	55	60?
3646		176		135	101		75?	56	23	43	43	36	36	102	94??	56	61?
3671	1310	174	137	124	89	127??	72	54	24	42		38		96	98	55	66
3672	1300	180	134	129	97	130		48	24?	38	37	35	34	93		44	57?
3674		168	150?		104												
3675 ¹	1410	174	159	114	100	139	66?	51	24	39	37	35	36	90	83?	46?	
3676	1330	167	142	121	97	135		50	30	40	40	32	31	94			
3677 ¹	1840	190	146	132	96	122	59	42	21	38	39	30	30	94	90	46	61
3678	1600	192	161	130	102	142	68	46	22	38	38	33	33	98	91	50	64?
3681		178	150?	123	97		70?	52	28	43	42	37	37	94	88		
3682	1620	178	155	134	103	140	71	52	26	41	42	33	34	99	95	54	64?
3683	1770	183	157	129	99	135	68	48	22	40	40	33	33	97	95	53	64
3686		178	145		93												
3687	1370	188	141	115	93		73	52	23	40	39	36		94	91	51	61
3689	1340	168	148	125?	101	131	61	44	25	37	37	31	31	96?	100?	53	57?

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS

MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
										r	l	r	l				
3691	1680	196	157	124	100		69	54	30		42	33	32	106	109	61	71
3692		178		109	91		60	48	23	38	36	30	28	91?	95?	51	58?
3694		180	144	130	100		76	53	23	39	40	34	37	100	89	54	53
3695		182	146		104		76	54	24	41		39					
3696	1420	176	135	126	95		72	51	24	38	38	36	36	98	95	52	64
3697		176	151	139	104	137	71	50	23	42	42	31	30	100	98?		
3698	1420	169	138	131	96	125	69	50	18	40	40	35	35	98	86	48	53?
3701		176	143	129	102		62	46	23	36		32		96	86	48	60?
3702	1610	183	147?	129	104	136	81	53	23	41	41	39	39	103	95	54	58
3703	1400	174	144	122	90		68	53	26		42	35	35	95	103		
3704	1600	190	140	130	95	126	73	52	21	35	35	36	36	96	92	51	63
3706	1300	176	143	124						39		35					
3707	1490	180	140	127	94	134?	72	52	24	42	41	33	35	101	101	54	63
3709		180	144	126	102		71?	51	34		39	34	34	95	98	54	69
3711	1560	185	145	133	95	138	67	50	24	40	40	34	34	103	99	55	60?
3712		197	140	133	102	133	74	55	25	41	42	31	31	105	96	56	68
3713	1480	183	142	125	96	126	71	51	24	39	39	33	33	95	94	58	61?
3714	1540	179	145	130	101	133	71	53	27	41	41	35	34	99	90	50	64
3715	1500	ca180??	147	130	99	137		51	25?	41	41	34	34	98			69
3716		173	145?	134	89		64	51	25	39	38	33	31	99	96	52	64
3718	1510	169	156	118	96			47	28	38	38	31	31	96			
3719	1500	180	150	126	101		65	47	25	39		35		98	94	51	58

3720	1430	176	145	126	97	125	69	50	26	40?	39?	36	35	92	90	50	52?
3721	1520	182	149	118	97	127	61?	47?	27	40	40	33	34	95	94?	52?	66
3722	1500	175	141	129	103	127	68	49	23?	41	38	32	33	97	97	52	65
3726	1490	176	147	129	98	133	69	48	26	39	39	32	32		89	51?	58?
3728	1490	174	145	129	97	133	64	49	23	40	40	31	31	97			
3729	1510	179	142	133	85			49	24	38	38	30	30	101	90	54	67
3730	1500	169	152	122	102	133	69	50	26	39	39	36	34	93	90	54	66
3731	1450	175	147	127	91	129	68	49	26	36	35	33	32	99	99	54	
3733	1530	185	149	126	91	133		51	26	40	39	35	34	103		55	66
3735	1540	178	146	135	96	139	74	52	24	40	39	32	33	105	98	51	66
3737	1400	173	146	130	96	132	66	44	24	39	38	32	32	93	90	51	60
3739	1510	171	145	138	99		68	50	23	38	37	30	29	98	88	51	60
3741		176?	147?	118	102		69	50	24?	40	40	33	33	101	93	48	61
3745	1580	177	155?	127	96		69?	50	25?	40	41	33	33	92?	82?	49?	55?
3746	1800	183	164	129	106	147	64	50	26?		42		30	96	96	52?	
3748	1560	187	152	125	92									106			
3749			148	126	102												
3751	1520	187	137	137	98		72	51	25	40		31		100	92	53?	61?
3753		181	148	128		129	62	45	25	41	39	31	31	96	95	53	61?
3756	1350	168	138	130	98	121?	67	48	28	41	40	31	32	96	93	50	63
3758	1500	178	149	122	100	139	71	51	25	45		35	35	94	91	53	67
3759	1470	182	146	128	101			51(1)			39		34	99		58?	66?
3761	1490	182	145	130	91	134?	68?	51	23??	41	41	33	33	102	92?	50?	
3762	1480	173	154	126	100		65?	49	24		37		31	93	91?	50?	53?
3763		181	142	125	94	126				41				99			
3767	1420	175	147	124	95	120?				41		31??		91			
3768	1800	190	158	134	106		73	52	21	43	44	37	37	102	98	53?	58??
3769		184	144	112?	97						36		35	95			
3770	1530	172	151	128	95	132??	64	49	26	41	40	30	30	97	93	49	65??
3774	1430	178	140	127	104	133	78	55	24	44	44	34	34	97	95	54	64

^{133?} equals 1/2 of palate breadth, other half missing.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS

MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
3775	1520	181	136	128			71	50	24	r	l	r	l		90	54?	63?
3777	1380	175	141	124	93	122		46	23	39	36	31	31	91			
3782		195	158	134	104	140		57	24	41	41	37	37	107	96	55?	63?
3784	1590	184	146	131	96	130	75	54	27	39	39	35	35	98		47?	
3787	1640	170	153	126	102	134		58(r)	24	42	41	35	36	98	93	53	70
3792	1360	179	153	120	102	143	74	55	26	42	41	34	33	97	87	52	65?
3793	1700	172	153	130	109	131?	71	52	23	39	37	33	34	93	81	47	64
3794	1440	173	146	125	99		68	52	23	38	38	37	36	91	99?	53	63
3796	1450	175	149	127	98		66?	51	23?		43	33	34	104	97	53	63?
3798	1400	174	148	121	90	134	69	54	24	39	39			100		55?	
3801	1470	178	149?	130	97			52	23	40	40	35	35	99	90?	50	56?
3807	1660	182	160	128	103	136	74?	52	24	40	40	33	33	96			
3808	1510	173	148	129	102	133		54(1)	26?	41	41	34	34	104		51?	65?
3813 ¹	1580	176	148	129	99	129?		50?	24	41	40	33	33			55	64?
3815		181?	144	126?	101		75	53	26	41	40	33	33	93	95	55	65
3816	1300	169	142	120	95	127	69	52	28?	41	40	33	33			52	60
3818	1520	178	149	138	95	134?	72	50	23	39	37	34	34	99	89	54	68
3819	1380	188	153	126	97	140	63	50	26	40	40	32	32	103	96	55	65?
3820	1280	167	148	110	92	136	64	48(1)	27	40	39	36	36	91	97	54	
3821	1550	185	152	126	104		70	51	25	40	41	34		104	96	54	58??
3823		178	150		98	132?	70?	48	25	40			33			50?	

¹Omitted from the series.

3824	1670	181	156	129	96	139?	73	53	24	39	39	39	37	36	97	91	55	63?
3825		182	145		96	68	48	48	25	40	40	40	31	31			51?	63
3826	1290	183	142	129	92	131?	68	48	26	40	40	40	31	31	101	94	52	64?
3828	1500	183	149	137	97	138	71	55	24?	40	40	40	36	34	108	97	53?	
3829	1460	179	148	132	93	131	66	48	24	39	40	40	33	33	102	100	53	64
3830	1590	188	142	129	101	131	71	52	24	41	40	40	32	32	99	91	51?	
3833	1680	183	153	141	100	140	78?	54	23	43	43	43	37	36?	100	85?	52	
3834	1620	183	154	138	106	147		50	24	39	39	39	31	32	104			
3837	1540		145	131	99	135		53	26	43	41	41	36	37	105			
3838	1310	175	139	134	91	125	65	47	23	38	38	38	32	31	98	92	52	62
3839	1470	174	144	129	99		69	51	23	40	40	40	36	33	91	87	49	58
3840		174	146?	129	89		70	51	26	40			32		99	98		
3841	1370	164	154	123	98	139	64	48	24	39	39	39	34	33	88	89	50	64
3842	1660	184	145	133	96		46	23	23	40	40	40	31	32?	95		53?	
3844	1580	175	153	120	94	133	63	48	26	38	38	38	35	35	92	95	51?	
3852	1510	171	147	134	96	135	48	48	23	37	37	37	30	28	97			
3853	1610	182	145	133	97	136	65	45	27	42	41	41	33	33	100	97	56	60
3854	1460	169	149	129	109	137?	69?	52	25	38	36	36	34	34	99	96	54	64??
3855	1640	174	150	138	101	137	73	52	26	41	41	41	37	38	101	89	50	64
3856	1630	180	145	126	96	132??	59	45	25	39	39	39	30	30	94	95	54	61
3857	1760	179	155	138	105	138	53	53	22	40	40	40	33	33	98			
3858	1700	174	153	138	102	138	72	55	25	41	41	41	35	35	102	93	52	55??
3860	1390	175	147	115	100	130	67	51	25	42	41	41	37	36	102	87	48	62
3861	1420	175	140	134	92	128??	71	51	24		40	40	31	32	99	105	59	66
3862	1420	185	143	130	96			50	23	41	41	41	33	33	105			
3863	1540	167	154	127	100	135	74	52	23	40	40	40	32	33	98	94	50	64?
3864	1450	178	152	132	100	135		54	24	41	41	41	35	35	97		61	
3865	1580	176	151	134	100		60	48	25	41	41	41	34	34	98	89	52	64
3866	1420	173	145	128	97	132		49	23	38	38	38	33	33	86	47?!	63!	
3867	1580	178	153	133	104	136	68	49	25	41	41	41	35	34	98	97	53	67

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
3868	1460	173	147	127	100	133?	72	51	25	r 40	l 40	r 33	l 33	95	92	49	55?
3869	1320	172	142	130	98	65	65	47	39	39	37	30	31	95	87	52	63?
3871	1650	193	143	132	93	131	79	56	25	41	42	36	36	100	97	55	65
3873	1710	203	144	133	99	74	74	50	26	43?	43?	33	33	104	93	50	71
3874	1620	177	157	131	103			55	28	40	41	40	39	97			
3875	1470	187	140	125	96	124	64	45	25	42?	40	34	34	99	96	54	60?
3876	1480	174	144	128	98		71	48	25?	40	39	32	31	94	97	58	65
3878	1630	179	150	137	103	135	83	57	21	41	41	38	38	103	89	53	65
3879	1600	179	146	134	101	131	72	49	22	41	41	36	37	100	86	50	62
3880	1570	186	142	136	97	133	64	47	23	42	41	33	33	100	88	47	60?
3881	1360	178	144	127?	95	126	68	51	25	39	39	32	32	99	99	54	60
3882	1510	182	145	129	91	130	68?	52	25	41	40	36	34	99		49	
3884	1400	182	142	129	90			52	26	40		35		100			
3886	1610	181	151	127	107	137	71	52	27	41	40	36	36	100	98	53	66
3888	1730	186	154	142	96		67	51	25		41	30	30	101	95	53	60?
3889	1480	178	150	123	94	136	71	50	22	39	39	36	37	95	96	58	
3890	1650	181	165	126	101	143	66?	51	24					96	91?		•
3891	1490	184	154	119	96	139	52	42?	27	40	39	28	28	100	99		
3892	177?		149	129	96	126?	69	52	26	39	38	32	33	99	93	51	60?
3895	1420	164	140	132	90	130??	67	52	25	42	40	34?	34	97	84	46	58
3896	186	186	148	135	103		73	56	24	43	41	37	36	104	95	51	64
3897	1620	178	147	135	96	71	71	54	23	40		32		100	90	51	61?

