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PHYSICAL AND DEMOGRAPHIC FEATURES OF TWO GROUPS IN NORTH WESTERN IRAN

INTRODUCTION

This study of some physical characteristics and demographic features of two groups of males in northwestern Iran was conducted to supplement the information on the living peoples of Iran. The authors collected the data during the summer of 1964 in association with the joint archaeological expedition to Hasanlu and Ziwiye in northwestern Iran by the University of Pennsylvania Museum, the Metropolitan Museum of Art of New York, and the Iranian Archaeological Service. Although the authors were primarily engaged in burial excavation at Hasanlu, we wish to thank Dr. Robert H. Dyson, director of the expedition, for the opportunity to measure and observe a series of living subjects. We took seventeen anthropometric measurements, six non-metrical observations, and eight demographic features on fifty-nine workmen at Hasanlu and thirty workmen at Ziwiye.

Hasanlu (a farming village of approximately 1,000 inhabitants) is located about six kilometers northeast of Naghadeh at the southern en of Lake Rezaiyeh in the province of Western Azerbaijan. Ziwiye, population 300, is located approximately 35 kilometers east of Saghez in the province of Kurdistan. The workmen at Hasanlu considered themselves Azerbaijani Turks while the workmen at Ziwiye identified themselves as Kurds.

At Hasanlu most of the workmen lived in the modern village, but a few of the workers came from nearby villages. At Ziwiye two-thirds of the group were from Gaplantu, a small village four kilometers away, and the remainder were from Ziwiye.

We collected the data to add to the present knowledge of the living peoples of Iran, to compare present populations with archaeological populations from the sites, and to present some of the demographic features of the living populations for possible archaeological and ecological interpretations. To the best of our knowledge this is the first time that anthropometric measurements have been presented for either of these two groups. The extensive work by Henry Field (1939, 1956) stopped south of the Hasanlu area of Western Azerbaijan, and the isolated high mountain community around Ziwiye has never received anthropometric coverage.

PROCEDURES

Bass made the measurements and observations in the field with Rathbun acting as recorder. Rathbun organized the data, calculated the statistics in the laboratory, and researched the literature. Mr. Abazar Sperhi, a resident of Hasanlu, acted as interpreter and helped to collect the demographic information.

The method of measurement followed standard anthropometric procedures as presented by Montagu (1960).

Each subject stood in the standard erect position with shoes removed for stature determination. Due to the lack of a complete anthropometer, we attached a metal tape to a straight pole and laid a straightedge across the subject's head to obtain the maximum height.

Sitting height was obtained with the upper two sections of a GPM anthropometer. The subject sat

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on a flat wooden box and the maximum height was taken.

The following measurements of the trunk were taken with a GPM anthropometer: bi-acromial breadth, chest breadth, chest depth, and bi-trochanteric breadth.

A GPM hinged caliper was used to obtain the following head measurements: maximum head length, maximum head breadth, minimum frontal diameter, bizygomatic breadth, bigonial breadth.

A GPM sliding caliper was used to determine the following measurements: total facial height, upper facial height, nose height, nasal breadth, mouth slit breadth, ear height.

In the laboratory the following indices were calculated: Cephalic Index, Fronto-Parietal Index, Cephalo-Facial Index, Total Face Index, Upper Face Index, and Nasal Index.

The mean, range, and standard deviation were also calculated.

MEASUREMENTS OF WORKMEN AT HASANLU AND ZIWIYE

The following discusion of the physical characteristics of these two groups of males includes only information on those subjects over sixteen years of age *(Table 1).*

TABLE 1 *Measurement and Indices of 56 Males at Hasanlu, Azerbaijan Iran*
All Measurements are in Millimeters

Measurement	Mean	Range	Standard Deviation
Stature	1639.61	1520—1780	63.34
Sitting Ht.	825.64	766—872	26.83
Shoulder Br.	365.79	335—404	16.87
Chest Breadth	271.50	238—304	16.17
Chest Depth	214.91	170—253	15.75
Hip Breadth	283.09	252—313	15.49
Head Length	191.39	177—204	5.71
Head Breadth	145.80	136—157	4.85
Min. Frontal Breadth	106.46	99—114	3.67
Bizygomatic Breadth	140.95	126—147	4.43
Bigonial Breadth	107.00	96—125	6.90
Total Face Breadth	123.54	114—136	6.04
Upper Face Breadth	73.05	65—82	3.58
Nose Height	55.45	47—61	3.31
Nose Breadth	37.32	31—45	3.30
Mouth Slit Breadth	53.30	45—61	4.08
Ear Height	63.09	56—72	4.38
Index			
Cephalic	76.23	69.54—82.20	2.90
Fronto-Parietal	73.06	66.88—78.57	2.52
Cephalo-Facial	93.28	87.50—101.49	2.85
Total Face	90.93	78.87—97.84	4.71
Upper Face	53.82	47.86—58.65	3.02
Nasal	67.84	55.17—84.91	6.68

