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A STUDY OF THE PHYSICAL HEIGHT OF
THE CHUCALISSA POPULATION

by

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for

Anthropology 3381
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Chucalissa Museum

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A STUDY OF THE PHYSICAL HEIGHT OF THE CHUCALISSA POPULATION

PROBLEM: TO DETERMINE THE AVERAGE HEIGHT OF THE POPULATION, BOTH MALE AND FEMALE, OF THE MISSISSIPPIAN SITE SY1.

Method and procedure

This study is based on 77 adult skeletons which comprise the total excavations at Sy 1 through 1965. Of these, 49 were male and 28 were female. A method for determining height, devised by Trotter and Gleser and set forth in the "American Journal of Physical Anthropology," n.s., 16(1): 79-123, 1958, was used as the basis for the mathematical calculations. The length of the six long bones of the skeletons was recorded in centimeters. A calculated height based on the length of each long bone and combinations of long bones was arrived at through Trotter and Gleser's formulas as follows:

REGRESSION EQUATIONS FOR ESTIMATION OF MAXIMUM LIVING STATURE OF AMERICAN MONGOLOID

- 1.22 (femur + fibula) + 70.24
- 1.22 (femur + tibia) + 70.37
- 2.40 fibula + 80.56
- 2.39 tibia + 81.45
- 2.15 femur + 72.57
- 1.68 (humerus + ulna) + 71.18
- 1.67 (humerus + radius) + 74.83
- 2.68 humerus + 83.19
- 3.54 radius + 82.00
- 3.48 ulna + 77.45

This gave a total of ten calculated heights for each skeleton, and an average of these was accepted as the height of the individual.

The individuals are grouped into unit numbers 2, 3, 4, and 6 Sy 1, thus keeping them together in their places of excavation. These units were kept separate throughout the study, and the average height both

male and female of each unit was determined. The overall height of SY1 was calculated by taking an average of the units.

Of the seventy-seven skeletons, readings for twelve males and seven females were totally lacking due to the condition of the bones. Nineteen male and nine female skeletons have complete measurements. Because of bone conditions, some measurements had to be approximated and others omitted. Eighteen male and ten female skeletons fell into this category. The approximations are indicated by entering † over the measurement and the omissions by dashes on the calculated height charts.

The long bones were measured on an osteometric board. The measurement was made parallel to the long axis of the shaft between the longest points of the epiphyses. This measurement was made in centimeters to the closest .5 cm.

Findings

The average height of the Chucalissa male-----168.26
 The average height of the Chucalissa female----161.76

Broken down into units, the results were as follows:

UNIT NUMBER	male	female
40-2SY1 (village)	168.71	160.12
40-3SY1 (village)	167.77	161.53
40-4SY1 (Temple Md.)	173.51	167.38
40-6SY1 (village)	168.30	160.63

The above overall calculated heights exclude part of 4SY1.

This excluded part was judged to be aberrant partly on the basis of the height differential shown in the figures above. The remainder of the evidence of aberrancy is expounded below.

Interpretation of the Aberrancy Found in 4SY1

Mr. Charles Nash, director of Chucalissa museum and director of the greater part of the SY1 excavations, develops the following picture of the 4 SY1 excavation. The group of skeletons was found intruded into a layer of one and one-half to two feet of clay that overlay a mound. This clay layer was assumed to be the last mound cover added. In an area close by, under apparently the same clay layer, a burial was found containing evidence of tuberculosis of the spine. This would place the clay layer temporally post-DeSoto and thus the ash intrusion even later.

The 4SY1 group consists of twelve skeletons. Two were excluded from this study, one being a juvenile and the other too fragmented to measure. Seven of the ten remaining skeletons show charring of the bone in the areas of the feet and shins, on the ribs and on the ventral side of the vertebrae, and one at the angle of the jaw. These

skeletons also showed evidences of disarticulation before burial, and the burials were in grotesque positions. The eighth skeleton was indeterminate as to charring because of exposure and erosion of the bones before excavations. The bones on the whole are in very good condition and do not appear old. The incidence of pathology in these bones is much higher than in any other so far excavated. This pathology includes breaks that have healed, arthritis, ulcerations of the bones evidently connected with wounds and infections, and areas of bone porosity from unidentified diseases.