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
3951	1320	177	142	130	97	133?				r	l	r	l				
3954	1550	191	142	129	104	131??	77	54	22	41	43	34	37	105	93	54	63
3960	1370	175	140	126	92	129	77	56	23	38	38	34	35	92	87	55	63
3962	1200	172	141		90	130	68	46	24	39	38	31	31			51	57?
3964		170	151	110	97	131	62	45	23	40?	39	32	32	96	108	61	62?
3968	1540	182	150	131	98	138	71	53	22	41	41	36		102	92	52	60
3971	1390	177	146	118	95	134??				37	35	32	31	90?			
3973	1470	179	148	136	100	128	72	49	24	40	38	32	32	98	87	47	
3974 ¹		173?	151	123	95	128?	57?	42	26??	40	40	30	30	93	96	52?	64?
3976	1260	166	140	122	93	125	61	45	23	37	36	33	33	91	84		
3977	1440	183	148	131	94	125	69	50	26	41	41	34	33	96	94	55	60?
3978		174	153	132	102	135	68	50	20-22?	39	38	33	33	94	97	51	59
3979	1650	192	155?	120	107		69	51	26-7?	41	40	34	36	97	97	50	57??
3981	1410	184	148	121	92	129	72	50	23	39	40	33	33	95	85	50	54?
3982		178	145	120?	95	128	72				40	32	33	96	97		
3983	1410	176	140	127??	88	122?	65	47	23	39	39	32	32	95??			
3985	1370	169	142	125	96	136	67	47	22	39	38	33	32	91	86	47	59
3989	1480	179	143	128	90	136	79	55	24		41	36	36	96	90	51	
3991	1430	178	146	133	93	136	63	48	25	40	39	32	32	99	85	48?	
3994	1720	181	162	134	104		70	49	22	42?	40?	31	31	104	94	52	58?
3995	1380	172	145	127	99	139	68	51	24	40	41	35		94	89	50	61

¹Omitted from the series.

3996 ¹	1480	164	154	127	95	131?	61	46	24	40	40	30	31	89	84	50	65
3999	1450	175	141	121	94	130?	64	50	25	41	41	32	31	100	100	50	66
4000	1450	169	150	127	100	135	71	52	23	40	40	38	38	99	87?	52	55??
4001	1160	158	139	122	92	128	68	48	22	39	39	33	34	92	95	55	57
4003	1310	169	146	115	97	138		46	28	39?	38	32	32	94			
4005	1780	197	150	145	102								109				
4007	1600	187	147	132	99	138	72?	57	23	41	39	35	35	100	90?	52	64
4008		190	147	131	96	129	71	52	24	39?	40?	32	31	97	88	50	56?
4009	1560	175	152	125	98	135	ca75??	55	25	42	41	36	37	97			
4010	1310	167	139	125	91	130	67	49	24	38	37	34	30	97	92?	53?	60?
4011		170	154	137	93	136	58?	45	24	37	39	39	30	97	92	48	63
4012	1540	184	151	136	100					40		36	108				
4013	1480	180	148	130	100	130?	71	51	25	44?	41?	34	34	92	89	47	60
4014 ¹	1460	171	145	126	98	130	66	50	22	42	42	36	36	91	87	47	
4016	1500	183	149	127	98	135	62	46	26	39	38	32	32	95	91	48?	62?
4017	1450	179	147	128	97		68??	48	23		40	34		96		52?	59?
4018	1540	171	154	133	99	139	71	49	24	42	40	30	31	100	92	52	
4019	1360	179	133	131	97	131	72?	55	24	44	44	36	36	103	89?	51	61
4020	1390	180	146	129	95	138				43			37	98			
4021 ¹		174	140?	126	98	128	70	50	23	40	40	33	33	94	90	52	62
4022	1510	179	148	127	100	135?		56?	27?	40	40	36	35	98			
4025	1570	183	152	132	101	141		54	25	41	40	36	37	105		53?	
4026	1460	172	148	130	96	133		55		39	38	35	35	99			
4029	1340	181	148	113	93	130		45?	23?	41		33		91			
4030	1510	177	142	130	103	138	71	54	24	40	39	36	36	95	99	50	61
4033		182	154		103	139?	71	48	26	40	38	30	31			54	59?
4035	1420	178	150	127	90	134	69	51	22	40	40	34	34	94	86	46	
4036		168	140	130	90									94			
4037		169	147	120	103		74	52		47		34		93	89	55	64
4039	1550	176	155	131	103		70	49	24	41	42	35	35	99	100	55	65

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic Diameter	Upper Face Height	Nose Height	Nose Width	Orbit Width	Orbit Height	Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
4040 ¹	1390	181	150	122	99	130	68	48	24	39	33	91	91	51	66
4042	1390	181	141	130	88	127	70	51	23	39	35	98	94	50	59
4043	1490	174	143	127	96	136	67	52	26	40	36	99	92	52	64
4044	1400	169	146	132	90	122?	66	47	36	36	31	94	86	48	61
4045	1390	174	144	131	99	126	73	52	23	39	36	97	92	48	60
4046	1360	170	145	120	94	129	68	49	23	41	32	92	96	56	64
4047		182	145	132	98	132	73	53	29	40	33	97	85	47	63
4053 ¹	1400	161	149	137	91	130	66	47	24	39	31	97	93	50	
4054	1480	180	145	135	97	140	71?	52	24	42	33	101	96	49?	
4058	1260	161	139	125	93	120	63?	46	22	36	31	89	86	47	
4061	1340	168	146	131	90	130	62	47	21	40	33	94	86	47	
4063	1450	177	146	127	100	133		53	41	40	34	96		56	
4064	1490	188	150	130	99	130	70	51	24	41	32	102	99		
4065	1470	177	147	130	100	139	53?	53?	27?	44	36	96		49	58
4066	1400	178	139	128	95	128	64	50	23	39	31	97	90		
4071	1510	173	149	136	101	136?		50	29	39	31	99			
4074 ¹	1530	173	150	130	95	139	64	49	25	39	33	92	86	47	62
4075	1550	179	147	126	94	120	71	51	21	43	35	98	87	45	57?
4078	1590	176	152	133	97			52	28	39	31	99		51	69
4079	1390	188	143	130	101	133	67	49	23	40	35	96	91	50	64
4080	1510	173	143	135	98	136	77	51	23	40	35	96	95	57	63

¹Omitted from the series.

4085	184	139		89	130	75	54	24	41	41	36	36		51	63
4086	1380	171	131	95	131		51	24	39	38	33	33	98		
4089	1480	187	141	92	130		50	23	37	36	31	31	102		
4093 ¹	184	144	130	92		66	48	24	38	38	33	34	98	50	62
4094	1620	173	151	96		65	46	24		37	31	31	88	50	
4096	1530	173	150	96	133	68	50	25	38	36	34	29	97	52	63
4098	1580	185	146	97		62	50	26	39	39	28	31	101	51	
4099	1490	176	152	104	130	63?	51	28	39	39	31	31	99	47	60
4101	1460	179	138	94	127	67	50	24	40	39	33	33	96	93?	62
4102	1400	169	149	92	130	68?	44	24	41	40	32	32	92	92	65
4103	1490	183	140	101	126?	68	52	24	40		35		97	88	
4104 ¹	1480	188	145	94	127	69?	50	27	39	39	30	31	100	49	66
4106		182	145	103	139	64	48	26	43		32		100	56	
4108	1570	178	143	99	131	64	46	24	38	38	33	32	97	47	65
4109	1580	176	150	91	134	69	49	24	40	40	32	32	102	56	68
4112	1370	177	143	97	132	68	50	25	41	41	33	33	99	54	60?
4114	1420	173	149	93		66	48	24	41	38	31	31	98	47?	
4115	1650	187	155	101	137	74	50	24	40	41	33	34	106	60	67
4118	1410	169	146	96	138	65	50	22	40	40	36	36	100	48	
4119	1320	175	139	94	130	62	45	25	38	38	33	33	95	54	

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foremen Magnum	Breadth of Foremen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc	Sagittal Arc to Lambda
3601	36	31		527	136	120	125			315	
3602	37	32			132	131	115				
3603	40	32		525	130	130	115			305	
3604	41	29		507	123	128	107			305	
3605	41	34		520	133	127	113			334	
3606	36	32		510	133	125	105			335	
3607	43	34		522?	132	116	117			327	
3608	34	27	5	528	123	138	110			320	
3609	34	29	8	534	135	115	120			336	
3612	36	32	5	534	133	128	113			327	
3613	37	33	6	505	126	126	116			320	
3614	41	34	8		130			251			
3616	31	29	6	519	132	112	130			319	
3617	40	30	6	500	122	120	113			302	
3618	40	31	5	520	135			233		312	
3619	39	33	4	518	125	124	113			320	
3620	38	31	6	530	130	125	125			316	
3622	39	32	7	511	122	118	103			330	
3624	37	28	5	497	130	130	103			321	
3625	39	35	5	532	132	117	107			327	
3626	36	29	8	530	129	120	110			328	
3629	39	32	8	526	126	118	125			308	
3631	39	32	5	524	123	117	125			304	
3632	34	30	8	520	132	115	117			320	
3633			5	522	129	130	132			302	
3634	39	32	7	530	140	133	111			325	
3635	39	34	4	514	.				373	305	
3636	43	37		543	133	133	120			303	
3637	42	33		540	122	130	123			313	
3638	39	34		510	132	130	96			325	
3639	43	33		540			132			330	245
3640	38	28		525	130	121	120			310	
3641	43	35		522	111	120	115			320	
3642	32	29		489	116	115	115			313	
3643 ¹	35	32		495	116	119	113			320	
3645	36	28		510	128	129	117			305	
3646	38	34			122	119	120				
3671	39	28		489	123	118	106			294	

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
3672	34	30		510	120	128	120			295
3674					118	128	107			
3675 ¹	33	30		525	136	119	109			325
3676	33	31		495	121	119	112			295
3677 ¹	38	32		535	135	130	129			332
3678	50	37		550	120	115	130			320
3681	38			517	119	133	111			315
3682	35	30		532	128	130	113			332
3683	40	32		540	131	125	118			330
3686	41			508	123	115	110			305
3687	33	28		520	124	130	115			305
3689	32?			500	123	123	105			320
3691	35	31	8	556					394	337
3692					134	120	119			
3694	36	33		518	132	123	109			323
3695				526	121	132				323
3696	40	33		503	115	128	107			294
3697	33	35		521	143	124	119			342
3698	38	33	4	494	118	123	109			300
3701	39	30								
3702	40	33	4	529	130	115	121			325
3703	34	33	3	510	119	125	119			298
3704	46	39	4	527	123	125	130			322
3706	38	32	5	505	128	107?	108			303
3707	48	36	5	510	118	126	111			299
3709	39	30	5	520	119	130	116			
3711	39	35	6	527	131	112?	132			307
3712	41	35		545	133	133	119			301
3713	34	29		515	127	131	117			300
3714	37	33		513	135	118	117			318
3715	41	34		517	127?	116	118			315
3716	34	33		506	129	123	112			315
3718	37	32		512	127	116	105			327
3719	36			526	125	120	119			321
3720	35	31		508	125	116	120			302
3721	33	28		523	123	117	120			320
3722	35	28		515	118	133	109			317
3726				512	122	117	115			305

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
3728	33	30		506	130	108	122			310
3729	37	31		510	125	127	113			310
3730	35	30		508	127	119	110			323
3731	38	30		510	125	118	114			320
3733	39	32		524	120	117?		242		321
3735	38	35		525	117	135	112			315
3737	31	27		503	124	116	125			320
3739	33	29		505	130	126	110			322
3741	40	34			127	123	99			
3745	38	31		521	122	117	130			320
3746	41	33		552	137	116	119			332
3748	40	29		528	125	119	119			313
3749	36	33		520		131	112			330
3751	38	31		523	130	131	120			308
3753	36	32?		520?	130	119	123			305
3756	36	30		495	118	116	115			305
3758	37	31		520	124			237		310
3759	37	28		525	131	123	115			312
3761	37	32		515	130	112	120			310
3762	30	26		519	134	132	110			331
3763	36	27		515	120	127	116			303
3767	37	29		515	130	110	125			320
3768	46	37		559	132	127	122			330
3769				523	126	112	121			304
3770	36	33		509	115	123?	115			320
3774	33	29		510	129	120	115			310
3775	38	32		508	130	127	115			302
3777	33	29		502	128	125	112			307
3782	38	31		560	145	128	118			345
3784	36	33		527	130?	123	127			313
3787	38	32		515	133	105	130			328
3792	38	30		518	126	110	105			310
3793	38	32		529	128	130	105			330
3794	39	30		505	134	120	105			310
3796	37	36		515	124	116	110			320
3798	39	34		505	118	112	112			312
3801	39			515	123			233		320
3807	40	32		542	137	120	115			348
3808	36	32		518	135	125	105			320

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
3813 ¹	35	29		518	125	115?	114			322
3815				518	125	120?	119			314
3816	40	31		498	123			215		310
3818	40	33		520	123	135	114			338
3819	38	31		530	129	121	113			313
3820	41	33		500					334	300
3821	36	30		535					371	320
3823				519	124	123	105			315
3824	41	35		535	127	119	119			325
3825		29		520	134	124	110			318
3836	36	30		493	119			217		308
3828	38	30		525					363	312
3829	36	28		518	128	108	128			330
3830	38	33		530	138	122	116			313
3833	40			530	126	138	122			330
3834	40	34		535	125	122	120			320
3837	36	31		525					370?	314
3838	39	29		504	129	118	110			300
3839	35	28		505	130	141	103			323
3840	36	30		500	117			245		305
3841	38	32		505	125	120	116			320
3842		32		529	144	130	?			330
3844	38	34		522	126	139?	105			320
3852	36	31		505	118			243		307
3853	39	32		525	125	129	121			320
3854	39	34		514	129	98?	116			312
3855	43	32		525	127			229		330
3856	37	33		524	137	133	110			313
3857	39	30		528	129	134	121			333
3858	40	34		523	135	118?	115			327
3860	35	31		514	123	119	113			300
3861	37	31		500	116	128	119			312
3862	36	29		528	124	127	112			315
3863	37	33		515	118			224		335
3864 ¹	37	30		514	135	119	109			322
3865	36	30		515	129	130	110			323
3866	41	32		507	135	123	112			313
3867	41	36		525	125	124	115			320