STATISTICAL ANALYSES OF HASANLU WORKMEN

Although some of the measurements and indices indicate some degree of variability, the majority indicate a fairly high degree of homogeneity among the sample. We felt that standard deviation provided sufficient indication of variability so percentages were not calculated.

Although the mean value for the stature of this group falls in the medium range (164 cm or 5′4 5/8″), the standard deviation indicates considerable variability with several individuals on both the short (152 cm or 5′0″) and tall (178 cm or 5′10 1/8″) ends of the continuum.

The variability was small for the cephalic index and the maximum length and breadth of the cranium. The length fell in the long range, while the breadth was more intermediate with the resulting mesocephaly for the majority of the Hasanlu workmen. There was a small degree of variability with a slight trend toward dolichocephaly. Only five individuals in the group were brachycephalic. The mean fronto-parietal index of the group was 73.06 with a low degree of variability. The mean fell in the medium range.

The cephalo-facial index represents the relative width of the face in comparison to the width of the skull. The fairly high value of the mean (93.28) for the workmen of Hasanlu showed that the face was relatively wide. There were even a few instances when the bizygomatic width was greater than the maximum head breadth.

The total face index (90.93) was also in the long or leptoprosopic range, but the upper facial index was in the middle or mesene classification which indicated a deep jaw. The total face length was moderately long, while the breadth was in the wide range.

The nasal index for the workmen at Hasanlu was in the mesorrhine range, with some variability. The index showed fluctuations between the narrow and medium ranges. In fact, the mean (67.84) was on the border-line between these two classifications.

In summary then, this group of Turki speaking Iranians in Western Azerbaijan were of medium height (5′4 5/8″) and varied considerably in body measurements. The majority of the men were medium headed with a slight trend toward long headedness. The fronto-parietal index was in the medium rang, the indication is of a deep jaw. The nasal index fluctuated between narrow and medium, but the majority were on the lower border of the medium range *(Table 2).*

STATISTICAL ANALYSES OF ZIWIYE WORKMEN

The physical measurements and indices of this group of Kurdish villagers in Western Iran indicate a fair degree of physical homogeneity. There was some variability, especially in stature and measurements of the upper trunk. There was a slight trend for these individuals to be taller than those at Hasanlu. Also, these individuals seemed to be more robust in body build than the sample at Hasanlu.

TABLE 2 *Measurements and Indices of 30 Males at Ziwiye, Kurdistan, Iran*

Measurement	Mean	Range	Standard Deviation
Stature	1648.63	1575—1777	51.53
Sitting Ht.	846.20	790—903	30.18
Shoulder Br.	375.43	340—417	17.50
Chest Breadth	275.63	252—299	14.07
Chest Depth	221.63	197—249	12.63
Hip Breadth	289.00	259—322	15.53
Head Length	180.67	166—189	7.05
Head Breadth	156.10	144—166	5.37
Min. Frontal Breadth	109.53	101—119	4.88
Bizygomatic Breadth	138.97	130—153	5.80
Bigonial Breadth	107.70	94—120	7.32
Total Face Breadth	128.00	111—142	8.40
Upper Face Breadth	76.03	67—83	5.46
Nose Height	56.70	50—63	3.86
Nose Breadth	38.00	32—41	2.58
Mouth Slit Breadth	53.77	45—62	4.37
Ear Height	62.37	55—72	4.10
Index			
Cephalic	86.52	75.00— 95.18	4.23
Fronto-Parietal,	70.19	66.46— 73.83	2.70
Cephalo-Facial	89.06	80.75— 95,97	3.16
Total Face	92.13	82.22—101.50	5.06
Upper Face	54.74	49.32— 63.91	3.64
Nasal	67.41	60.00— 77.36	7.28

The majority of these subjects were hyperbrachycephalic, but a large proportion were brachycephalic. Only one individual was dolichocephalic and he was in the upper range near the mesocephalic boundary. Six individuals had cephalic indices over 90.00. The primary reason for this distribution can be attributed to occipital flattening, which as an informant indicates was from cradle flattening during infancy.