The remaining two skeletons in this group were judged to be Chucalissan because of their very typical extended burial position, the lack of evidence of torture, and the fact that their height corresponds closely with the average for the Chucalissa male. These last two, therefore, were included with the other SY1 groups, while the other eight were placed in a separate category.

When the total SY1 group was arranged by height on a bar graph (see Graphs III and IV), the normal curve distribution pattern was distorted. By removing the eight individuals of the 4SY1 group, the pattern became more aligned in a normal curve (see Graphs I and II). This would indicate homogeneity of the main group, and on the other hand, the alieness of the eight skeletons of the 4SY1 group. Graph V shows the two groups superimposed again showing the differential.

BIBLIOGRAPHY

Krogman, Wilton M., The Human Skeleton in Forensic Medicine, Thomas, Springfield, Ill., 1962, pg. Gleser, G. C., "A re-evaluation of estimation of stature based on measurements of stature taken during life and of long bones after death," American Journal of Physical Anthropology n.s., 16(1): 79-123, 1958.)

Note: Table 49 gives the regression formulas for American male Mongoloids. A table for female Mongoloids was not available. The formulas for males were applied to females so as to obtain a relative picture.

Female Skeletons:		Calculated Heights										2 Sy 1	
BURIAL #	HUM.	RAD.	ULNA	FEM.	TIB.	FIB.	FIB.	FEM. + JIB.	FEM. + FIB.	HUM. + RAD.	HUM. + ULNA	AVERAGE	
2Sy1-B1	158.19	158.10	159.25	158.47	159.16	156.16	158.07	156.74	157.43	157.48	157.905		
2	160.91	161.65	162.71						160.84	165.56	162.33		

Calculated average height for 2Sy1 female: 160.12

Total: 2

RIAL #	HUM.	RAD.	ULNA	FEM.	TIB.	FIB.	.IB.	TIB.	RAD.	ULNA	AVERAGE
SY1-B18	160.9	153.C	159.45	160.57	160.45	158.56	159.84	161.57	159.23	160.18	159.875
20	165.19	165.0	166.05	165.07	169.96	167.06	162.34	162.47	165.83	166.78	165.575
21	167.59	169.40	171.15	168.45	169.89	165.76	167.84	169.80	169.03	169.46	168.837
22	168.99	172.20	174.85	171.57	173.46	170.56	171.24	173.37	170.43	172.18	171.885
24	174.19	179.30	179.95	172.57					177.83	178.18	177.003
25	163.59	161.80	162.25	165.07	161.46	162.16	163.24	163.84	162.63	161.78	162.782
27	167.49			168.17	166.26		167.37				167.322
32	168.69										168.69
36	168.69	174.00		175.79	173.46	164.56	160.84	169.31	171.70		169.793
38	171.69	174.00	162.75	166.17	168.46	162.16	161.87	162.64	173.33	168.38	167.145
55		161.60	167.95		169.16						166.236
40	160.89	170.30	162.65	156.47	157.06	157.16	156.54	158.17	162.43	161.18	160.285
44	169.09	172.25	169.75	169.47	171.36	165.96	178.24	170.47	170.83	169.68	170.710
48	167.69	168.70	169.65	167.07	167.36	165.56	166.44	167.07	168.43	168.48	167.645
50	171.59	174.00	174.95	168.17	173.36	168.06	168.24	170.57	173.43	170.68	171.30
53	169.19	170.50	167.95	171.57	169.76	165.86	168.74	170.57	169.83	168.58	169.255
65											