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
3868				508	125	123	111			316
3869	38	28		503	130	119	100			312
3871	43	33		530	135	127	123			310
3873	42	32		547	130			262		316
3874	38	32		540	132			239		326
3875	39	30		525	126			241		303
3876	38	33		503	130			232		310
3878	36	34		523	128	129	112			327
3879	39	34		515	134	117?	125			327
3880	40	34		523	127	129?	120			307
3881	33	29		510					370	310
3882	40	33		520	135	118	110			320
3884	41	32		510	121			232		305
3886	36	33		530	130	119	117			320
3888	38	34		534	140	117	126			336
3889	39	30		519	119			234		303
3890	43	34		545	125	115	128			330
3891	44	39		530	130	115	118			317
3892	35	29		520	129	121	110			329
3895	34	32		485	115	123	115			305
3896	39	33			125	119	117			
3897	40	33		525	131	111	116			313
3901				545	133	130	118			334
3902	37	32		530	140	117?	118			320
3903	34	32		518	128	120	120			310
3906					130	120	118?			
3909	38	32		505	122	125	109			292
3910	36	34		530	126			252		315
3911	37	33		518	122	131	120			330
3912	33	27		520	130	116	121			307
3913				490	115	133	102			307
3914	37	34		510	119			224		322
3918				498	117			220?		307
3919	38	35		535	127	124	120			325
3921	43	35		530	128	127	108			315
3926	36	29		513	130			237		314
3927	38	31		515	134	123	116			323
3928	33	27		525	140	122	120			321
3929	41	33		510	118	123	120			303

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
3930	37	31		513	129	116	118			315
3931	42	33		524					360	330
3933	33	27		510	122	126	113			323
3934	41	30		524	125			235		320
3936	39	35		553	119	130	126			310
3938	37	30		521	136			231		325
3939	40	32		530		125	112			325
3940	37	33		510	110	122	118			305
3942	32	26		497	124	118	112			295
3943	39	34		535	125	135	107			325
3944	40	33		508	124	110	109			313
3944 _a	38	29		517	129	125	106			310
3946	38	31		500	127	126	112			313
3948	34	31		525					364	320
3951	36	31		505	123	120	110			307
3954	43	32		534	122	121	120			312
3960	36	31		500	120	121	118			295
3962		28		494	124	112	120			296
3964	37	33		505	115	110	119			310
3968	36	31		530	128	127	115			314
3971	34	34		510	124	125	115			305
3973	37	33		520	129	115	130			323
3974 ¹	39	34		508	118	113?	113?			310
3976	36	30		484?	115	120	106			303
3977	32	28		524	129	137	110			324
3978	33	31		518	125	125?	129			323
3979	39	31		555	129	125	131			327
3981	36	30		523	125	130	115			300
3982				510	120	113				305
3983				498	120	115	121			310
3985	38	31		493	119	116	106			300
3989	37	32		515	117	132	117			315
3991	39	32		515	119			234		310
3994	36	32		547	135	119	124			342
3995	39	34		512	120	116	120			310
3996 ¹	39	34		500	124			228		317
3999	35	29		507	129	115	105			313
4000	38	35		513	123	115	106			305

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
4001	33	29		474	119	114	101			303
4003	38	33		503	119	114	107			298
4005	44	34		553	132	142	124			345
4007	37	30		534	129	124	122			311
4008	36	30		540	137	132	121			315
4009	38	32		515	124			232		317
4010	37	34		494	124			214		300
4011	37	37		513	120	117	129			325
4012	39	34		540	126			234		316
4013	34	30		525	127	129	125			313
4014 ¹	38	30		503	126	121	107			
4016	35	28		528	128	135	125			316
4017	35	30		518	124	126	111			312
4018	37	34		519	120	123	115			327
4019	37	30		503	129	117	108			300
4020	34	30		515	124	120	127			305
4021 ¹	38	30		500	121	122	105			303
4022	42	33		520	126	115	112			305
4025	40	36		535	118	130	114			316
4026	37	33		510	130	116	102			315
4029	38	31		520					368	302
4030	39	28		520	126	132	107			310
4033				535	138	126	108			325
4035	36	33		512	120			248		310
4036	36	28		494	119	122?	112			310
4037	37	29		497	134	109	105			315
4039	36	34		523	129	129	110			328
4040 ¹	40	31		522	125			240		318
4042	40	36		510	121			240		307
4043	40	31		510	123	115	110			305
4044	35	30		502	120	119	120			325
4045	35	27		512	133	123	111			335
4046	37	31		497	120	119	114			312
4047	39	33		525	130			245		317
4053 ¹	36			493	125	121	102			320
4054	34	32		520	132	126	119			310
4058	33	27		483	126	123	100			315
4061	36	32		495	124	117	107			313

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
MALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of L. Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Bregma to Opisthion	Sagittal Arc Entire	Transverse Arc
4063	36	33		517	129	136?	99			320
4064	35	29		533	133			245		330
4065	37	31		515	129	115	121			315
4066	39	31		513	128	110	118			305
4071	45	35		518	125	124	106			325
4074 ¹	39	32		513	131	125	101			313
4075	32	29		524	133	123	117			323
4078	37	31		520	136	117	119			327
4079	42	34		528	134	118	118			304
4080	36	29		510	127	125	118			309
4085				510	125?	127				295
4086	36	31		500	119	130?	109			316
4089	33	33		520	135	128	115			302
4093 ¹	38	32			125	127	114			
4094	37	35		516	122	130	118			315
4096	35	30		515	127			233		331
4098	35	29		532	124			249		314
4099	37	35		519	128	115	111			320
4101	36			510	125	133	111			308
4102	34	30		499	125	126?	99			313
4103	35	30		519	126	124	132			312
4104 ¹	39			530	129	124	125			312
4106	38	36		520	120	115	120			290
4108	42	35		515	124	125	116			315
4109	37	31		512	126	128	119			335
4112	34	31		505	124	107	124			310
4114	36	34		513	134	105	123			298
4115	39	34		542	133	127	110			322
4118	39	35		509	124			218		312
4119	39	33		500	121	120	118			300

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES

MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3601	75.94	68.98	90.85	67.61	100.00	90.85	51.94	50.00	75.61	77.50	107.69?	86.11
3602	88.00?	77.71	88.31?	64.94?	87.63			48.94	87.18	89.47	134.09	86.49
3603	73.30	64.40	87.86	71.43	98.02	92.14	51.94		81.40	79.07	112.28	80.00
3604	80.11	73.30	91.49	70.92	93.88			46.15	84.62	82.05	114.55	70.73
3605	88.51	71.84	81.17	64.94	91.21			46.15	87.18	87.18	139.58	82.93
3606	87.65?	80.00	91.28?	70.47?	89.69	91.28?	52.94	47.06	92.31	89.74	118.00	88.89
3607	87.08	70.79	81.29	61.29								79.07
3608	78.14	71.04	90.91	71.33	87.13?				83.72	85.71	117.65?	79.41
3609	90.40	73.45	81.25	64.38	97.12	86.88	56.12	48.28	80.49	82.50	103.45?	85.29
3612	80.54	72.97	90.60	63.76	99.02	93.96	51.43?	47.27?	87.80	87.80	119.23	88.89
3613	84.21	76.61	90.97	65.97	94.57	89.58	55.81	42.59	97.44	97.37	115.38	89.19
3614	79.26?	71.28	89.93?	67.11?	100.00			53.06	77.50	77.50	109.62?	82.93
3616	77.60	72.13	92.96	66.20	90.82	93.66	57.89	42.86	92.31	89.74	122.00	93.56
3617	83.53	75.88	90.85	67.61	88.78?	90.14	48.44?	56.25	89.19	86.49	130.00	75.00
3618	82.22	72.22	87.84	67.57	93.00?	93.92	45.32	50.00	85.00	85.00	121.57	77.50
3619	83.62	73.45	87.84	68.24	95.88	98.65	53.42	48.15	82.93	78.57	128.30	84.62
3620	80.00	71.35	89.19	70.27	93.00	91.22	53.33	50.00	89.74	89.47	129.41	81.58
3622	93.98	77.11	82.05	64.74	93.81	90.38	50.35	53.19	77.50	81.58	128.00?	82.05
3624	85.21?	76.33	89.58?	66.67	95.65	84.72	53.28?	45.83	77.50	77.50	119.15?	75.68
3625	85.00	70.56	83.01	66.01	93.07	92.16	53.90	48.15	89.74	89.74	122.22	89.74
3626	86.03	75.42	87.66	65.58	95.19	88.31	51.47	48.08	80.49	85.37	114.81	80.56

3629	77.01	68.45	88.89	70.14	100.00	90.97	53.44	51.02	91.67	88.89	116.36?	82.05
3631	82.32	65.75	79.87	63.76	102.13	89.26	49.62	54.00	78.05	80.49	121.82	82.05
3632	85.39	70.79	82.89	67.76	98.96	86.18	55.73	42.59	85.00	85.00	120.00	88.24
3633	75.14	69.19	92.09	71.22	95.10?	97.84	51.47?	52.94?	82.93	82.93	113.56?	
3634	90.96	74.58	81.99	65.22		88.82		56.00	80.95	80.95		82.05
3635	74.86	68.85	91.97	67.15	91.58?	90.51	57.26?	45.61	82.50	86.84		87.18
3636	73.23	65.66	89.66	64.83		97.24		48.08?	87.80	90.00		86.05
3637	77.44	66.67	86.09	68.87	100.00	90.73	47.45	60.87	82.50	78.05	114.81	78.57
3638	83.33	77.01	92.41	68.97	94.79	91.03	56.06	44.23	76.74	76.74	126.00	87.18
3639	80.32	71.81	89.40	69.54		90.73		48.08?	85.37	85.37		76.74
3640	77.01	68.45	88.89	69.44	97.06	93.06	55.22	42.86?	87.18	84.62	115.52	73.68
3641	88.44	73.99	83.66	66.01	97.09	96.08	48.30	52.00	85.00	80.49	118.18	81.40
3642	91.30	80.75	88.44	61.22	96.84	89.80?	50.76?	46.94	79.49	81.58	117.31	90.63
3643 ¹	91.46	76.83	84.00	67.33	95.60	86.67	56.15	50.00	89.47	91.67	117.31	91.43
3645	76.92	74.73	97.14	64.29	98.98	89.29?	59.20?	48.15	84.62	86.84	109.09?	77.78
3646		76.70			92.16?			41.07	83.72	83.72	108.93?	89.47
3671	78.74	71.26	90.51	64.96	102.08	92.70?	56.69?	44.44	90.48		120.00	71.79
3672	74.44	71.67	96.27	72.39		97.01		50.00?	92.11	91.89	129.55	88.24
3674	89.29?			69.33?								
3675 ¹	91.38	65.52	71.70	62.89	92.22?	87.42	47.48	47.06	89.74	97.30		90.91
3676	85.03	72.46	85.21	68.31		95.07		60.00	80.00	77.50		93.94
3677 ¹	76.84	69.47	90.41	65.75	95.74	83.56	48.36	50.00	78.95	76.92	132.61	84.21
3678	83.85	67.71	80.75	63.35	92.86	88.20	47.89	47.83	86.84	86.84	128.00?	74.00
3681	84.27?	69.10	82.00?	64.67?	93.62			53.85	86.05	88.10		
3682	87.08	75.28	86.45	66.45	95.96	90.32	50.71	50.00	80.49	80.95	118.52?	85.71
3683	85.79	70.49	82.17	63.06	97.94	85.99	50.37	45.83	82.50	82.50	120.75	80.00
3686	81.46			64.14								
3687	75.00	61.17	81.56	65.96	96.81			44.23	90.00		119.61	84.85
3689	88.10	74.40?	84.46?	68.24	104.17?	88.51	46.56	63.64	83.78	83.78	107.55?	
3691	80.10	63.27	78.98	63.69	102.83			55.56		76.19	116.39	88.57
3692		61.24			104.40?			47.92	78.95	77.78	113.73?	