There was a high degree of uniformity for the fronto-parietal index with a mean value of 70.19. This expression of the relative shape of the skull fell in the lower ranges, and indicated a fairly narrow forehead in comparison with the maximum cranial breadth which had been influenced by the occipital flattening.

The cephalo facial index (89.06) indicated a fairly wide face in comparison to the skull. The bizygomatic diameter was also in the wide range. The total facial index represented a long face and the upper facial index (54.74) indicated a leptene face.

The nasal index for the majority of the subjects fell in the mesorrhine or medium category. The mean of 67.41 was on the lower border of this category and indicated a trend toward narrow noses.

In summary, this group of Kurdish villagers in Western Iran represented a fairly homogenous population. The majority of the group were in the medium stature range with a trend toward tallness. There was considerable individual variation in the trunk measurements, but in general the subjects were robust. The cranial indices for this group fell

TABLE 3 *Comparison of Adult Males from Hasanlu and Ziwiye with Other Groups in Iran*

Measurement	Hasanlu	Ziwiye	Kurds	Lurs – k	Lurs – p	Bakhtiari	Yezd.	Kinareh	Jews
Stature**	163.96	164.86	167.25	163.95	168.63	162.24	164.79	165.5	164.94
Sitting Ht.**	82.56	84.62	84.75	77.07	89.11	85.51	79.66	81.97	80.84
Head Length	191.39	180.67	186.10	188.02	189.99	183.65	192.51	187.02	186.06
Head Breadth	145.80	156.10	145.05	143.55	140.68	149.65	141.55	142.96	144.28
Min. Frontal Breadth	106.46	109.53	114.05	114.05	114.50	115.14	112.78	112.14	111.90
Bizygomatic Breadth	135.95	138.97	136.30	137.60	134.70	138.24	134.50	133.35	134.20
Bigonial Breadth	107.00	107.70	114.45	109.30	105.42	110.96	109.58	107.78	107.86
Total Face Breadth	123.54	128.00	128.85	124.40	126.40	123.70	121.00	122.40	123.45
Upper Face Breadth	73.05	76.03	76.40	73.45	78.35	73.58	69.60	71.75	72.40
Nose Height	55.45	56.70	56.40	55.45	62.22	55.19	51.22	51.66	53.82
Nose Breadth	37.32	38.00	36.60	35.70	35.75	37.10	32.84	32.81	34.19
Ear Height	63.09	62.37	63.35	59.70	57.18	58.90	58.70	59.54	58.98
Cephalic Index	76.23	86.52	78.65	76.49	74.25	81.65	73.50	76.44	77.43
Fronto-Parietal Index	73.06	70.19	78.85	79.85	81.19	77.14	79.99	78.64	77.77
Cephalo-Facial Index	93.28	89.06	94.25	95.70	95.75*	92.47	95.02*	93.28*	93.01
Total Face Index	90.93	92.13	94.65	90.75	93.85	89.75	90.15	91.95	92.30
Upper Face Index	53.82	54.74	55.90	52.85	58.43	53.28	51.83	53.81	54.11
Nasal Index	67.84	67.41	64.09	64.95	57.42	67.65	64.62	64.54	63.86

* *Computed from the means*
** *Stature and Sitting Height in centimeters, all other measurements in millimeters*

decidedly in the brachycephalic and hyperbrachycephalic classification which is attributable to occipital deformation through cradle board flattening during infancy. Most individuals exhibited a fairly narrow forehead and a long face. An examination of the nasal indices revealed a borderline distribution between narrow and medium nasal shape *(Table 3).*

COMPARISON OF SUBJECTS FROM HASANLU AND ZIWIYE WITH OTHER LIVING GROUPS IN IRAN

The comparative data on other living groups in Iran were gleaned from work by Henry Field (1939, 1956, 1961) who has carried out the most extensive investigations in this area. Although Field has made extensive contributions, there are many groups in Iran that have not been investigated and research in this area will add to our understanding of the racial mosaic and historical developments in the Middle East. To the best of our knowledge, there is no current anthropometric research dealing with living groups in Iran. An extensive survey would have considerable value.

In this comparative section we have omitted trunk diameters due to the lack of comparative materials. In our samples, the Kurds at Ziwiye were consistently larger than the Hasanlu series in body dimensions. This might be a racial feature, an adaptation to the mountainous region, nutritional status, or critical ratio statistical variation.