Calculated average
height for 3Syl
male: 167.77

BURIAL #	Female Skeletons				Calculated Heights				4 Sy 1			
	HUM.	RAD.	ULNA	FEM.	TIB.	FIB.	FEM. + FIB.	FEM. + TIB.	HUM. + RAD.	HUM. + ULNA	AVERAGE	
4Sy1-B10A	168.95	168.73	167.93	166.10	163.70	166.96	167.23	166.37	169.19	168.62	167.38	

Calculated average height for 4Sy1 female: 167.38

Male Skeltons:

Calculated Heights

6 Sy 1

FEM. + FEM. HUM. + HUM.
+ FIB. TIB. RAD. ULNA +

BURIAL #	HUM.	RAD.	ULNA	FEM.	TIB.	FIB.	FIB.	TIB.	FEM.	TIB.	RAD.	ULNA	AVERAGE
6Sy1-B3	160.79	163.00	167.95	159.47	166.56			162.17	161.53	163.58	163.13		
10	164.93	168.73	167.95	167.17	172.28	166.96	167.84	170.41	166.68	166.10	167.91		
11	162.25	165.19	166.19	158.57	162.72	159.76	159.30	160.65	163.34	163.58	162.16		
13	171.63	177.58	176.63	174.70	178.26	172.96	175.16	177.73	175.03	174.50	175.42		
18	170.29	175.81	176.63	167.17	174.67	172.96	170.89	171.63	173.36	173.66	172.71		
20	171.63	172.27	173.15	171.47	175.87	170.56	172.11	174.68	172.53	172.82	172.71		
43	171.63	174.04	173.15	175.77	174.67	169.36	173.94	176.51	173.36	172.82	173.53		
45	162.25		164.45	159.65	161.53	158.56	159.30	160.65		162.74	161.14		
49	164.93										164.93		
27				169.32							169.32		
35	167.61	168.73							168.35		168.23		

Calculated average
height for 6 Sy 1
male: 168.30

Female Skeletons

Calculated Heights

6 Sy 1

BURIAL #	HUM.	RAD.	ULNA	FEM.	TIB.	FIB.	FIB.	FEM. + FIB.	FEM. + TIB.	HUM. + RAD.	HUM. + ULNA	AVERAGE
6Syl-B9	160.91		157.49	161.80	161.53			161.87			158.54	160.36
15	160.91	165.19	166.19	161.80	165.11	163.36	163.70	162.96	162.51	162.74	162.74	163.45
16	155.55	158.11	157.85	158.57	156.75	154.76	156.86	157.60	155.83	155.18	155.18	156.71
17	162.25	163.42	162.71	159.65	162.72			161.26	162.51	161.90	161.90	162.05
32				159.67								159.67
46	163.59	159.60	160.95	164.77	163.86			162.87	161.73	161.78	161.78	162.39
25	159.59	159.60	160.95	157.17	160.06	157.26	156.64	157.91	159.03	159.28	159.28	158.75
28		160.00		164.07	162.66	159.76	161.64	162.77				161.82

Calculated average height for 6Syl female 160.63

Height of Sy 1 excluding 4 Sy 1

Graph #1

MALE SKELETONS

(Height in centimeters)