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital	Maxillo-Alveolar	Foramen Magnum
									r	l	
3694	80.00	72.22	90.28	69.44	89.00			43.40	100.00	92.50	91.67
3695	80.22			71.23				44.44	82.93		
3696	76.70	71.59	93.33	70.37	96.94			47.06	94.74	94.74	82.50
3697	85.80	78.98	92.05	68.87	98.00?	90.73	51.82	46.00	73.81	71.43	106.06
3698	81.66	77.51	94.93	69.57	87.76	90.58	55.20	36.00	87.50	87.50	86.84
3701	81.25	73.30	90.21	67.13	89.58			50.00	86.49	86.49	76.92
3702	80.33?	70.49	87.76?	70.75?	92.23	92.52?	59.56	43.40	95.12	95.12	82.50
3703	82.76	70.11	84.72	62.50	108.42			49.06		83.33	97.06
3704	73.68	68.42	92.86	67.86	95.83	90.00	57.94	40.38	102.86	123.53	84.78
3706	81.25	70.45	86.71						89.74		84.21
3707	77.78	70.56	90.71	67.14	100.00	95.71?	53.73?	46.15	78.57	85.37	83.72
3709	80.00	70.00	87.50	70.83	103.16			66.67		87.18	76.92
3711	78.38	71.89	91.72	65.52	96.12	95.17	48.55	48.00	85.00	85.00	89.74
3712	71.07	67.51	95.00	72.86	91.43	95.00	55.64	45.45	75.61	73.81	85.37
3713	77.60	68.31	88.03	67.61	98.95	88.73	56.35	47.06	84.62	84.62	85.29
3714	81.01	72.63	89.66	69.66	90.91	91.72	53.38	50.94	85.37	82.93	89.19
3715	81.67?	72.22?	88.44	67.35		93.20		49.02?	82.93	128.00	82.93
3716	83.82?	77.46	92.41?	61.38?	96.97			49.02	84.62	81.58	97.06
3718	92.31	69.82	75.64	61.54				59.57	81.58	81.58	86.49
3719	83.33	70.00	84.00	67.33	95.92			53.19	89.74	113.73	
3720	82.39	71.59	86.90	66.90	97.83	86.21	55.20	52.00	90.00?	89.74?	88.57

3721	81.87	64.84	79.19	65.10	98.95?	90.07	53.54	57.45?	82.50	85.00	126.92?	84.85
3722	80.57	73.71	91.49	73.05	100.00			46.94?	78.05	86.84	125.00	80.00
3726	83.52			66.67		91.72	48.12	54.17	82.05	82.05	113.73?	
3728	83.33	74.14	88.97	66.90	91.75			47.92	77.50	77.50		90.91
3729	79.33	74.30	93.66	59.86		87.50	51.88	48.98	78.95	78.95		83.78
3730	89.94	72.19	80.26	67.11	96.77	87.76	52.71	52.00	92.31	87.18	124.07	85.71
3731	84.00	72.57	86.39	61.90	100.00	89.26		53.06	91.67	91.43	122.22	78.95
3733	80.54	68.11	84.56	61.07		95.21	53.24	50.98	87.50	87.18		82.05
3735	82.02	75.84	92.47	65.75	93.33	90.41	50.00	46.15	80.00	84.62	120.00	92.11
3737	84.39	75.14	89.04	65.75	96.77			54.55	82.05	84.21	129.41	87.10
3739	84.80	80.70	95.17	68.28	89.80			46.00	78.95	78.38	117.65	87.88
3741	83.52?	67.05?	80.27?	69.39?	92.08			48.00?	82.50	82.50	127.08?	85.00
3745	87.57	71.75	81.94?	61.94?		89.63	46.94	50.00?	82.50	80.49	112.24?	81.58
3746	89.62	70.49	78.66	64.63	85.42?			52.00?		71.43		80.49
3748	81.28	66.84	82.24	60.53	90.57							72.50
3749			85.14	68.92								91.67
3751	73.26	73.26	100.00	71.53	92.00			49.02	77.50		115.09?	81.58
3753	81.77	70.72	86.49		98.96	87.16	48.06	55.56	77.50	79.49	115.09?	88.89?
3756	82.14	77.38	94.20	71.01	96.88	87.68?	55.37?	58.33	75.61	80.00	126.00	83.33
3758	83.71	68.54	81.88	67.11	96.81	93.29	51.08	49.02	77.78		126.42	83.78
3759	80.22	70.33	87.67	69.18						87.18	113.79?	75.68
3761	79.67	71.43	89.66	62.76	90.20?	92.41?	50.75?	45.10?	80.49	80.49		86.49
3762	89.02	72.83	81.82	64.94	97.85?			48.98		83.78	106.00	86.67
3763	78.45	69.06	88.03	66.20		88.73						75.00
3767	84.00	70.86	84.35	64.63		81.63		40.38	86.05	84.09	109.43?	78.38
3768	83.16	70.53	84.81	67.09	96.08					97.22		80.43
3769	78.26	60.87?	77.78?	67.36						75.00	132.65?	91.67
3770	87.79	74.42	84.77	62.91	95.88	87.42?	48.48?	53.06	73.17	75.00		87.88
3774	78.65	71.35	90.71	74.29	97.94	95.00	58.65	43.64	77.27	77.27	118.52	84.21
3775	75.14	70.72	94.12		95.74			48.00		97.22	116.67?	87.88
3777	80.57	70.86	87.94	65.96		86.52		50.00	79.49	81.58		87.88

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3782	81.03	68.72	84.81	65.82	97.96	88.61	57.69	42.11	90.24	90.24		81.58
3784	79.35	71.20	89.73	65.75		89.04		50.00	89.74	89.74	114.55?	91.67
3787	90.00	74.12	82.35	66.67		87.58		41.38	83.33	87.80		84.21
3792	85.47	67.04	78.43	66.67	95.88	93.46	51.75	47.27	80.95	80.49	132.08	78.95
3793	88.95	75.58	84.97	71.24	93.55	85.62?	54.20?	44.23	84.62	91.89	125.00	84.21
3794	84.39	72.25	85.62	67.81	89.01			44.23	97.37	94.74	136.17	76.92
3796	85.14	72.57	85.23	65.77	95.19?			45.10?		79.07	118.87	97.30
3798	85.06	69.54	81.76	60.81	97.00	90.54	51.49	44.44	84.62	84.62	118.87?	87.18
3801	83.71?	73.03	87.25?	65.10?				44.23		87.50		
3807	87.91	70.33	80.00	64.38	90.00?	85.00	54.41	46.15	87.50	90.00	112.00	80.00
3808	85.55	74.57	87.16	68.92		89.86		48.15?	80.49	80.49		88.89
3813 ¹	84.09	73.30	87.16	66.89		87.16?		48.00?	82.93	85.00	127.45?	82.86
3815	79.56?	69.61?	87.50?	70.14				49.06	80.49	82.50	116.36?	
3816	84.02	71.01	84.51	66.90	102.15	89.44	54.33	53.85?	80.49	82.50	118.18	77.50
3818	83.71	77.53	92.62	63.76	89.90	89.93?	53.73	46.00	87.18	91.89	115.38	82.50
3819	81.38	67.02	82.35	63.40	93.20	91.50	45.00	52.00	80.00	80.00	125.93	81.58
3820	88.62	65.87	74.32	62.16	106.59	91.89	47.06	56.25	90.00	92.31	118.18?	80.49
3821	82.16	68.11	82.89	68.42	92.31			49.02	85.00			83.33
3823	84.27			65.33			53.03?	52.08		80.49	116.00?	
3824	86.19	71.29	82.69	61.54	93.81	89.10?	52.52	45.28	94.87	92.31	114.55?	85.37
3825	79.67			66.21				52.08	77.50	77.50	123.53?	

¹Omitted from the series.

3826	84.52	76.79	90.85	64.79	93.07	92.25?	51.91?	54.17	77.50	77.50	123.08?	83.33
3828	81.42	74.86	91.95	65.10	89.81	92.62	51.45	43.64	90.00	85.00		78.95
3829	82.68	73.74	89.19	62.84	98.04	88.51	50.38	50.00	84.62	82.50	120.75	77.78
3830	75.53	68.62	90.85	71.13	91.92			46.15	78.05	80.00		86.84
3833	83.61	77.05	92.16	65.36	85.00?	91.50	55.71	42.59	86.05	83.72?		
3834	84.15	75.41	89.61	68.83		95.45		48.00	79.49	82.05		85.00
3837			90.34	68.28		93.10		49.06	83.72	90.24		86.11
3838	79.43	76.57	96.40	65.47	93.88	89.93	52.00	48.94	84.21	81.58	119.23	74.36
3839	82.76	74.14	89.58	68.75	95.60			45.10	90.00	82.50	118.37	80.00
3840	83.91?	74.14	88.36?	60.96?	98.99			50.98	80.00			83.33
3841	93.90	75.00	79.87	63.64	101.14	90.26	46.04	50.00	87.18	84.62	128.00	84.21
3842	78.80	72.28	91.72	66.21				50.00	77.50	80.00?		
3844	87.43	68.57	78.43	61.44	103.26	86.93	47.37	54.17	92.11	92.11		89.47
3852	85.96	78.36	91.16	65.31		91.84		47.92	81.08	75.68		86.11
3853	79.67	73.08	91.72	66.90	97.00	93.79	47.79	60.00	78.57	80.49	107.14	82.05
3854	88.17	76.33	86.58	73.15	96.97	91.95?	50.36?	48.08	89.47	94.44	118.52?	87.18
3855	86.21	79.31	92.00	67.33	88.12	91.33	53.28	50.00	90.24	92.68	128.00	74.42
3856	80.56	70.00	86.90	66.21	101.06	91.03?	44.70?	55.56	76.92	76.92	112.96	89.19
3857	86.59	77.09	89.03	67.74		89.03		41.51	82.50	82.50		76.92
3858	87.93	79.31	90.20	66.67	91.18	90.20	52.17	45.45	85.37	85.37	105.77?	85.00
3860	84.00	65.71	78.23	68.03	93.55	88.44	51.54	49.02	88.10	87.80	129.17	88.57
3861	80.00	76.57	95.71	65.71	106.06	91.43?	55.47?	47.06		80.00	111.86	83.78
3862	77.30	70.27	90.91	67.13				46.00	80.49	80.49		80.56
3863	92.22	76.05	82.47	64.94	95.92	87.66	54.81	44.23	80.00	82.50	128.00?	89.19
3864 ¹	85.39	74.16	86.84	65.79		88.82		44.44	85.37	85.37		81.08
3865	85.80	76.14	88.74	66.23	90.82			52.08	82.93	85.00	123.08	83.33
3866	83.82	73.99	88.28	66.90		91.03		46.94	86.84	86.84	134.04	78.05
3867	85.96	74.72	86.93	67.97	98.98	88.89	50.00	51.02	85.37	82.93	126.42	87.80
3868	84.97	73.41	86.39	68.03	96.84	90.48?	54.14?	49.02	82.50	82.50	112.24	
3869	82.56	75.58	91.55	69.01	91.58				76.92	83.78	121.15?	73.68
3871	74.09	68.39	92.31	65.03	97.00	91.61	60.31	44.64	87.80	85.71	118.18	76.74

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES

MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3873	70.94	65.52	92.36	68.75	89.42			52.00	100.00	76.74?	142.00	76.19
3874	88.70	74.01	83.44	65.61				50.91	80.95?	95.12		84.21
3875	74.87	66.84	89.29	68.57	96.97	88.57	51.61	55.56		85.00	111.11?	76.92
3876	82.76	73.56	88.89	68.06	103.19			52.08?	80.00	79.49	112.07	86.84
3878	83.80	76.54	91.33	68.67	86.41	90.00	61.48	36.84	92.68	92.68	122.64	94.44
3879	81.56	74.86	91.78	69.18	86.00	89.73	54.96	44.90	87.80	90.24	124.00	87.18
3880	76.34	73.12	95.77	68.31	88.00	93.66	48.12	48.94	78.57	80.49	127.66?	85.00
3881	80.90	71.35?	88.19?	65.97	100.00	87.50	53.97	49.02	82.05	82.05	111.11	87.88
3882	79.67	70.88	88.97	62.76		89.66	52.31?	48.08	87.80	85.00		82.50
3884	78.02	70.88	90.85	63.38				50.00	87.50			78.05
3886	83.43	70.17	84.11	70.86	98.00	90.73	51.82	51.92	87.80	90.00	124.53	
3888	82.80	76.34	92.21	62.34	94.06			49.02		73.17	113.21?	89.47
3889	84.27	69.10	82.00	62.67	101.05	90.67	52.21	44.00	92.31	94.87		
3890	91.16	69.61	76.36	61.21	94.79?	86.67	46.15	47.06				79.07
3891	83.70	64.67	77.27	62.34	99.00	90.26	37.41	64.29?	70.00	71.79		88.64
3892	84.18?	72.88?	86.58	64.43	93.94	84.56?	54.76?	50.00	82.05	86.84	117.65?	82.86
3895	85.37	80.49	94.29	64.29	86.60	92.86?	51.54?	48.08	80.95	85.00	126.09	94.12
3896	79.57	72.58	91.22	69.59	91.35			42.86	86.05	87.80	125.49	84.62
3897	82.58	75.84	91.84	65.31	90.00			42.59	80.00		119.61?	82.50
3901	84.86?			66.24?					83.33			
3902	81.08	72.43	89.33	65.33		93.33				80.00?		86.49