The groups that are used for comparison are located in central and western Iran. The means for the Kurds came from extensive investigations by Field in Kurdistan. Two groups of Lur tribesmen were included. One group ($Lurs_k$) were from the Khurramabad area in the province of Luristan, and the other group ($Lurs_p$) were from the Pusth-i-kuh region in the province of Kermanshah on the Iraqi border. These subjects were measured in Bagdad where they were working as porters. The Bakhtiari tribesmen were measured in the foothills and valleys of the Zagros mountains between Dezful and Isfahan. Two groups of villagers in the central plateau region were also included. Yezdikhast is located between Isfahan and Abadeh. Kinereh is a village near Persepolis, northeast of Shiraz in Fars province. A group of Isfahani Jews was also included (Field 1939, 1956, 1961).

The Kurds at Ziwiye were generally of medium stature, but there was a tendency for some tall individuals. There was also a range in the stature of the workmen at Hasanlu, but most were in the medium range. In comparison with the other groups in Iran, both Hasanlu and Ziwiye fell in the middle area. Field (1939: 393) found the tallest populations in Western Iran and suggested that stature was a racially significant difference. The Kurdish sample from Ziwiye closely approximated the sitting height of the Kurds measured by Field. The Turks from Hasanlu were in the middle ranges for this measurement.

In this series of nine groups, the villagers of Hasanlu had longer heads, while the Kurds from Ziwiye had the shortest. The Kurds from Ziwiye had the broadest heads and most of the subjects from Hasanlu were intermediate between the two extremes. The minimum frontal diameter was narrowest for the Hasanlu group, and the Kurds from Ziwiye were near the lower range.

Face width, as represented by the bizygomatic measurement, was widest for the Ziwiye Kurds. The facial width for the workmen at Hasanlu was intermediate in this series with a tendency toward greater width. There did not seem to be a great amount of variation among the groups.

The total face length was greatest for the Kurds

measured by field and was closely approximated by the Kurds at Ziwiye. The workmen from Hasanlu were closest to the Bakhtiari tribesmen and the Jews of Isfahan who were intermediate for this series. The upper faces of the Kurds that Field measured and from Ziwiye were also longer than the other groups, and the workmen of Hasanlu were in the middle ranges.

There was a tendency for the nose height of the subjects from Hasanlu and Ziwiye to be long. Groups from the central plateau region generally had shorter noses than those groups in the western areas. Nose breadth was also greater for those groups living in the western areas of Iran. The Kurds from Ziwiye had the widest noses and were closely followed by the groups from Hasanlu. Narrowest noses were found among the villagers of central Iran.

The mean cephalic index for this series of living peoples in Iran ranged from dolichocephalic to hyperbrachycephalic. Five groups (Hasanlu, Kurds, Lurs of Khorramabad, Kinareh, and the Jews of Isfahan) were primarily in the mesocephalic category. The Bakhtiari were brachycephalic and the Kurds from Ziwiye were hyperbrachycephalic. For the entire series, a trend toward mesocephaly can be detected.

The individuals from Hasanlu and Ziwiye show the narrowest foreheads in comparison with the maximum breadth. The other groups were fairly comparable for this index. The greater breadth of the skulls of the Ziwiye Kurds would strongly influence this index and the cranio-facial ratio.

The total facial index for these Iranian groups falls in the long or leptoprosopic range. The Kurds from Ziwiye had a tendency for slightly wider faces. There was some variation for all the groups between the medium and long ranges. The upper facial index, however, indicates that the majority of the groups were in the middle or mesene category.

The nasal index indicates that most of these groups had noses that were narrow or medium. Six of the groups were definitely in the leptorrhine or narrow category, while three of the groups were in the mesorrhine or medium category. Most of those groups in the mesorrhine category were on the lower border and showed a strong tendency for narrow noses. The workmen from Hasanlu and Ziwiye had the widest noses of this series.

NONMETRICAL OBSERVATIONS

Although the authors had not previously devised a research program to detect genetic traits and limb dominance, we recorded these features. We hope that this type of information will prove useful for comparison with populations in Southwest Asia in the future.