157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177

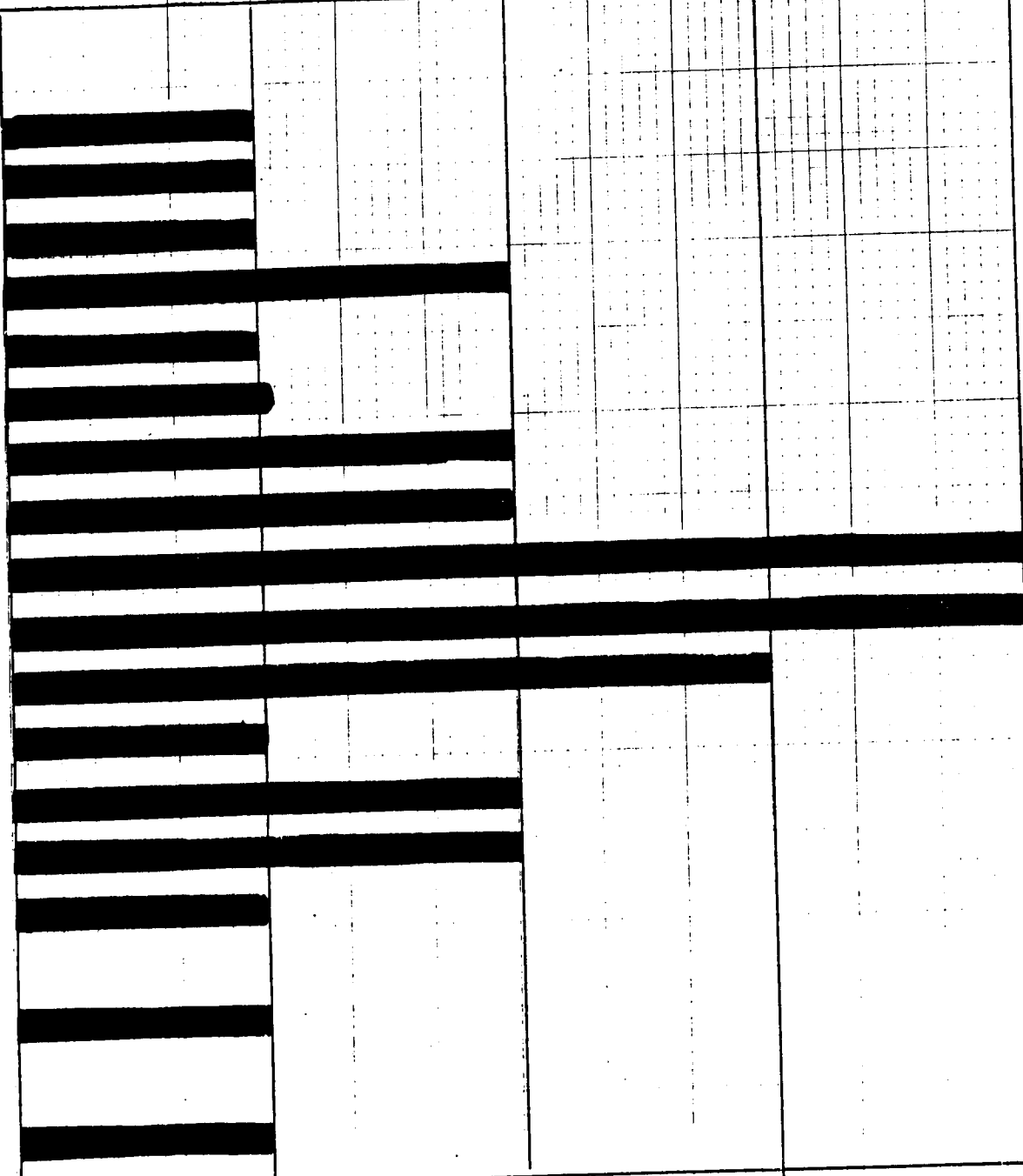