3903	83.05	75.14	90.48	65.31		93.20		46.94	84.62				
3906	83.80?			64.67?				53.17	79.07	84.62	125.00?		94.12
3909	78.21	68.72	87.86	66.43	87.37	90.00		50.00	80.49	83.72	126.09?		84.21
3910	75.53	75.00	99.30	71.13		92.96		45.10	80.49	82.93			94.44
3911	84.18	75.71	89.93	64.43		89.26		47.92	75.61	77.50			89.19
3912	82.22	65.56	79.73	64.86	97.92	84.46		49.02	80.49	80.49	127.45		81.82
3913	85.63	75.45	88.11	65.73	98.91?	90.91		55.20	77.50	77.50			
3914	89.29	75.60	84.67	66.00	91.84	88.67		46.15?	80.49	80.00	128.00		91.89
3918	86.23	73.65?	85.42?	67.36	98.94?	90.28		48.08	80.49	89.74	124.00?		
3919	82.35	70.59	85.71	68.83	92.52	88.96		45.10	75.61	80.49	116.98?		92.11
3921	81.97	72.68	88.67	64.67	90.00	90.00		46.94	85.37	80.49			81.40
3926	82.78	73.33	88.59	62.42	104.17	89.26		42.59	76.92	79.49	108.62		80.56
3927	85.06	76.44	89.86	64.86	96.81			55.32	81.08	81.08	122.00		81.58
3928	79.89	70.65	88.44	66.67	91.00?	87.07		47.17	85.00	87.50	124.00?		81.82
3929	76.67	72.78	94.93	68.84	92.86	100.72		46.30	89.47	89.47	125.00		80.49
3930	80.79	74.01	91.61	67.13	97.92	93.01		48.08	80.49		115.09		83.78
3931	86.93	78.41	90.20	64.71	92.31?			52.94?	76.19				78.57
3933	84.80	73.68	86.90	65.52	101.08			56.86	89.74	87.18	114.81		81.82
3934	84.36	72.63	86.09	60.93	87.76	88.74		44.44?	90.00	87.80	125.53?		73.17
3936	75.00	64.29	85.71	74.15				54.00	76.19	77.50	120.37?		89.74
3938	87.50	73.30	83.77	59.74		88.96		50.00?	80.49	84.62			81.08
3939	79.57	72.58	91.22	67.57		92.57		50.94?	94.59				80.00
3940	84.30	75.58	89.66	66.21		91.03		46.94	77.50	78.05			89.19
3942	78.86?	70.86	89.86?	66.67?		89.86?			82.05				81.25
3943	83.15	73.91	88.89	69.93	98.17?	94.77		50.91	76.74	82.50	128.57		87.18
3944	86.98	79.88	91.84	60.54	93.20	93.88		52.90	87.50	97.37	124.53		82.50
3944a	80.90?	69.10?	85.42	70.83		90.28		52.00	78.57	80.49			76.32
3946	82.35	78.24	95.00	70.00	101.05	90.00		50.00	80.49	82.93	110.91?		81.58
3948	82.42	69.78	84.67	70.00	93.00	86.67		53.17		85.00			91.18
3951	80.23	73.45	91.55	68.31	93.00	93.66?		50.77		86.05			86.11
3954	74.35	67.54	90.85	73.24	89.42	92.25?		58.78?	82.93	85.37	116.67		74.42

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3960	80.00	72.00	90.00	65.71	94.57	92.14	59.69	41.07	89.47	92.11	114.55	86.11
3962	81.98			63.83		92.20	52.31	52.17	79.49	81.58	111.76?	
3964	88.82	64.71	72.85	64.24	112.50	86.75	47.33	51.11	80.00	82.05	101.64?	89.19
3968	82.42	71.98	87.33	65.33	90.20	92.00	51.45	41.51	87.80		115.38	86.11
3971	82.49	66.67	80.82	65.07		91.78?			86.49	88.57		100.00
3973	82.68	75.98	91.89	67.57	88.78	86.49	56.25	48.98	80.00	84.21		89.19
3974 ¹	87.28?	71.10?	81.46	62.91	103.23	84.77?	44.53?	61.90?	75.00	75.00	123.08?	87.18
3976	84.34	73.49	87.14	66.43	92.31	89.29	48.80	51.11	89.19	91.67		83.33
3977	80.87	71.58	88.51	63.51	97.92	84.46	55.20	52.00	82.93	80.49	109.09?	87.50
3978	87.93	75.86	86.27	66.67		88.24	50.37	40-44.00?	84.62	86.84	115.69	93.94
3979	80.73?	62.50	77.42?	69.03?	100.00			50.98?	82.93	90.00	114.00?	79.49
3981	80.43	65.76	81.76	62.16	89.47	87.16	55.81	46.00	84.62	82.50	108.00?	83.33
3982	81.46	67.42?	82.76?	65.52		88.28	56.25			82.50		
3983	79.55	72.16?	90.71?	62.86		87.14?	53.28?	48.94	82.05	82.05		
3985	84.02	73.96	88.03	67.61	94.51	95.77	49.26	46.81	84.62	87.80	125.53	
3989	79.89	71.51	89.51	62.94	93.75	95.10	58.09	43.64				86.49
3991	82.02	74.72	91.10	63.70	85.86	93.15	46.32	52.08	80.00	82.05		82.05
3994	89.50	74.03	82.72	64.20	90.38			44.90	73.81?	77.50	111.54?	88.89
3995	84.30	73.84	87.59	68.28	94.68	95.86	48.92	47.06	87.50		122.00	87.18
3996 ¹	93.90	77.44	82.47	61.69	94.38	85.06?	46.56?	52.17	75.00	77.50	130.00	87.18
3999	80.57	69.14	85.82	66.67	100.00	92.20?	49.23?	50.00	78.05	75.61	132.00	82.86

¹Omitted from the series.

4000	88.76	75.15	84.67	66.67	87.88?	90.00	52.59	44.23	95.00	95.00	105.77?	92.11
4001	87.97	77.22	87.77	66.19	103.26	92.09	53.13	45.83	84.62	87.18	103.64	87.88
4003	86.39	68.05	78.77	66.44		94.52		60.87	82.05?	84.21		86.84
4005	76.14	73.60	96.67	68.00								77.27
4007	78.61	70.59	89.80	67.35	90.00?	93.88	52.17	40.35	85.37	89.74	123.08	81.08
4008	77.37	68.95	89.12	65.31	90.72	87.76	55.04	46.15	82.05?	77.50?	112.00?	83.33
4009	86.86	71.43	82.24	64.47		88.82	55.56?	45.45	85.71	90.24		84.21
4010	83.23	74.85	89.93	65.47	94.85?	93.53	51.54	48.98	89.47?		113.21?	91.89
4011	90.59	80.59	88.96	60.39	94.85	88.31	42.65?	53.33	81.08	76.92	131.25	100.00
4012	82.07	73.91	90.07	66.23					90.00			87.18
4013	82.22	72.22	87.84	67.57	96.74	87.84?	54.62?	49.02	77.27?	82.93		88.24
4014 ¹	84.80	73.68	86.90	67.59	95.60	89.66	50.77	44.00	85.71	85.71	127.66	78.95
4016	81.42	69.40	85.23	65.77	95.79	90.60	45.93	56.52	82.05	84.21	129.17?	80.00
4017	82.12	71.51	87.07	65.99				47.92			113.46?	85.71
4018	90.06	77.78	86.36	64.29	92.00	90.26	51.08	48.98	71.43	77.50		91.89
4019	74.30	73.18	98.50	72.93	86.41?	98.50	54.96?	43.64	81.82	81.82	119.61	81.08
4020	81.11	71.67	88.36	65.07		94.52						88.24
4021 ¹	80.46	72.41	90.00	70.00	95.74	91.43	54.69	46.00	82.50	82.50	119.23	78.95
4022	82.68	70.95	85.81	67.57		91.22?		48.21?	90.00	87.50		78.57
4025	83.06	72.13	86.84	66.45		92.76		46.30	87.80	92.50		90.00
4026	86.05	75.58	87.84	64.86		89.86			89.74	92.11		89.19
4029	81.77	62.43	76.35	62.84		87.84		51.11?	80.49			81.58
4030	80.23	73.45	91.55	72.54	93.68	97.18	51.45	44.44	90.00	92.31	122.00	71.79
4033	84.62			66.88		90.26?	51.08?	54.17	75.00	81.58	109.26?	
4035	84.27	71.35	84.67	60.00	91.49	89.33	51.49	43.14	85.00	85.00		91.67
4036	83.33	77.38	92.86	64.29								77.78
4037	86.98	71.01	81.63	70.07	95.70			48.98	72.34		116.36	78.38
4039	88.07	74.43	84.52	66.45	101.01			50.00	85.37	83.33	118.18	94.44
4040 ¹	82.87	67.40	81.33	66.00	100.00	86.67	52.31		84.62	84.62	129.41	77.50
4042	77.90	71.82	92.20	62.41	95.92	90.07	55.12	45.10	89.74	87.18	118.00	90.00
4043	82.18	72.99	88.81	67.13	92.93	95.10	49.26	50.00	90.00	90.00	123.08	77.50

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
MALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
4044	86.39	78.11	90.41	61.64	91.49	83.56?	54.10?		86.11	86.11	127.08	85.71
4045	82.76	75.29	90.97	68.75	94.85	87.50	57.94	44.23	92.31	86.84	125.00	77.14
4046	86.29	70.59	82.76	64.83	104.35	88.97	52.71	46.94	78.05	78.05		83.78
4047	79.67	72.53	91.03	67.59	87.63	91.03	55.30	54.72	82.50	82.50	136.17	84.62
4053 ¹	92.55	85.09	91.95	61.07	95.88	87.25	50.77	51.06	79.49	78.95	126.00	
4054	80.56	75.00	93.10	66.90	95.05	96.55	50.71?	46.15	78.57	76.19		94.12
4058	86.34	77.64	89.93	66.91		86.33	52.50?	47.83	86.11	81.08		81.82
4061	86.90	77.98	89.73	61.64	91.49	89.04	47.69	44.68	82.50	84.62		88.89
4063	82.49	71.75	86.99	68.49		91.10				85.00		91.67
4064	79.79	69.15	86.67	66.00	97.06	86.67	53.85	47.06	78.05	75.61		82.86
4065	83.05	73.45	88.44	68.03	92.78	94.56	50.00	50.94?		81.82		83.78
4066	78.09	71.91	92.09	68.35		92.09	50.00	46.00	79.49	84.62		79.49
4071	86.13	78.61	91.28	67.79	92.78	91.28?		58.00	79.49	86.49		77.78
4074 ¹	86.71	75.14	86.67	63.33	93.48	92.67	46.04	51.02	84.62	86.84	131.91	82.05
4075	82.12	70.39	85.71	63.95	88.78	81.63	59.17	41.18	81.40	80.95	126.67?	90.63
4078	86.36	75.57	87.50	63.82				53.85	81.58	79.49	135.29	83.78
4079	76.06	69.15	90.91	70.63	94.79	93.01	50.38	46.94	87.50	89.74	128.00	80.95
4080	82.66	78.03	94.41	68.53	98.96	95.10	56.62	45.10	87.50	85.00	110.53	80.56
4085	75.54			64.03		93.53	57.69	44.44	87.80	87.80	123.53	
4086	83.04	76.61	92.25	66.90		92.25		47.06	84.62	86.84		86.11
4089	75.40	69.52	92.20	65.25				46.00	83.78	86.11		100.00

¹Omitted from the series.