We ascertained aspects of limb dominance by asking the subject to perform three tasks. First, he was asked to fold his arms in front of his chest. The uppermost arm in this position was considered to be dominant (elbow dominance). Secondly, we asked him to clap his hands together. Again, the uppermost hand was considered to be dominant (wrist dominance). In some cases neither hand was uppermost and the individual was classed as ambidextrous for this feature. Thirdly, the subject was asked to clasp his hands together with the fingers interlocking (finger dominance). According to Montagu (1960: 586) the interlocking of fingers with the left thumb over the right thumb is due to a dominant gene F, and placing the right thumb over the left is due to a recessive gene F. Methodology, morphological variation, and relative limb dominance has been discussed by Collins (1961). Merrell (1957) has investigated the inheritance mechanisms of handedness and reviewed earlier works.

In Iran handedness in general may be influenced by the cultural factor of the left hand being considered unclean. Since the left hand is used for cleansing after defecation, its use for other purposes is strongly discouraged.

We recorded the ability of the subject to roll the sides of the tongue upward with the mouth open. According to Montagu (1960:585) "The ability to roll the tongue into a U-shape when the mouth is open is due to a dominant gene R." Hirschhorn (1970) suggests that learning and imitation may play a role in tongue manipulations.

The presence or absence and the distribution of mid-phalangeal hair was also recorded. We examined the fingers with a hand lens to detect the presence of hair. The other feature recorded was the maximum toe length which is supposedly a genetic factor controlled by a single gene.

LIMB DOMINANCE

Freire-Maia et al. (1958, 1960) have summarized different family and frequency studies of hand clasping and conclude that there is evidence for partial genetic control of this trait. They have also detected significant frequency differences between racial groups with frequencies of right hand claspers: about 69 % for Negroes and 55 % for Caucasians. The right-left distribution for all populations studied was shown to deviate significantly from chance distribution.

For the groups studied in Iran in this paper, the dominance of the right hand in clasping was higher than the left. The Hasanlu group showed a close approximation of the distribution for Caucasians found by Freire-Maia et al. (1958) and by Lai and Walsh (1965). The dominance of the right hand in clasping was considerably higher for the men at Ziwiye (63 %), and in fact approached the distribution found for Negroid populations by Freire-Maia et al. and for Australian Aborigines, Filipinos, and New Guinea natives as found by Lai and Walsh. The right-left distribution of hand clasping at Hasanlu and Ziwiye concurs with findings that some factor besides chance determines the type of hand clasping. Lai and Walsh (1965) suggest that habit rather than genetic constitution determines the pattern for an individual since they found population differences but no familial associations or sex differences in seven ethnic groups.

TABLE 4
Limb Dominance at Hasanlu and Ziwiye, Iran

	Hasanlu			Ziwiye		
	R.	L.	Ambi.	R.	L.	Ambi.
	N	N	N	N	N	N
Arm Cross	26 (43 %)	34 (57 %)				
Hand Clap	49 (82 %)	6 (10 %)	5 (6 %)	18 (60 %)	4 (13 %)	8 (27 %)
Fingers Interlocked	32 (53 %)	28 (47 %)		19 (63 %)	11 (37 %)	

Arm folding has also been investigated by Freire-Maia et al. (1960) who suggest a partial genetic control for this feature. Their data from different racial groups have shown that right arm folders usually occur in a frequency of about 40 %. The distribution at Hasanlu (43 %) for right arm dominance is very close to the general distribution for other groups. The population at Ziwiye however, revealed an exception with a distribution of 67 % of right arm folders. Freire-Maia et al. (1960) also found an exception from the general frequency distribution among Russian immigrants to Brazil with a right arm folding frequency of 90 % in both sexes.

MID-PHALANGEAL HAIR

Saldanha and Guinsburg (1961) studied the distribution and inheritance of mid-phalangeal hair in a Brazilian population and reviewed the findings of other researchers. They found that the frequency of the occurrence of mid-phalangeal hair varied from 21.6 % to 98.0 % in different populations. Although the absence of hair on the fingers seems to be recessive, exceptions to the rule and differences due to age and sex (Garn, 1951) have been reported.

In the conclusion of their article Saldanha and Guinsburg (1961: 247) noted that the range of individuals without mid-phalangeal hair varied from 20 to 30 % among North Europeans; among the Mediterranean, from 30 to 50 %. Among the Japanese, American Indians and Negroes, the figures varied from about 60 to 90 %.

In their review of groups studied it was shown that the frequency of the occurrence of mid-phalangeal hair varied with sex and age groupings. The heterogeneity of different populations could be from other factors such as sampling, environmental conditions, and age distribution. It was felt that male hormone rates might be a main factor. Differences in the frequencies for the right and left hand were also detected with the right hand tending to have a higher frequency for greater phalangeal pilosity.