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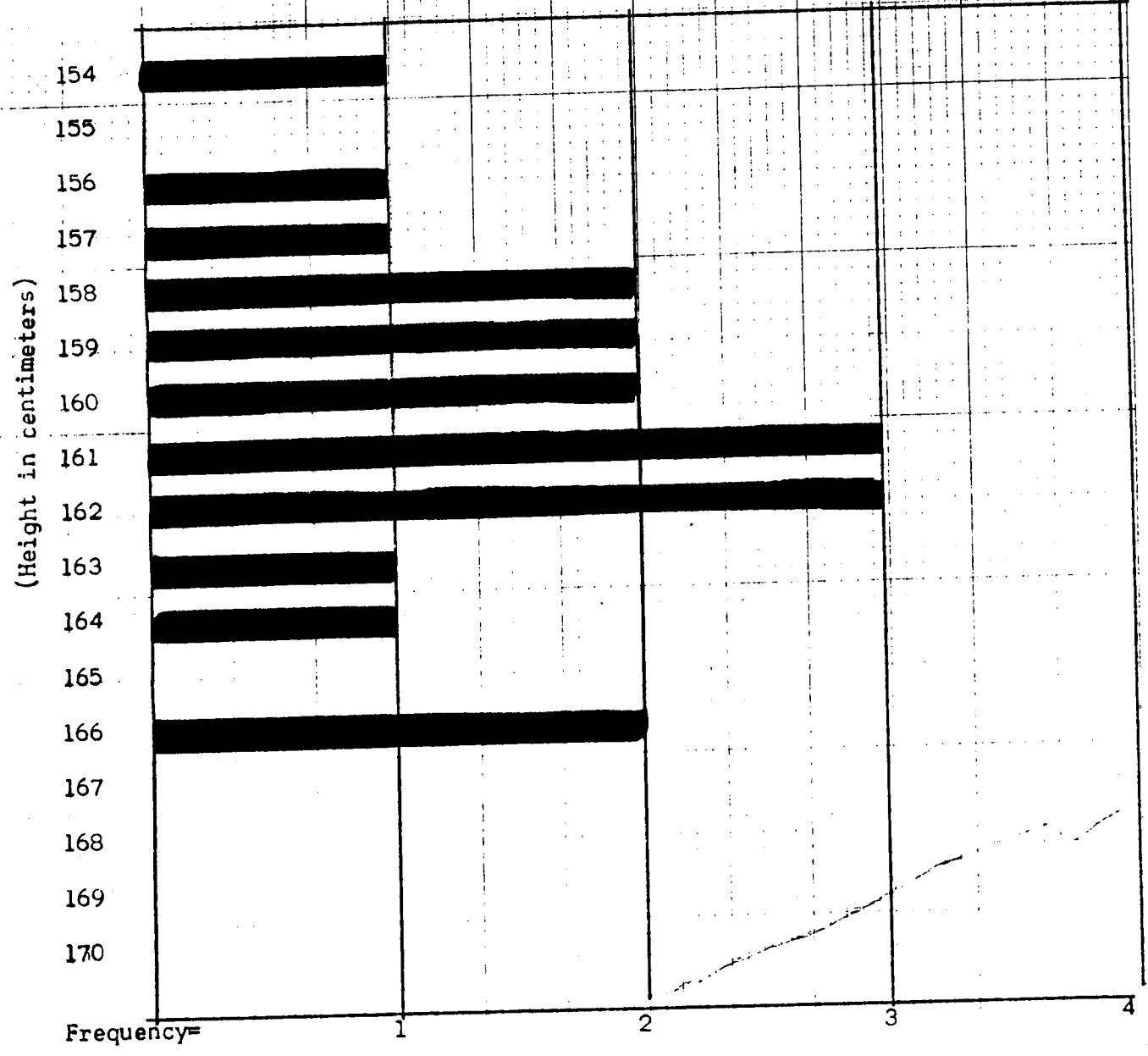
2