4093 ¹	78.26	70.65	90.28	63.89	96.94			50.00	86.84	89.47	124.00	84.21
4094	87.28	71.10	81.46	63.58	98.86			52.17		83.78		94.59
4096	86.71	73.99	85.33	64.00	95.88		51.13	50.00	89.47	94.44	121.15	85.71
4098	78.92	67.03	84.93	66.44	98.02			52.00	71.79	74.36		82.86
4099	86.36	68.75	79.61	68.42	93.94?	88.67		54.90	79.49	79.49	127.66	94.59
4101	77.09	73.74	95.65	68.12	95.83	85.53	48.46?	48.00	82.50	84.62		
4102	88.17	73.37	83.22	61.74		92.03	52.76	54.55	78.05	80.00	122.64	88.24
4103	76.50	67.76	88.57	72.14	90.72	87.25	52.31?	46.15	87.50			85.71
4104 ¹	77.13	70.21	91.03	64.83		90.00?	53.97?	54.00	76.92	79.49	117.86	
4106	79.67	65.93	82.76	71.03	102.00	87.59	54.33?	54.17	74.42			94.74
4108	80.34	75.84	94.41	69.23	91.75	95.86	46.04	52.17	86.84	84.21	138.30	83.33
4109	85.23	80.11	94.00	60.67	94.12	91.61	48.85	48.98	80.00	80.00	121.43	83.78
4112	80.79	68.93	85.31	67.83	98.99	89.33	51.49	50.00	80.49	80.49	111.11?	91.18
4114	86.13	79.19	91.95	62.42	89.80	92.31	51.52	50.00	75.61	81.58		94.44
4115	82.89	68.45	82.58	65.16	96.23	88.39	54.01	48.00	82.50	82.93	111.67	87.18
4118	86.39	76.33	88.36	65.75	88.00	94.52	47.10	44.00	90.00	90.00		89.74
4119	79.43	72.00	90.65	67.63	102.00	93.53	47.69	55.56	86.84	86.84		84.62

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
3610	1290	167	131	124	91	118	66	50	22	36	35	32	33	90	85	47	57
3611	171	156	171	156	99		70	51	26	39	40	35	34		92	57?	
3615	1390	171	149	125	95	126	64	45	24	36	37	32	32	92	92	49	62?
3621	1360	167	143	120	94	129	64	45			38		35	86	81	50	60
3623	168	142?	129	129	93		65	46	23		36		31	95	84	46?	57?
3627	1240	160	136	123	85	119	61	45	21	34	34	32	32	90	86	48?	59
3630	1340	173	144	119	96	127	70	53	23	39	37	34	33	92	82	46	56?
3644	174	139	137	130	90	125?	67	46	24	36	36	30	29		50	50	63
3670 ¹	1480	172	137	130	102	121??	61	42	22	41	40	31	31	98	89	48	59
3673 ¹	1400	174	141	118	97		53	40	25	36	35	29	29	88	88	46	63
3679	1310	167	138	121	92	125	74	56	24	36	37	33	33	87	82	47	58
3680	1410	166	146	121	99	132	56	43	25	39	39	33	34	92	84	45	61
3684 ¹	1530	170	144	125	100	120	57	43	24	36	35	28	28	89	88		64
3685	164	164	146	129	91	123?		47?	22	36	36	30	30	86	88	53	59
3688	1290	172	139	125	99	121	70	50	24	38	37	34	32	93	88		
3690 ¹	1160	162	127	121	89	115?	63?	60	21		35		31	88	79?		
3693	163	163	127	115	91		62?	43	21	37	38	33	32	90	87	49	60
3699	1430	165?	147	127	97?	132	66?	51	26?	40	40	35	35	96	83?	46	57
3700	164	164	145	120	94	126	69	50	24		40?		30	90	81		
3701	1450	176	142	129	102		62?	46	23	37	37	31	31	97	87	49	

¹Omitted from the series.

3705	1270	160	141?	120	92	119	70	49	25	38	34	34	94	84	48	61
3708	1410	174	139	120	101	129	65	45	21	40	34	34	85	84	48	61
3710	1590	179	142	125	96	119	65	45	21	36	31	30	91	85	47	57
3713		183	142	125	95	126	71	50	23	39	33	33	95	95	58	61
3717		173	138	123	97	123??	60	45	26	36	32		92	86	44?	62?
3723	1420	178	139	119	94	121?	70	52	26?	39	35	34	95	94	52	62
3724	1240	169	138	124	98	128		50	26	42	36	36	94			
3725	1300	171	139	120	88	120	61	44	22	35	30	30	86	85	51	60
3727	1370	169	141	126	91	121	64	48	22	38?	32	31	92	82	47	55
3732 ¹	1400	173	144	124	90					38	31	32	96			
3734		160	141	117	86								88			
3738	1390	179	140	129	87	127	51	46	22	39	31	29	97	89	50	64
3740	1380	173	145	122	96	126	65	48	24	39	34	34	90	89	50	61
3742	1390	167	140	120	92			50	24	37	31		89	48	48	60?
3743	1300	165	142	125	89	126	65	45	24	40	33	33	94	87	50	
3744	1400	170?	142	129	96	125	65	48	27?	39	32	32	92	84		
3747		156	148	121	94	129	64	46	22	37	30	30	92	86	48	64
3750	1260	162	138	117	85		64	48	23	36	33	32	90	82	45	43?
3754	1290	165	142	125	92	124?	68	50?	22	38	35	34	96	87	47?	60?
3755		165	141	119	93		73	52	23	37	37	37	92	83	49	50
3757 ¹	1450	167	145	121	95	119	58	43	19	37	32	32	93	85	44?	61
3760 ¹	1350	170	131	123	94	112	63	44	20	36	32	33	89	79	44	59
3764	1310	165	140	121	96	124	67	48	23	39	32	32	89	87	52	57
3765	1410	171	140	128	91	119	69	49	22	38	35	34	91	78?	45	54?
3766	1370	177	136	133	100	125	64?	46	24	37	30	30	94	86?	50?	60?
3771	1320	172	132	124	90	115??	67	48	19?		35	35	94	85	46	49?
3772	1430	177	138	132	98	129	72	54	23	40	35	34	97	89?	51	60
3773 ¹	1360	169	149	119	93	127?	61	44	21	40	33	33	94	91	51	58
3776 ¹	1320	166	139	114	99	121	59	45	25	37	31	31	88	91	47	61
3778	1420	168	144	127	95	122	65	48	21	39	34	34	91	83	48	58
3779	1270	161	143	116	93		56?	40	22	38?	31	31	87	79?	44?	54?

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
3780	1410	170	138	129	94	117	61	50	24	r 37	l 36	r 33	l 34	100	95	48	58
3781	1300	166	136	123	94	123	66	50	23	37	37	31	31	92	84	47	59
3783	1230	170	141	124	101	131	57	43	27	38	37	29	28	95	98	52	63
3786	1150	162	135	115	91	118		47	20	37	37	31	31	88			
3788	1430	172	149	122	98	130		49	22	40	40	35	34	93			
3789	1250	160	138	120	88	123??		46	21	37	37	33	32	86			
3790	170	137	137		95	120?	59	43	21?	37	36	32	32			45	57
3795	1450	171	150	109	92	127	60	45	22	37	36	32	32	91	96	49	58
3797	1480	169	145	130	100		56	42	25	38	37	31	31	95	94	54	62
3799	1220	167	139	120	92	122	63	49	27	38	37	32	33		90		
3800	1160	155	135	122	84	127	59	44	24	38	38	29	29	88	95	55	57
3803	1330	169	143	120	103	126	66?	49	25?	39	39	33	32	93		43?	
3804 ¹	1310	163	139	122	97	117	60	45	21	39	39	32	32	94	88	47	63
3805	1100	162	133	115	89	118		46	24?	37	36	31	31	92		46?	
3806	172	148 ²			90?		59	46	25	39?	38	33	33				
3809	1270?	169	138	125	94	126	65	46	25?	40	40	31	31	95	91	52	61
3810	1290	166	134?	126	97	124?	61	49	26	38		33	31	92	84	48	55??
3811		166	139	127	91	119		46	21?				36	93			56??
3812	1350	171	144	127	101	126		49	24	41	40	33	34	99			
3814	1370	171	144	125	94	125	61	47	20	40	39	33	33	98	.88		

¹Omitted from the series.

²On parietals.

3817	1410	167	143	128	89	130	63	48	25	40	39	32	33	93	91	50	60
3822	1390	170	143	124	93	128	58?	45	24	38	38	33	33	85	88	50?	
3831	1370	172	136	124	94	128	69	54	25	38	38	34	34	98	95	54	
3832	1210	165	130	116	86	121		43	20	37	36	32	32	86			
3835	1290	165	140	120	94	126	58	45	25	39	39	30	30	89	91	50	61
3843	1220	173	139	121	95	121		46	24	40	42?	33	34	94			
3845	1210	164	134	120	90			46	23	39		32?		89			61
3847	1370	166	145	125	95	124	67	50	23	39	39	31	31	92	84	49	57
3850	1300	169	139	125	84	120?		46	22	34	35	31	30				
3870	1280	156	137	119	91		58	43	24	39	39	32	33	84	86	43?	61??
3877	1270	174	142	114	94		64	46	25	40	39	30	31	94	98	56	57
3883	1460	174	142	122	88	124	63	48	23	35	35	32	30	90	86	47	61
3885	1500	175	142	122	90	120	63	47	24	36	37	34	32	91	85	46	58
3893		172	140		95	121		40??	24?	39	38	30?	30?				
3898	1230	164	135	126										89			
3900	1320	174	142	122	96						41?		31	90			
3904		176??			91												
3907	1220	165	138	118	89	114	62	44	23	39	38	31	31	89	80	46	54?
3908	1300	176	138	123	90	122?								93			
3915	1290	175	133	125	93	123	64	49	24	39	39	33	34	93	81	45	59
3923	1300	161	138	122	89	123	64?	47	21?	39	38	33	32	85	81	46?	56?
3924	1200	170	133	116	91			49?						88		50?	
3925	1200	162	135	120	89	121	61	46	23	39	37	32	31	90		45?	58?
3932	1420	172	140	133	94			48	25?	39	38	33	33	94		49?	60?
3937	1460	177	144	123	100	126	68	51	25	39	38	34	34	97	85	49	60
3945	1400	169	137	131	94	123?	64	47	22	40	39	33	33	94	92?	49?	60
3947	1360?	164	142	126	92		65	49	23	39	38?	32	32	93	83	47?	
3949	1320	168	143	121	91			44?	27??	38		31		87			
3952	1290	176	131	125	89	116	66	46	22	36	35	31	31	93	90?	50?	53?
3956	1210	166	140	118	91	119?	62?	44	22	38	37	31	31	88	87?		
3957	1330	169	144?	123	98	129		52	25	38	38	32	32	97			

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Cranial Capacity	Greatest Length	Greatest Breadth	Basion-Bregma	Minimum Frontal	Bizygomatic	Upper Face Height	Nose Height	Nose Width	Orbit Width		Orbit Height		Basion-Nasion	Basion-Prosthion	Maxillo-Alveolar Length	Maxillo-Alveolar Breadth
										r	l	r	l				
3961	1320	180	140	120	95	125	69	47	24	40	39	33	33	99	97	52	62
3965	1210	163	144	113	90	125	62	45		37	37	32	32	86	88	47	59
3967	1260	162	139	116	89		54	44	27	37	37	31	30	93	95	50	62
3969	1410	180	138	125	90	120	68	50	23	38	37	34	33	95	94	51	57?
3970	1380	166	143	130	101	131	64?	50	24	40	40	34	33	93			61?
3972	1200	160	137	120	88		55?	42?			37			86	82?	44	55
3975	1200	169	132	125	88	119?	70	50	23?		38	34	34	88	88	51	
3984		170	147		97		66	50	22		39	36	36			45?	
3990	1280	157	141	122	89	121	54	42	24	39	39	28	29	86	82	47	57
3992	1130	169	134	111	90	122		41	23	38	38	30	30	91		49?	56
3993	1320	166	139	127	94	123	71	50	25	40	40	35	35	93	83	49	55
3998	1220	169	135	116	97	122??	66	48	22		36	34	34	87	85	51?	60
4002	1350	164	139	128	99									94			
4004	1490	171	150	123	95	127	61	47	22	39	39	32	33	90	83	46	62
4006		161	140	121	93	123?	61	47	24	37	38	32	32	88	81?	45	61
4015	1240	166	143	127	99	120?	64	43	26	38	38	32	32	90	98	56	61?
4023	1210	170	139	119	93	119	62	46	22	36	36	32	32	89		45?	56?
4024	180	183	133	123	96	123?								92			
4027	1220	170	136	124	89	126	69	49	23	39	39	35	35	93		48	61
4028	1490	175	149	132	101	133?	68	49	24		39		29	103	96	51	

4032	1220	168	135	119	95	128	62	53	37	38	36	37	89	89	47?	60
4034	1200	169	135	110	86		43	43	37	37	32	30	86	86	49	58
4041	1180	160	140	122	91	124	63	46	37	37	32	32	93	87	46	
4048 ¹	1270	166	140	126	94	124	63	46	38	40	34	33	102			
4049	1300	173	140	135	102	133	48	48	39	38	32	32	89	79	44	65
4050	1360	155	146	129	93	127	63	48	38	38	32	32	89	90	48	61
4052	1340	176	139	127	95	121	67	47	38	37	33	29	98	85	48	56?
4055	1190	164	136	126	87	121?	63	45	37	36	32	32	90	92	48	54
4056 ¹	1330	171	140	116	90	118	68	50	36	35	32	32	94	96	48	64
4060	1190	171	142	109	94	127	57	46	38	37	31	30	94	82	51	59
4062	1260	169	133	125	90	115	70	50	38	37	33	34	87	99	50	54?
4067	1340	178	141	127	99	128	66	48	39	39	34	33	101	99	46?	57
4069	1290	161	143	124	94	131	50	50	38	38	35	35	90	95	52?	
4070	1250	166	136	122	92	122?	69	48	39?	38?	32	32	98			
4073	1380	170	151	125	96	132?	48	48	40	40	30	31	92	83	46	60
4076	1330	170	137	123	93	122	63	46	38	38	31	32	95	89	47	57
4077	1280	170	136	127	90	117?	49	49	38	39	31	34	89	91	52	61?
4081 ¹		172	137	118	89		63	46	38	39	33	33	95	94	51	57
4083	1370	171	137	127	95	130	65	45	38	38	33	33				
4084 ¹	1310	172	146	113	98	120	46?	46?	36	37	31	30	92			
4087		174	141	120	95	132	66?	50	39	39	35	34	94			
4088	1330	173	140	112	95	123	65	50	40	39	31	32	96	100	53	63
4090	1460	179	139	131	96	129	63	49	42	40	35	35	101	95	50	63
4091		166	142	116	96		70	51	43	42	33	33	95	95	52	62
4092 ¹		166	150	122	97	127?	64	47	37	36	31	32	93	96	50	61
4097	1440	166	141	130	97	123	68	49	40	39	32	33	91	85?	47	59
4100	1420	168	146?	130	99	128	70	50	38	37	33	32	98	90	48	63?
4105	1520	173	157	122	109	141	59	48	42	39	34		96	90	48	
4107	1310	169	145	125	97	124	65	51	38	39	33	34	99	90	46	
4110	1440	165	150	118	100	126	64	48	38	37	31	32	87	85	48	59
4111	1170	165	135	122	93	121	59	46	39	38	31	31	96	92	47	
4113	1260	171	141	118	99		53	53	42	40	37	37	94			
4116	1270	169	134	125	97	124	71	52	39	39	34	34	93	87	51	63
4117 ¹	1410	161	148	129	95	122	57	44	37	37	30	31	95	87	49	59