The study of mid-phalangeal hair at Hasanlu and Ziwiye supports the work of Saldanha and Guinsburg (1961), Setty (1966), and other investigators. The absence of mid-phalangeal hair among the subjects at Hasanlu (N-23: 30 %) falls in the general distribution detected for North Europeans. The Kurds at Ziwiye with a greater frequency of absence (N-37: 40 %) seem to be closer to the distribution for Mediterranean populations.

Since we had no female subjects, the sexual dimorphism of this trait could not be studied. In our sample, significant variation for age was not discernable.

TABLE 5
Mid-phalangeal Hair at Hasanlu and Ziwiye, Iran

	Hasanlu (N = 60)	Ziwiye (N = 30)
Left Hand		
None	18 (30 %)	12 (40 %)
Third	25 (42 %)	14 (47 %)
Fourth	40 (67 %)	18 (60 %)
Fifth	14 (23 %)	11 (37 %)
Right Hand		
None	14 (23 %)	11 (37 %)
Third	24 (40 %)	19 (63 %)
Fourth	45 (75 %)	17 (57 %)
Fifth	15 (25 %)	9 (30 %)

The subjects at Hasanlu and Ziwiye followed the general trend for greater mid-phalangeal pilosity on the right hand, although the difference was relatively small. Both groups also followed the seemingly universal frequency order for the types of fingers with mid-phalangeal hair (IV, III, V). The only exception was found among the Kurds at Ziwiye with a slightly higher frequency for hair on the third finger on the right hand.

Although Hirschhorn (1970) suggests that learning and imitation may play a role in tongue manipulations, only a slight difference in ability is indicated by our data from Hasanlu and Ziwiye. The differences in maximum toe length do not appear to be significant. Comparative data of this sort were not available for other groups in Iran.

DEMOGRAPHIC AND SOCIAL FEATURES OF THE WORKMEN FROM HASANLU AND ZIWIYE, IRAN

While recording the physical data on the workmen from these two sites, we felt that certain

TABLE 6
Tongue Roll and Toe Length at Hasanlu and Ziwiye, Iran

	Hasanlu			Ziwiye		
	Yes	No		Yes	No	
	N	N	N	N	N	N
Tongue Roll	27 (45 %)	33 (55 %)		15 (50 %)	15 (50 %)	
Maximum Toe Length	1	2	1 = 2	1	2	1 = 2
	30 (50 %)	15 (25 %)	12 (25 %)	15 (50 %)	5 (17 %)	10 (33 %)

demographic and social data would help round out the picture of the subjects. We hope that this data will be relevant to certain archaeological problems such as house size, family size, birth rate, etc.

Hasanlu

The workmen at Hasanlu came primarily from the present village of Hasanlu at the foot of the ancient citadel. This village is primarily agricultural. The major crops in the area were wheat, both irrigated and dry farming, grapes, and gardens for vegetables and melons. The workmen were drawn from the male population that was not entirely occupied with agricultural activities.

Most of the workmen tended to be in the younger age brackets. Life expectancy in this area of the Zagros mountains is much less than in the United States. In addition to a high infant mortality rate a peasant is considered old at 40 and few live past 50—60. The average age for our sample was thirty. Due to the lack of extensive records, there is probably some error in determining exact age. Of the fifty-four individuals who furnished complete information, nineteen (35 %) were single, and thirty-five (65 %) were or had been married. Four divorces were reported, and four individuals had married more than once. It was not reported if the marriages were polygamous or serial. Since the workmen were from the lower economic stratum of village society, it is doubtful if they could afford more than one wife at a time.

Information about house size and the number of people living in it was taken to apply the archaeological problem of estimating dwelling units and estimating the population from site size. The subjects were asked to report the number of people (both adults and children) that lived in their house. The number of rooms in the house was to include living, sleeping, storage, and kitchen areas. In reporting about the houses, the areas for straw and animal storage and stables were to be excluded.

On the average six people lived in one house at Hasanlu. The average house included 2.38 rooms with a range from one to five rooms. In many instances it was evident that more than one nuclear family was living in the same house. The younger individuals tended to live in the same house with their parents.