3

4



Height of Sy 1 excluding 4 Sy 1
FEMALE SKELETONS



U.S.A.

Height of Sy 1 ⁱⁿ excluding 4 Sy 1

Graph #3

MALE SKELETONS

(Height in centimeters)

157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177

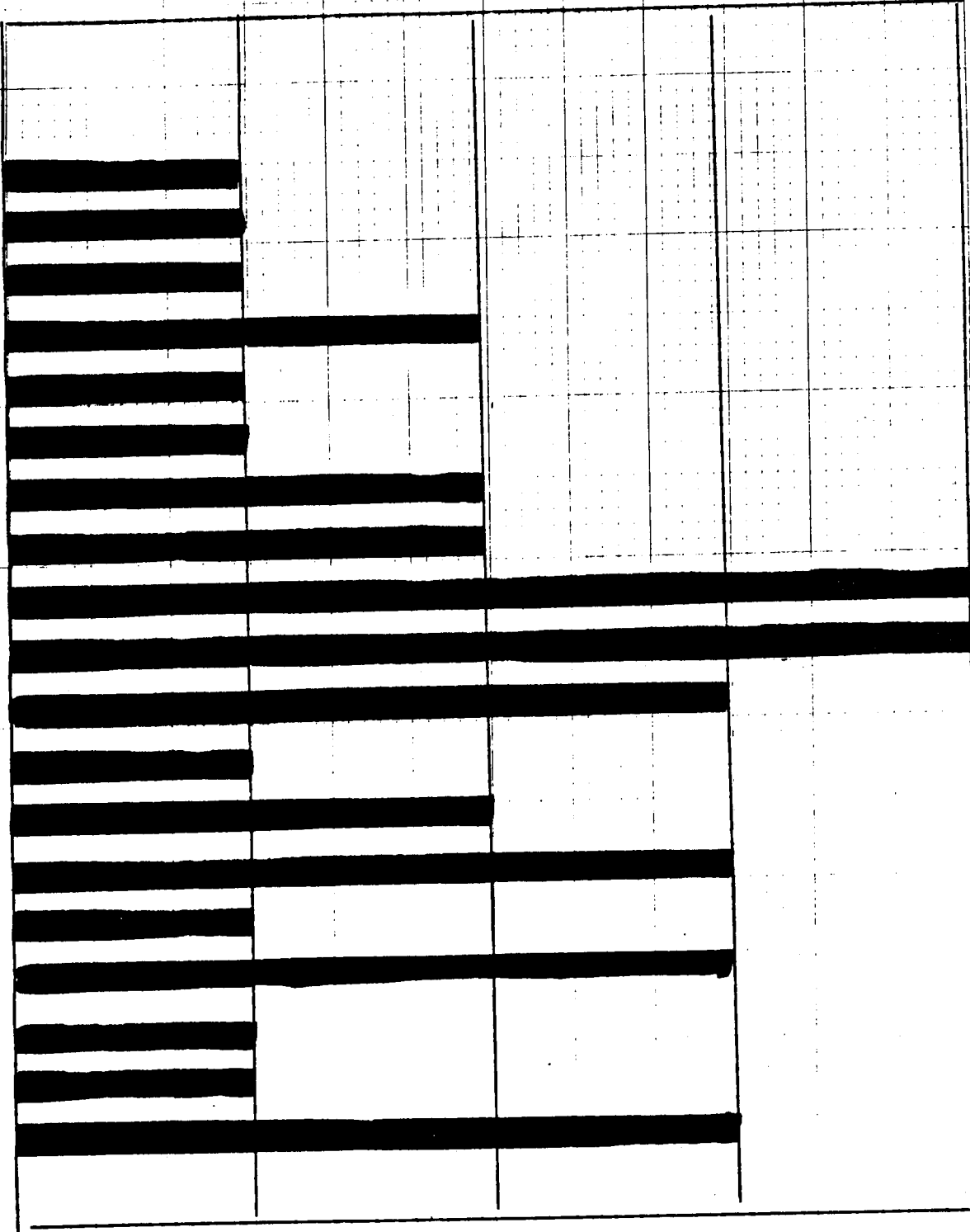
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2