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of Left Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Transverse Arc	Sagittal Arc Entire	Bregma to Opisthion
3610	35	28	4	478	120	125	109	293		
3611			6	520	120	125	111	332		
3615	32	27	5	505	118	113	124	312		
3621	40	31	4	495	115	122	109	303		
3623	36	32	4	495	122	110	121	311		
3627	30	24	4	466	118	120	106	297		
3630	35	27	6	503	128	108	110	301		
3644				495	118	120	117	305		
3670 ¹	41	34		494	120	126	103	303		
3673 ¹	36	30		500	118	128	118	308		
3679	36	31		490	127	113	107	297		
3680	35	29		500	124	124	100	307		
3684 ¹	39	31		500	121	132	113	320		
3685	31	28		487	125			323		230
3688	39	28		498	126	100	120	295		
3690 ¹	37	26		464	119	111	107	292		
3693	40	31			110	107	107			
3699	34	32	4	504	125	116	105	315		
3700	37	31	4	487	117	117	109	305		
3701	37	30	4	510	125	115	118	308		
3705	32	27	4	485	119	116	99	308		
3708	37	29	5	506	130	128	112	307		
3710	38	32	4	515	122	136?	112	309		
3713	33	28								
3717	36	30		493	115	132	112	293		
3723	36	28		512	123			295		235
3724	34	29		490	122			309	349	
3725	37	32		493	120	118	118	293		
3727	31	28		495	122	113	125	310		
3732 ¹	37	29		499	120			305		230
3734	34	27		478	122	105	114	300		
3738	35	31		504	128	116	120	302		
3740	35	33		506	124			302		242
3742	36	30		491	123	120	108	305		
3743	34?			486	118			304		222
3744	35			503				310	360	
3747	34	30		480	115	106	107	313		
3750	32	28		480	120	115	106	300		

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of Left Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Transverse Arc	Sagittal Arc Entire	Bregma to Opisthion
3754	35	28		491	114	107	117	305		
3755	34	30		488	120	116	110	315		
3757 ¹	37	36		498	120	120	98	312		
3760 ¹	36	32		486	118	126	110	288		
3764	38	32		485	118	111	117	308		
3765	36	32		497	124	128	112	303		
3766	37	28		505	119	135	117	308		
3771	32	28		490	125	115	110	307		
3772	39	32		507	129	122	110	303		
3773 ¹	37	32		503	117	112	109	303		
3776 ¹	37	29		487	118	120	104	305		
3778	35	29		494	124	120	112	318		
3779	34	29		486	125	105	105	303		
3780 ¹	39	32		495	120	123	100	300		
3781	36	31		487	123	111	114	303		
3783	35	30		482	112	113	110	305		
3786	34	28		470	115	115	102	292		
3788	44	33		507	130	110	115	302		
3789	38	28		477	116	115	107	297		
3790		30		487	124	122	105	295		
3795	37	30		510	119	119	113	305		
3797 ¹	37	29		497	124	125	106	313		
3799	35	26		490	114	120	120	310		
3800	35	33		463				295	330	
3803	33	30		505	122	110	113	305		
3804 ¹	35	30		482	121	112	100	315		
3805	33	30		465	110			285		220
3806					117	117	123			
3809				488	119	118		295		
3810	34	28		489	127	116	108	305		
3811	38	30		482	120	115	110	310		
3812	32	28		507	120	115	110	310		
3814	33	29		500	127			311		227
3817	31	30		495	129	117	113	305		
3822	40	29		503	126	124	105	315		
3831	38	30		500	129			290		220
3832	37	31		474	116	118	106	277		
3835	37	30		490	110			307		238

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of Left Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Transverse Arc	Sagittal Arc Entire	Bregma to Opisthion
3843	35	32		496	113	120	110	290		
3845	32	29		475	115			288		224
3847	34			495	125	113	107	313		
3850	30	27		492	116			300		238
3870	35	30		464	111	127	98	295		
3877	37	30		496	121	107	115	297		
3883	36	31		509	122	124	117	310		
3885	36	31		505	119	131	112	305		
3893				495	125			302		231
3898	33	29		475?	121	119	105	293		
3900	32	30		505	133	116	113	302		
3904										
3907	29	25		483	120	125	103	297		
3908	33	27		498	132	120	105	300		
3915	32	26		495	127			295		237
3923	32	29		476	119	119	107	302		
3924	34	29		487	121	119	105	294		
3925	31	28		473	120			290		224
3932	36	32		495	121			308		239
3937	36	27		513	124	103	124	304		
3945	36	32		490	124	120	113	304		
3947	36	30		489	114	118	104	298		
3949	37	30		495	120	115	119	293		
3952	34	28		488	124			288		237
3956	32	27		488	124	117	111	301		
3957	32	31		500	120			300		223
3961	34	27		510	125	109	119	305		
3965	35	28		490	120	110	105	310		
3967	36	30		480	119	111	108	295		
3969		30		507	121	120	120?	294		
3970	36	31		501	125	116	111	315		
3972	33	28		477	117	105	117	295		
3975	33	29		483	126	120	110	295		
3984				500	121	110	107	310		
3990	33	33		475	118	110	108	308		
3992	36	33		483	114	115	108	293		
3993	36	31		485	127	109	108	305		
3998	36	27		488	115			287		225
4002	35	29?		485	131	120	110	320		

TABLE 67 (Continued)
INDIVIDUAL RECORDS—MEASUREMENTS
FEMALE

Catalogue Number	Length of Foramen Magnum	Breadth of Foramen Magnum	Thickness of Left Parietal	Horizontal Circumference	Sagittal Arc to Bregma	Bregma to Lambda	Lambda to Opisthion	Transverse Arc	Sagittal Arc Entire	Bregma to Opisthion
4004	36	32		512	133	108	112	312		
4006	30	27		488	126	115	109	305		
4015	34	29		493	124	116	113	310		
4023		27		493	122			295		232
4024	37	28		504	124	130	115	298		
4027	36	27		485	121	120	100	293		
4028	36	33		516	123	120	118	315		
4032	37	30		492	125	121	110	293		
4034	33	28		485	116	115	114	287		
4041	30	27		475	112	113	105	298		
4048 ¹	35	28		493	120	120	107	307		
4049	36	29		508	123	127	108	318		
4050	37	31		484	119	122	100	319		
4052	33	28		505	130	120	108	308		
4055	33	29		474	119	118	108	300		
4056 ¹	34	28		495	124	111	112	302		
4060	32	29		495	118	122	110	292		
4062	37	27		488	109			286		244
4067	37	36		512	129	105	125	304		
4069	36	30		485	118	120	109			
4070	36	31		483	108	118	105	298		
4073	35	30?		505	129			327		229
4076	35	32		495	123	111	114	296		
4077	33	28		490				300	350	
4081 ¹	37	31		490	125	120	109	290		
4083	36	30		495	121	104	126	308		
4084 ¹	37	30		505	122	125	108	300		
4087	37	33		505	114					232
4088	38	29		500	118	115	104	293		
4090	38	30		509	117	127	116	305		
4091	34	29		495	118?	105	111	305		
4092 ¹	36	32		502	117	123	110	314		
4097	35	30		495	130	120	107	312		
4100	34	30		502?	123	119	108	320		
4105	38	38		530	122	115	115	325		
4107	37	31		500	122	109	108	308		
4110	40	31		505	123	116	110	315		
4111	38	30		479	127	105	98	298		
4113				502	117	125	100?	305		
4116	37	30		494	119	110?	120	297		
4117 ¹	37	32		485	119	114	104	325		

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
FEMALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3610	78.44	74.25	94.66	69.47	94.44	90.08	55.93	44.00	88.89	94.29	121.28	80.00
3611	91.23			63.46				50.98	89.74	85.00		
3615	87.13	73.10	83.89	63.76	100.00	84.56	50.79	53.33	88.89	86.49	126.53?	84.38
3621	85.63	71.86	83.92	65.73	94.19	90.21	49.61			92.11	120.00	77.50
3623	84.52?	76.79	90.85?	65.49?	88.42			50.00		86.11	123.91?	88.89
3627	85.00	76.88	90.44	62.50	95.56	87.50	51.26	46.67	94.12	94.12	122.92?	80.00
3630	83.24	68.79	82.64	66.67	89.13	88.19	55.12	43.40	87.18	89.19	121.74?	77.14
3644	79.89			64.75		89.93?	53.60?	52.17	83.33	80.56	126.00	
3670?	79.65	75.58	94.89	74.45	90.82	88.32?	50.41?	52.38	75.61	77.50	122.92	82.93
3673?	81.03	67.82	83.69	68.79	100.00			62.50	80.56	82.86	136.96	83.33
3679	82.63	72.46	87.68	66.67	94.25	90.58	59.20	42.86	91.67	89.19	123.40	86.11
3680	87.95	72.89	82.88	67.81	91.30	90.41	42.42	58.14	84.62	87.18	135.56	82.86
3684	84.71	73.53	86.81	69.44	98.88	83.33	47.50	55.81	77.78	80.00		79.49
3685	89.02	78.66	88.36	62.33	84.25?			46.81?	83.33	83.33		90.32
3688	80.81	72.67	89.93	71.22	94.62	87.05	57.85	48.00	89.47	86.49	111.32	71.79
3690?	78.40	74.69	95.28	70.08	89.77?	90.55?	54.78?	35.00		88.57		70.27
3693		70.55			96.67			48.84	89.19	84.21	122.45	77.50
3699	89.09?	76.97?	86.39	65.99?	86.46?	89.80	50.00?	50.98?	87.50	87.50	123.91	94.12
3700	88.41	73.17	82.76	64.83	90.00	86.90	54.76	48.00	83.78	75.00		83.78
3701	80.68	73.30	90.85	71.83	89.69			50.00	83.78	83.78		81.08
3705	88.13?	75.00	85.11?	65.25?		84.40?			89.47	89.47		84.38

¹Omitted from the series.

3708	79.89	68.97	86.33	72.66	98.82	92.81	54.26	51.02	28.93	85.00	127.08	78.38
3710	79.33	69.83	88.03	67.61	93.41	83.80	54.62	46.67	86.11	83.33	121.28	84.27
3713	77.60	68.31	88.03	66.90	100.00	88.73	56.35	46.00	84.62	84.62	105.17	84.85
3717	79.77	71.10	89.13	70.29	93.48	89.13?	48.78?	57.78	88.89		140.91	83.33
3723	78.09	66.85	85.61	67.63	98.95	87.05?	57.85	50.00?	89.74	87.18	119.23	77.78
3724	81.66	73.37	89.86	71.01		92.75		52.00	83.72	85.71		85.29
3725	81.29	70.18	86.33	63.31	98.84	86.33	50.83	50.00	83.33	85.71	117.65	86.49
3727	83.43	74.56	89.36	64.54	89.13	85.82	52.89	45.83	84.21?	81.58	117.02	90.32
3732 ¹	83.24	71.68	86.11	62.50					81.58	86.49		78.38
3734	88.13	73.13	82.98	60.99								79.41
3738	78.21	72.07	92.14	62.14	91.75	90.71	40.16	47.83	79.49	72.50	128.00	88.57
3740	83.82	70.52	84.14	66.21	98.89	86.90	51.59	50.00	87.18	89.47	122.00	94.29
3742	83.83	71.86	85.71	65.71				48.00	83.78		125.00?	83.33
3743	86.06	75.76	88.03	62.68	92.55	88.73	51.59	53.33	82.50	82.50		
3744	83.53?	75.88?	90.85	67.61	91.30	88.03	52.00	56.25?	82.05	82.05		
3747	94.87	77.56	81.76	63.51	93.48	87.16	49.61	47.83	81.08	81.08	133.33	88.24
3750	85.19	72.22	84.78	61.59	91.11			47.92	91.67	88.89	95.56?	87.50
3754	86.06	75.76	88.03	64.79	90.63	87.32?	54.84?	44.00?	92.11	89.47	127.66?	80.00
3755	85.45	72.12	84.40	65.96	90.22			44.23	100.00	100.00	102.04	88.24
3757 ¹	86.83	72.46	83.45	65.52	91.40	82.07	48.74	44.19	86.49	84.21	138.64	97.30
3760 ¹	77.06	72.35	93.89	71.76	88.76	85.50	56.25	45.45	88.89	94.29	134.09	88.89
3764	84.85	73.33	86.43	68.57	97.75	88.57	54.03	47.92	82.05	82.05	109.62	84.21
3765	81.87	74.85	91.43	65.00	85.71?	85.00	57.98	44.90	92.11	91.89	120.00?	88.89
3766	76.84	75.14	97.79	73.53	91.49?	91.91	51.20?	52.17	81.08	81.08	120.00?	75.68
3771	76.74	72.09	93.94	68.18	90.43	87.12?	58.26?	39.58?		89.74	106.52?	87.50
3772	77.97	74.58	95.65	71.01	91.75?	93.48	55.81	42.59	87.50	85.00	117.65	82.05
3773 ¹	88.17	70.41	79.87	62.42	91.81	85.23?	48.03?	47.73	82.50	84.62	113.73	86.49
3776 ¹	83.73	68.67	82.01	71.22	103.41	87.05	48.76	55.56	83.78	83.78	129.79	78.38
3778	85.71	75.60	88.19	65.97	91.21	84.72	53.28	43.75	87.18	87.18	120.83	82.86
3779	88.82	72.05	81.12	65.03	90.80?			55.00	81.58?	81.58?	122.73	85.29
3780 ¹	81.18	75.88	93.48	68.12	95.00	84.78	52.14	48.00	89.19	94.44	120.83	82.05

¹Omitted from the series.