For the thirty-five men who had been married, 145 births were reported. Of these 145 births, 93 children (64.14 %) were living and 52 (35.86 %) were dead at the time of the survey. The average number of births for each marriage was 4.14 with an average of 2.66 children living and 1.48 dead. The number of births for this sample of married males ranged from one to nine.

The degree of mobility among the population was investigated by inquiring about place of birth and the place of furthest travel excluding armed service. Twenty-six subjects (44 %) were born in Hasanlu and still resided there, nineteen (32 %) were from villages within a five kilometer radius. Two individuals (3 %) had been born in Marageh, a large town 147 kilometers away, and one (2 %) had been born in Naghadeh, the nearest market town. Eleven individuals (19 %) came from other villages in the area.

Of the fifty-seven subjects who reported on travel, nineteen (33 %) had traveled to Rezaiyeh, the provincial capital. Eleven persons (19 %) had traveled no further than Naghadeh, the market town about ten kilometers away. Five individuals (9 %) had been to Marageh, another large town in the province. Each of the following towns had been visited by at least two individuals: Mahabad, Mashah, Tabriz, Tehran, Saqiz and Shahpoor. Two individuals had been to other smaller towns in the province and seven did not report.

Ziwiye

At Ziwiye in Kurdistan, the workmen were also from an agricultural village. The more mountainous terrain limited the type of agriculture, but wheat garden crops, and sheep were the main products. Again, the workmen were young with an average age of 29 years and a range from 15 to 70. A major problem here, as at Hasanlu, is that no birth records have been kept and most people do not know how old they are. For adults, ages were usually given in multiples of five. For children it was more of a relative comparison. Information indicated that X was so tall when Y was born or that X and Y remembered when Z was born. Half of the group (15) had been married and half were single. In this group one man, the head man or kad-khoda of Ziwiye, had three wives. The rest of the married men had only one living wife.

Of the fifteen men who had been married sixty-one births were reported. Of this number of births, 37 (60.65 %) of the children were living and 24 (39.35 %) had died. The average number of births per married man was 4.7 with 2.85 children living and 1.85 dead at the time of this survey.

The marriage pattern at Hasanlu was com-

parable to that found in a survey of agricultural villages southwest of Tehran in 1950 by Mashayekhi, Mead and Hayes (1953). They reported an average of 38.6 % of the men aged 15 or over 45 as single and 59.9 % as married. The averages at Hasanlu, 35 % single and 65 % married, were comparable. At Naddafiah village in Khusistan Salmanzadeh (1969) found that 35 out of 121 men got married before the age of 20, whereas 77 out of 137 women married before reaching the age of 20. The divorce rate at Hasanlu (6.7 %) was higher than that reported by the above authors. The validity of the figures for comparison with the workmen at Ziwiye is tenuous because of small sample size.

The infant mortality rate at Hasanlu (358.6 per 1000 live births) and at Ziwiye (393.4 per 1000 live births) was considerably higher than that found by Mashayekhi, Mead and Hayes for agricultural villages in the central plateau region (216.5 per 1000 live births). This difference might be explained by the greater isolation and lower standard of living for the villagers at Hasanlu and Ziwiye, or by our small sample size. Salmanzadeh (1969: 9) found that in a Khuzistan village more than half of the deaths in the prior 10 years had been children less than six years old. The birth rate at Hasanlu or Ziwiye could not be estimated because of lack of information on the total population.

The average number of people living in the houses of the workmen was 5.4 and the average size of the house was 4.4 rooms. Although the average number of people in each household was smaller than at Hasanlu, the number of rooms in the house was greater. There is no apparent explanation for the difference in house size. The majority of the workmen (21) were born in Gaplantu and still lived there. Nine of the workmen came from other villages in the area. The amount of travel for this group was not reported.

SUMMARY

The study of the physical characteristics of these two groups in Western Iran has supplemented the information available on living groups in Iran. Both the Turki workmen at Hasanlu and the Kurds at Ziwiye fall within the already known physical types of populations in central and western Iran. The men show racial affinities to the Mediterranean sub-race and the Iranian Plateau type. Although the body measurements varied considerably, the measurements and indices on the skull indicated a fairly homogeneous population. The striking departure from the general trends in the area was the hyperbrachycephaly in the Kurds at Ziwiye caused by occipital flattening during childhood.

In general, both groups were of medium stature and had fairly long faces. The modern populations in Iran tend to be dolichocephalic or mesocephalic and the workmen at Hasanlu fit this pattern. The faces of most groups tend to be long with a tendency toward long upper faces. The noses of the two groups in western Iran fit the general pattern of other living groups in Iran which tend to be narrow or on the lower border of the medium range.