3

4



Height of Sy 1 including 4 Sy 1

Graph #4

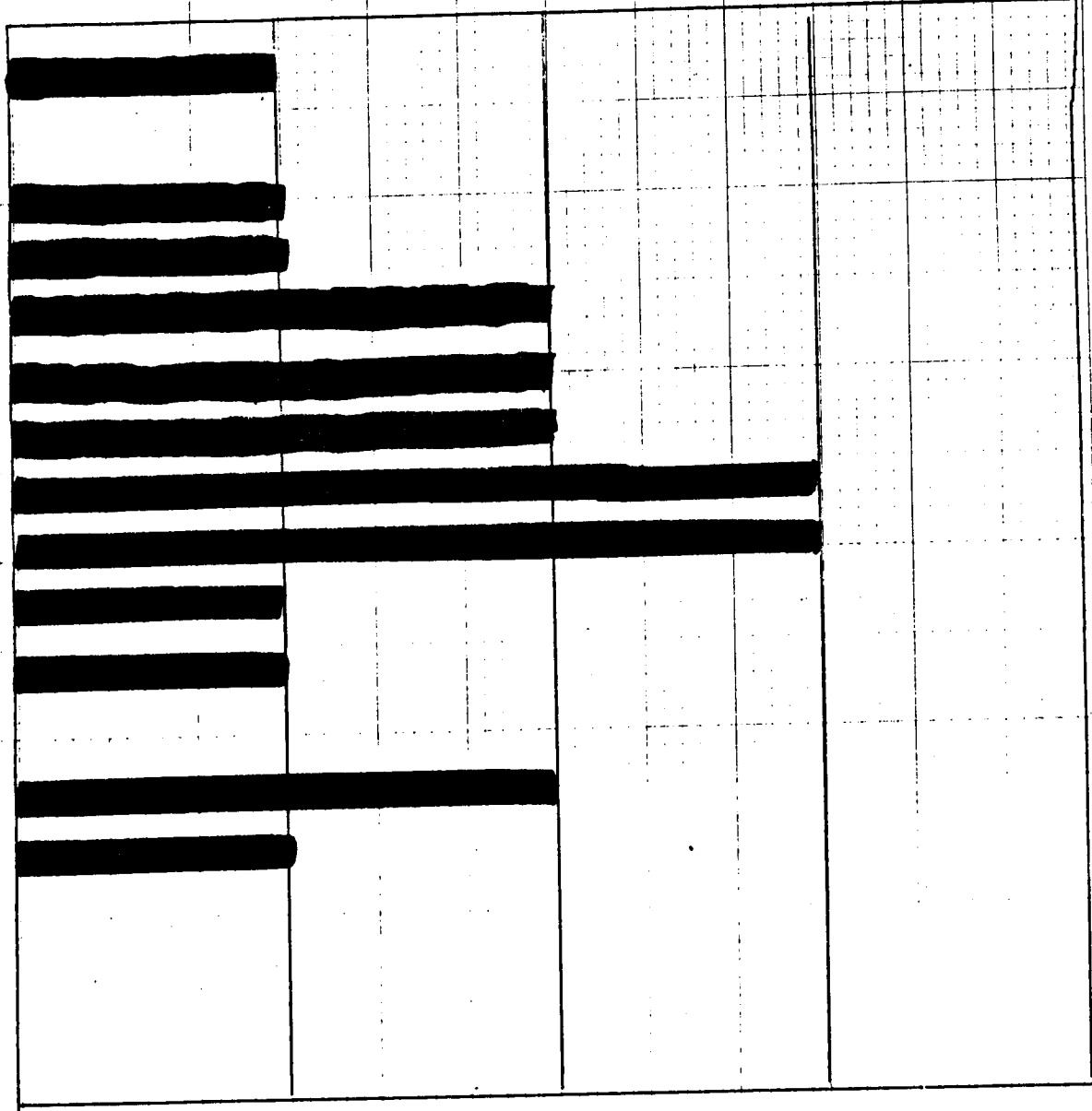
FEMALES SKELETONS

(Height in centimeters)

- 154
- 155
- 156
- 157
- 158
- 159
- 160
- 161
- 162
- 163
- 164
- 165
- 166
- 167
- 168
- 169
- 170

Frequency =

- 1
- 2
- 3
- 4



Graph 5

COMPARISON OF GROUP INCLUDING 4 Sy 1
to GROUP EXCLUDING 4 Sy 1