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
FEMALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3781	81.93	74.10	90.44	69.12	91.30	90.44	53.66	46.00	83.78	83.78	125.53	86.11
3783	82.94	72.94	87.94	71.63	103.16	92.91	43.51	62.79	76.32	75.68	121.15	85.71
3786	83.33	70.99	85.19	67.41		87.41		42.55	83.78	83.78		82.35
3788	86.63	70.93	81.88	65.77		87.25		44.90	87.50	85.00		75.00
3789	86.25	75.00	86.96	63.77		89.13?		45.65	89.19	86.49		73.68
3790	80.59			69.34		87.59?	49.17?	48.84?	86.49	88.89	126.67	
3795	87.72	63.74	72.67	61.33	105.49	84.67	47.24	48.89	86.49	88.89	118.37	81.08
3797	85.80	76.92	89.66	68.97	98.95			59.52	81.58	83.78	114.81	78.38
3799	83.23	71.86	86.33	66.19		87.77	51.64	55.10	84.61	89.19		74.29
3800	87.10	78.71	90.37	62.22	107.95	94.07	46.46	54.55	76.32	76.32	103.64	94.29
3803	84.62	71.01	83.92	72.03		88.11	52.38	51.02?	84.62	82.05		90.91
3804 ¹	85.28	74.85	87.77	69.78	93.62	84.17	51.28	46.67	82.05	82.05	134.04	85.71
3805	82.10	70.99	86.47	66.92		88.72		52.17?	83.78	86.11		90.91
3806	786.05?			760.81?				54.35	84.62?	86.84		
3809	81.66	73.96	90.58	68.12	95.79	91.30	51.59	54.35?	77.50	77.50	117.31	
3810	80.72?	75.90	94.03?	72.39?	91.30	92.54?	49.19?	53.06	86.84	86.11	114.58?	82.35
3811	83.73	76.51	91.37	65.47		85.61		45.65?		94.74		78.95
3812	84.21	74.27	88.19	70.14		87.50		48.98	80.49	85.00		87.50
3814	84.21	73.10	86.81	65.28	89.80	86.81	48.80	42.55	82.50	84.62		87.88
3817	85.63	76.65	89.51	62.24	97.85	90.91	48.46	52.08	80.00	84.62	120.00	96.77
3822	84.12	72.94	86.71	65.03	103.53	89.51	45.31?	53.33	86.84	86.84		72.50

¹Omitted from the series.

3831	79.07	72.09	91.18	69.12	96.94	94.12	53.91	46.30	89.47	89.47	78.95
3832	78.79	70.30	89.23	66.15		93.08	46.51	46.51	86.49	88.89	83.78
3835	84.85	72.73	85.71	67.14	102.25	90.00	46.03	55.56	76.92	76.92	81.08
3843	80.35	69.94	87.05	68.35		87.05		52.17	82.50	80.95?	91.43
3845	81.71	73.17	89.55	67.16				50.00	82.05?		90.63
3847	87.35	75.30	86.21	65.52	91.30	85.52	54.03	46.00	79.49	79.49	
3850	82.25	73.96	89.93	60.43		86.33?		47.83	91.18	85.71	90.00
3870	87.82	76.28	86.86	66.42	102.38			55.81	82.05	84.62	85.71
3877	81.61	65.52	80.28	66.20	104.26			54.35	75.00	79.49	81.08
3883	81.61	70.11	85.92	61.97	95.56	87.32	50.81	47.92	91.43	85.71	86.11
3885	81.14	69.71	85.92	63.38	93.41	84.51	52.50	51.06	94.44	86.49	86.11
3893	81.40		93.33	67.86		86.43		60.00?	76.92?	78.95	
3898	82.32	76.83								75.61?	87.88
3900	81.61	70.11	85.92	67.61							93.75
3904											
3907	83.64	71.52	85.51	64.49	89.89	82.61	54.39	52.27	79.49	81.58	86.21
3908	78.41	69.89	89.13	65.22		88.41?					81.82
3915	76.00	71.43	93.98	69.92	87.10	92.48	52.03	48.98	84.62	87.18	81.25
3923	85.71	75.78	88.41	64.49	95.29	89.13	52.03?	44.68?	84.62	84.21	90.63
3924	78.24	68.24	87.22	68.42							85.29
3925	83.33	74.07	88.89	65.93		89.63	50.41	50.00	82.05	83.78	90.32
3932	81.40	77.33	95.00	67.14				52.08?	84.62	86.84	88.89
3937	81.36	69.49	85.42	69.44	87.63	87.50	53.97	49.02	87.18	89.47	75.00
3945	81.07	77.51	95.62	68.61	97.87?	89.78?	52.03?	46.81	82.50	84.62	88.89
3947	86.59	76.83	88.73	64.79	89.25			46.94	82.05	84.21?	83.33
3949	85.12	72.02	84.62	63.64				61.36?	81.58		81.08
3952	74.43	71.02	95.42	67.94	96.77?	88.55	56.90	47.83	86.11	88.57	82.35
3956	84.34	71.08	84.29	65.00	98.86?	85.00?	52.10?	50.00	81.58	83.78	84.38
3957	85.21?	72.78	85.42?	68.06?		89.58?		48.08	84.21	84.21	96.88
3961	77.78	66.67	85.71	67.86	97.98	89.29	55.20	51.06	82.50	84.62	79.41
3965	88.34	69.33	78.47	62.50	102.33	86.81	49.60		86.49	119.23	80.00
										125.53	

TABLE 67 (Continued)
INDIVIDUAL RECORDS—INDICES
FEMALE

Catalogue Number	Length-Breadth	Length-Height	Breadth-Height	Fronto-Parietal	Alveolar Projection	Cranio-Facial	Upper Facial	Nasal	Orbital		Maxillo-Alveolar	Foramen Magnum
									r	l		
3967	85.80	71.60	83.45	64.03	102.15			61.36	83.78	81.08	124.00	83.33
3969	76.67	69.44	90.58	65.22	98.95	86.96	56.67	46.00	89.47	89.19	111.76?	
3970	86.14	78.31	90.91	70.63		91.61	48.85?	48.00	85.00	82.50		86.11
3972	85.63	75.00	87.59	64.23	95.35?						125.00	84.85
3975	78.11	73.96	94.70	66.67	100.00	90.15?	58.82?	46.00?		89.47		87.88
3984	86.47			65.99				44.00		92.31		
3990	89.81	77.71	86.52	63.12	95.35	85.82	44.63	57.14	71.79	74.36	121.28	100.00
3992	79.29	65.68	82.84	67.16		91.04		56.10	78.95	78.95	114.29?	91.67
3993	83.73	76.51	91.37	67.63	89.25	88.49	57.72	50.00	87.50	87.50	112.24	86.11
3998	79.88	68.64	85.93	71.85	97.70	90.37?	54.10?	45.83		94.44	117.65?	75.00
4002	84.76	78.05	92.09	71.22								82.86?
4004	87.72	71.93	82.00	63.33	92.22	84.67	48.03	46.81	82.05	84.62	134.78	88.89
4006	86.96	75.16	86.43	66.43	92.05?	87.86?	49.59?	51.06	86.49	84.21	135.56	90.00
4015	86.14	76.51	88.81	69.23	108.89	83.92?	53.33?	60.47	84.21	84.21	108.93?	85.29
4023	81.76	70.00	85.61	66.91		85.61	52.10	47.83	88.89	88.89	124.44?	
4024	73.89	68.33	92.48	72.18		92.48?						75.68
4027	80.00	72.94	91.18	65.44		92.65	54.76	46.94	89.74	89.74	127.08	75.00
4028	85.14	75.43	88.59	67.79	93.20	89.26?	51.13?	48.98	97.30	74.36	119.61	91.67
4032	80.36	70.83	88.15	70.37		94.81				97.37		81.08
4034	79.88	65.09	81.48	63.70	103.49			53.49	86.49	81.08	122.45	84.85
4041	87.50	76.25	87.14	65.00	92.47	88.57	50.81	52.17		86.49	126.09	90.00

4048 ¹	84.34	75.90	67.14	94.57	88.57	50.81	50.00	87.18	84.21	80.00
4049	80.92	78.03	72.86		95.00		50.00?		82.50	80.56
4050	94.19	83.23	63.70	88.76	86.99	49.61	50.00	84.21	84.21	83.78
4052	78.98	72.16	68.35	91.84	87.05	55.37	51.06	86.84	89.19	84.85
4055	82.93	76.83	63.97	94.44	88.97?	52.07?	48.89	78.38	80.56	87.88
4056 ¹	81.87	67.84	64.29	97.87	84.29	57.63	46.00	88.89	91.43	82.35
4060	83.04	63.74	76.76	102.13	89.44	44.88	54.35	81.58	81.08	90.63
4062	78.70	73.96	67.67	94.25	86.47	60.87	44.00	86.84	91.89	72.97
4067	79.21	71.35	70.21	98.02	90.78	51.56	45.83	87.18	84.62	97.30
4069	88.82	77.02	65.73		91.61		44.00	92.11	92.11	83.33
4070	81.93	73.49	67.65	96.94	89.71?	56.56?	52.08?	82.05?	84.21	86.11
4073	88.82	73.53	63.58		87.42?		50.00	75.00	77.50	85.71?
4076	80.59	72.35	67.88	92.22	89.05	51.64	47.83	77.50	82.05	91.43
4077	80.00	74.71	66.18	93.68	86.03?		44.90	81.58	84.21	84.85
4081 ¹	79.65	68.60	64.96	102.25			50.00		87.18	83.78
4083	80.12	74.27	69.34	98.95	94.89	50.00	48.89	86.84	86.84	83.33
4084 ¹	84.88	65.70	67.12		82.19		43.48?	86.11	81.08	81.08
4087	81.03	68.97	67.33		93.62	50.00?	50.00?	89.74	87.18	89.19
4088	80.92	64.74	67.86	104.17	87.86	52.85	44.00	77.50	82.05	76.32
4090	77.65	73.18	69.06	94.06	92.81	48.84	57.14	76.74	87.50	78.95
4091	85.54	69.88	67.61	100.00			45.10	83.78	78.57	85.29
4092 ¹	90.36	73.49	64.67	103.23	84.67?	50.39?	48.94	83.78	88.89	88.89
4097	84.94	78.31	68.79	93.41?	87.23	55.28	46.94	80.00	84.62	85.71
4100	86.90?	77.33	67.81?	91.84	87.67?	54.69	52.00	86.84	86.49	88.24
4105	90.75	70.52	77.71	69.43	89.81	41.84	58.33	80.95		100.00
4107	85.80	73.96	66.90	90.91	85.52	52.42	47.06	86.84	87.18	
4110	90.91	71.52	78.67	97.70	84.00	50.79	47.92	81.58	86.49	83.78
4111	81.82	73.94	66.67	90.37	89.63	48.76	52.17	79.49	81.58	77.50
4113	82.46	69.01	68.89	95.83			47.17	88.10	92.50	78.95
4116	79.29	73.96	72.39	93.55	92.54	57.26	44.23	87.18	87.18	81.08
4117 ¹	91.93	80.12	64.19	91.58	82.43	46.72	54.55	81.08	83.78	86.49

¹Omitted from the series.

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