The non-metrical observations of the workmen at Hasanlu and Ziwiye revealed similarities with other Caucasoid groups and especially with the Mediterranean sub-type. The Hasanlu group closely approximated findings for Caucasoid groups in hand clasping, while the Kurds at Ziwiye approached the distribution of Negroid groups in the dominance of the right hand in hand clasping. The Ziwiye group was also distinctive with a higher dominance for right limb dominance in arm folding.

The occurrence of mid-phalangeal hair and its distribution on the fingers of the subjects at Hasanlu and Ziwiye followed the general trends for Caucasoid groups. The absence of mid-phalangeal hair was closest to Northern Europeans for the Hasanlu workmen and closest to Mediterranean groups for the Kurds at Ziwiye. Both groups followed general trends for greater pilosity on the right hand and distribution of hair on the different fingers. The Kurds at Ziwiye were slightly divergent on the order of occurrence on the right hand.

The demographic data on both groups seem to approximate the average for peasant groups in Iran, although the infant mortality and divorce rates were higher than in peasant groups around Tehran. We hope that the information on house size and the number of inhabitants will be applicable in solving some archaeological problems.

BIBLIOGRAPHY

COLLINS, EMMA HAFTER, 1961: The Concept of Relative Limb Dominance, *Human Biology, Vol. 33, No. 4, pp. 293—318.*

FIELD, HENRY, 1939: Contributions to the Anthropology of Iran, *Anthropological Series, Field Museum of Natural History, Vol. 29, No. 1.*

FIELD, HENRY, 1956a: Ancient and Modern Man in Southwestern Asia, *University of Miami Press, Coral Gables, Florida.*

FIELD, HENRY, 1956b: An Anthropological Reconnaissance in the Near East, *1950. Peabody Museum Papers, Vol. 48, No. 2, pp. 27—46.*

FIELD, HENRY, 1961: Ancient and Modern Man in Southwestern Asia: *II, University of Miami Press, Coral Gables, Florida.*

FREIRE-MAIA, N., A. QUELCE-SALGADO and A. FREIRE-MAIA, 1958: Hand Clasping in Different Ethnic Groups. *Human Biology, 30: 281—291.*

FREIE-MAIA, A., N. FREIRE-MAIA and A. QUELCE-SALGADO, 1960: Genetic Analysis in Russian Immigrants, PTC Sensitivity, Finger Prints, Color Vision, Hand Clasping and Arm Folding. *American Journal of Physical Anthropology, 18: 235—240.*

GARN, S. M., 1951: Types and Distribution of the Hair in the digits of Man. In: Growth, Replacements, and Types of Hair. *Annals of New York Academy of Science, Vol. 53: 498—507.*

HIRSCHHORN, HOWARD, H., 1970: Transmission and Learning of Tongue Gymnastic Ability, *American Journal of Physical Anthropology, Vol. 3, pp. 451—454.*

LAI, L. Y. C., and R. J. WALSH, 1965: The Patterns of Hand Clasping in Different Ethnic Groups, *Human Biology, Vol. 37, No. 3, pp. 312—319.*

MASHAYEKHI, MOHAMMAD B., PAULINE A. MEAD, and GUY S. HAYES, 1953: Some Demographic Aspects of a Rural Area in Iran, *Milbank Memorial Fund Quarterly, Vol. XXXI, No. 2, pp. 149—165.*

MERRELL, DAVID J., 1957: Dominance of Eye and Hand, *Human Biology, Vol. 29, No. 4, pp. 314—328.*

MONTAGU, M. F. ASHLEY, 1960: An Introduction to Physical Anthropology, *Charles C. Thomas, Springfield, Illinois.*

SALDANHA, P. H., and SONIA GUINSBURG, 1961: Distribution and Inheritance of Middle Phalangeal Hair in a White Population of Saõ Paulo, Brazil. *Human Biology, Vol. 33, No. 3, pp. 237—249.*

SALMANZADEH, CYRUS, 1969: Social Survey of Naddafiach Village, *Jundi Shapur University, College of Agriculture, Ahwaz, Iran.*

SETTY, LAUREL RAYMOND, 1966: A Comparative Study of the Distribution of Hair on the Hand and the Foot of White and Negro Males, *American Journal of Physical Anthropology, Vol. 25, pp. 131—138.*

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